SPONS'

HOUSEHOLD

MANUAL

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TRANSCRIBER'S NOTE

Footnote anchors are denoted by [number], and the footnotes have been placed at the end of the book. There are only 3 in this book.

Quantities are separated from the unit by a space, for example '3 ft.' or '12½ lb.' Some quantities had a linking - such as '12½-lb.' For consistency this - has been removed in the etext.

Numerous minor changes to the text are noted at the end of the book.

SPONS'

HOUSEHOLD MANUAL:

A TREASURY OF

DOMESTIC RECEIPTS

And Guide for

HOME MANAGEMENT.



London:
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1894

PREFACE.



Time was when the foremost aim and ambition of the English housewife was to gain a full knowledge of her own duties and of the duties of her servants. In those days, bread was home-baked, butter home-made, beer home-brewed, gowns home-sewn, to a far greater extent than now.

With the advance of education, there is much reason to fear that the essentially domestic part of the training of our daughters is being more and more neglected. Yet what can be more important for the comfort and welfare of the household than an appreciation of their needs and an ability to furnish them. Accomplishments, all very good in their way, must, to the true housewife, be secondary to all that concerns the health, the feeding, the clothing, the housing of those under her care.

And what a range of knowledge this implies,—from sanitary engineering to patching a garment, from bandaging a wound to keeping the frost out of water pipes. It may safely be said that the mistress of a family is called upon to exercise an amount of skill and learning in her daily routine such as is demanded of few men, and this too without the benefit of any special education or preparation; for where is the school or college which includes among its “subjects” the study of such every-day matters as bad drains, or the gapes in chickens, or the removal of stains from clothes, or the bandaging of wounds, or the management of a kitchen range? Indeed, it is worthy of consideration whether our schools of cookery might not with very great advantage be

supplemented by schools of general household instruction.

Till this suggestion is carried out, the housewife can only refer to books and papers for information and advice. The editors of the present volume have been guided by a determination to make it a *book of reference* such as no housewife can afford to be without. Much of the matter is, of course, not altogether new, but it has been arranged with great care in a systematic manner, and while the use of obscure scientific terms has been avoided, the teachings of modern science have been made the basis of those sections in which science plays a part.

Much of the information herein contained has appeared before in lectures, pamphlets, and newspapers, foremost among these last being the *Queen*, *Field*, *Lancet*, *Scientific American*, *Pharmaceutical Journal*, *Gardener's Chronicle*, and the *Bazaar*; but it has lost nothing by repetition, and has this advantage in being embodied in a substantial volume that it can always be readily found when wanted, while every one knows the fate of leaflets and journals. The sources whence information has been drawn have, it is believed, in every case been acknowledged, and the editors take this opportunity of again proclaiming their indebtedness to the very large number of lecturers and writers whose communications have found a place within these covers.

THE EDITORS.

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SPONS'

HOUSEHOLD MANUAL.



THE DWELLING.

It is both convenient and rational to commence this volume with a chapter on the conditions which should guide a man in the choice of his dwelling. Unfortunately there is scarcely any subject upon which ordinary people display more ignorance, or to which they pay so little regard. In the majority of instances a dwelling is chosen mainly with regard to its cost, accommodation, locality, and appearance. As to its being healthy or otherwise, no *evidence* is volunteered by the owner, and none is demanded by the intending resident. The consequences of this indifference are a vast amount of preventible sickness and a corresponding loss of money. The following remarks are intended to educate the house-seeker in the necessary subjects, being subdivided under distinct headings for facility of reference.

Site.—Of modern scientists who have studied the great health question, none has more ably treated the essentials of the dwelling than Dr. Simpson in his lecture for the Manchester and Salford Sanitary Association. This Association has done wonders in improving sanitation in the Midlands, and we cannot do better than follow Dr. Simpson's teaching.

Soil.—He insists, first of all, on the great importance of the soil being *dry*—either dry before artificial means are used to make it so, or dry from drainage. To this end some elevation above the surrounding land conduces. A hollow below the general level should, as a matter of course, be avoided; for to this hollow the water from all the

adjacent higher land will drain, and if the soil be impervious the water will lodge there. It will thus be damp, and, as is well known, it will be a colder situation than neighbouring ones which are a little raised above the general level. Those who live where they can have gardens will find the advantage of the higher situation in its being much less subject to spring and early autumn frosts than the hollow just below. This is due not only to the former being damper, but to the fact that the heat of the ground on still nights passes off into space (is “radiated”) more rapidly than from the higher situation, where there is more movement in the air. The soil should not be retentive of moisture, as clay is when undrained; nor should it be damp and moist from the ground water (concerning which a few words will be said farther on), as is much alluvial soil, i.e. soil which has been at some former time carried down and deposited by rivers or floods. On the whole, sand or gravel, if the site be sufficiently elevated, is probably the best, as it allows all water to get away rapidly. Then come various rocks, as granite, limestone, sandstone, and chalk.

Towns often present one specially dangerous, and therefore specially objectionable soil—that where hollows have been filled up with refuse of all kinds. This refuse is made up of all kinds of vegetable, and, more or less, animal matter, often of the most noxious character, together with cinders, old mortar, and no one knows what besides. This becomes a foul fermenting mass, which is often built upon and the houses inhabited before the process of decomposition is completed, and the noxious gases cease to be given off. Many outbreaks of disease have been traced most unmistakably to this criminal act of putting up jerry buildings on pestilential sites. It is easy for any one

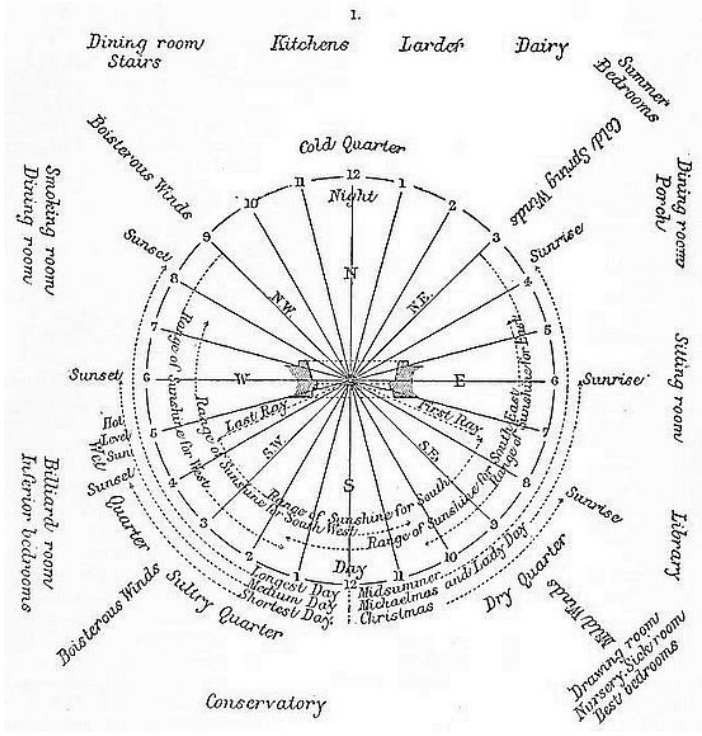
to understand how this may be when he thinks of the way the house acts on the soil it is built upon, or rather on the moisture and gases contained in the soil. The house is warmed by the fires and by the people living in it, and the heated air has a tendency to rise. The pressure on the gases in the soil is lessened, and they are drawn up into the house, which acts as a suction pump. This could not happen if the foundation were air-tight; but this is rarely the case, and too often indeed "cottage property" is built without any foundation at all. Drs. Parkes and Sanderson recommended that such soil should not be built upon "for at least two years," but it would be well to give it another year. Attention must also be paid to the "ground water"—the great underground sea of which we find evidences almost anywhere that we seek for them. Sometimes it is found even a foot or two only from the surface, in other places at 15, 20, or 40 ft. This water rises and falls in some places rapidly, rising after heavy rains, and falling in dry weather. If it is always near the surface, the place must be damp and unhealthy; and we should try to find out something about the ground water before fixing on the site of our house. If possible, do not live where it is less than 5 or 6 ft. from the surface.

Trees.—Vegetation assists in rendering the soil healthy. Trees absorb large quantities of moisture from the soil, and sometimes, as in the case of the blue gum-tree of Australia, they seem even to do something more than this. It is said that the common sunflower of our gardens has a considerable influence in this way. Trees should not be crowded close to a house, as they keep off much sun, and so neutralise some of their good effects, but at a reasonable distance they are beneficial.

Aspect.—The aspect of a dwelling will necessarily be made to vary with the climatic conditions of the locality in which it is situated. In northern latitudes, such as Great Britain occupies, we are rarely oppressed by sunshine, and need not seek special protection from it. We should rather be anxious not to be deprived too much of its genial and life-giving rays. On the other hand, we are often visited by bleak and bitter winds, and though a free circulation of air is desirable round a dwelling, there should be some shelter to break the violence of a cold prevailing wind. In the country, where in all probability there is no system of drainage for the district, we should be careful not to place the house so as to receive our neighbour's drainage, nor that from our own outbuildings. In a town the situation should be as open as can be obtained. The wider the street and the greater the open space at the back the better, and the back-to-back houses should be avoided altogether. (Simpson.)

As Eassie remarks, in one of the Health Exhibition Handbooks, aspect and prospect have very much to do with comfort in housebuilding, since a dwelling may be designed so as to fully command the scenery while its plan might be very ill-adapted to the prevalent weather, and the sun's daily course. A house having a pleasant prospect may be a decidedly unpleasant dwelling if the rooms have been arranged without regard to the points of the compass. This will become quite evident from a careful study of the annexed representation of Prof. Kerr's "aspect compass" (Fig. 1), which illustrates most clearly the direction and character of the prevailing winds of this country, and the sunny and shady quarters, the imaginary window of the dwelling occupying the centre of the circle.

Obviously, as Eassie points out, the effects of aspect will not be the same on the inside and outside of the room. Looking from a window in the north, the prospect or landscape will be lighted from behind; to the spectator looking from the south, it will never be go lighted; looking from the east, the landscape will be so lighted at sunset; and looking from the west, it will be well lighted throughout the day. The great thing is to reconcile aspect and prospect in the choice of a house; but this can seldom be done, and where it cannot, the question of aspect must be first attended to, as being of importance to the rooms, and the question of prospect made secondary. The north is not suitable for a drawing-room, because the aspect is cold; it is more suitable for a dining-room, as during the winter the prospect is not seen so much. When the room used for morning meals looks to the north, a bay window erected to the east will catch the early sunbeams, and render it pleasant. The northern aspect is too cold as a rule for bedrooms; but it is quite suitable for the servants' day apartments, and admirably adapted to the larder and dairy. It is especially suited for staircases, as no blinds are requisite, and the passages can be maintained in a cool state.



1. Aspect Compass for Great Britain.

The north-east aspect—next to the north—is best for a dining-room; it is better for the servants' offices than even the north; and when an end window is wanted for a drawing-room, this forms no unpleasant aspect. Bedrooms which face north-east enjoy the morning sun, and during the summer range are agreeably cool at night. With regard to the east, this is also a good aspect for the dining-room, especially when no distinction is made between the dining-room and the breakfast-room; and with regard to a sitting-room the more eastward tendency it has the better. It is not adapted for a drawing-room, because in the afternoon there is an entire want of sunshine,

and on account of the unhealthy east winds. This point of the compass is suitable, however, for a library or business-room, because by the time breakfast is over the sun will fairly have warmed the interior of the room. It is also a good aspect for the porch, and one side of a conservatory should always face the east.

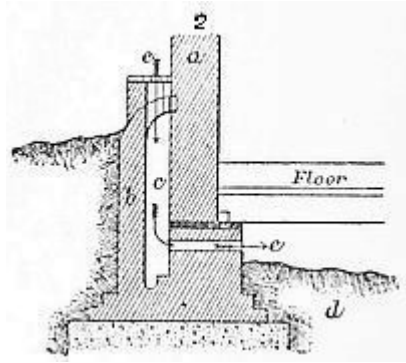
The south-east aspect is most suitable for the best rooms of a house, because it escapes some of the east wind, and part of the scorching heat and beating rain of the south. It is admirably adapted, therefore, for a drawing-room or day-room, is the most pleasant aspect for bedrooms, and is best suited for the nursery or for the rooms of an invalid. The south-west aspect is the least congenial of all, because it is so open to a sultry sun and blustering winds. This aspect should never be chosen for a dining-room; in summer it is unpleasantly hot for bedrooms; and it is not suitable for a porch or entrance, on account of the driving rains which prevail during a portion of the year. The south aspect is not very desirable for the windows of a dining-room, and is unpleasant for a morning-room, unless a verandah has been provided. The larder and dairy should never face the south. The west aspect is not quite agreeable for a dining-room, on account of the excessive heat prevailing in the summer afternoons; neither is it desirable for the drawing-room; and it should never preferably be chosen for bedrooms, although it is very agreeable for a smoking-room. One side of a conservatory should always face to the west. The north-west aspect is very good for a billiard-room, also for a dining-room, if the windows are fitted up with blinds to shade the sun.

Construction. *Foundation.*—Bearing in mind what

Dr. Simpson has said as to the house acting as a suction pump, drawing up moisture and gases, often most noxious, from the soil on which it is built, it is clear that the foundation ought to be air-tight and water-tight; for besides the emanations due to the soil, we must remember that escape from the gas-pipes laid in the street is a very common occurrence, that sewers are apt to leak, and so the soil in the neighbourhood of houses may become saturated with filth. Fatal instances are known where coal gas and other foul vapours have been drawn, as it were, long distances and poisoned the air of a house or houses. The only way of guarding against this is to have the foundations, and some distance outside the foundations, laid in concrete. There should also be a space between the basement wall and the surrounding earth. No one, in Eassie's opinion, would think of building a dwelling on a patch of ground without first removing the vegetable mould to some depth below the level of the floor; and however good the soil, it is very desirable to cover the site with a layer of concrete to keep out damp and bad exhalations. Rawlinson even advises a bed of charcoal below the concrete. Simpson insists that if a cottage floor has to be laid on the bare ground, there ought at least to be a bed of good concrete below the tiles. Cellars add to the dryness and healthiness of a house if the walls and floors are made impervious to air and water, and are properly ventilated. The walls of the house ought to have a damp-proof course to prevent the moisture rising in them. To show the importance of this, Simpson quotes a well-known fact, but one seldom thought of when we look at the brick walls of our houses. An ordinary well-baked brick, which is 9 in. long, 4½ in. broad, and 2½ in. deep, though apparently solid, is

not really so. It contains innumerable minute spaces through which air may pass, and into which water may enter; and when it is soaked in the latter, and all the air is driven out, it will contain nearly 16 oz. (the old pint) of water. If one brick will retain in its pores so large a quantity, it is easy to see that a large wall may hold what most people would at first think an incredible amount. As Dr. de Chaumont says, “A cottage wall only 16 ft. long by 8 ft. high, and only one brick thick, might hold 46 gallons of water!”

Walls may be made damp not only by water rising in them, but by rain driving against them, and by water running down from the roof in consequence of the stoppage of a rain-water pipe. The latter cause is simple and easily remedied, but the former is far too frequent in cheaply-built houses. It may be prevented by having cavity walls, as they are called—that is, a double wall with a space between. There are several advantages from this. The air space, besides helping to keep the inner wall dry, is a good non-conductor, and so the house is all the warmer. There are other methods which may be used in addition to this, as cementing, plastering, or covering with slates or boards. There is some difference of opinion as to the advantage or disadvantage of the walls of a house being porous, as bricks are when dry; and Prof. de Chaumont seems to think that in our climate the porosity of the walls is not a point we need trouble ourselves about maintaining. Still, in Simpson’s opinion, with the ordinary arrangements of houses as regards supply of air and ventilation, some porosity of the walls is desirable. Without the freest and most perfect ventilation, walls absolutely impervious to air, and therefore to water in a gaseous form, will almost always be more or less damp on the inside.



2. Damp Course and Area Wall.

Another source of dampness in dwellings, as pointed out by Eassie, is to be found in the practice of building the house walls close against the earth, without taking the precaution to erect a blind area-wall between the house wall and the earth excavation. Fig. 2 exhibits both these important improvements—the damp-course and the area-wall—applied to the same dwelling: *a* represents the main wall of the house, and *b* the area-wall, which is built against the excavated subsoil, leaving the space *c* between the two walls; the thick black line underneath the floor-joist represents the damp-proof course, which interposes between the subsoil *d*, with the foundations built upon it, and the main wall of the house. This damp-proof course usually consists of a layer of pitch or asphalte, or slates bedded in cement, or specially glazed tiles, known as Taylor's or Doulton's manufactures. By the use of this impervious course, the upward passage of the ground water is effectually arrested. The intervening area *c* it is also well to drain, but this water should never drain into the soil drain, if avoidable, and certainly not until it has been thoroughly disconnected. There should always, also, be a current of air introduced

from the outer air, by way of ventilators put at the top of the blind area *c*, and an air brick placed above or below the damp-proof course—preferably above—in order that the space between the ground and the joists or stone flooring of the basement may be thoroughly ventilated. This ventilation is shown by the arrows between *e* and *e*. Such air currents should always be provided under floors, whether there be a basement or not, and also always between the joists of the upper floors, and in the roof, in order to ward off dry-rot and ensure a constant circulation of air. (Eassie.)

Roof.—The first detail to be decided on is the "pitch" or slope to be given to the roof, and this will depend both on the nature of the covering material and the character of the climate. In the tropics, where rain falls in torrents, a flat pitch helps to counteract the rush of water; in colder regions the pitch must be such as to readily admit of snow sliding off as it accumulates, to prevent injury to the framework by the increased weight. The pitches ordinarily observed, stated in "height of roof in parts of the span," are as follows:—Lead, $^{1}/_{40}$; galvanized iron or zinc, ⅕; slates, ¼; stone, slate, and plain tiles, $^{2}/_{7}$; pantiles, $^{2}/_{9}$; thatch, felt, and wooden shingles, ⅓ to ½.

In country districts the roofs of cottages and outbuildings are frequently covered with thatch. This consists of layers of straw—wheaten lasts twice as long as oaten—about 15 in. in thickness, tied down to laths with withes of straw or with string. Thatch is an excellent non-conductor of heat, and consequently buildings thus roofed are both cooler in summer and warmer in winter than others, and no better roof covering for a dairy can be found. Thatch is,

however, highly combustible, and as it harbours vermin and is soon damaged, it is not really an economical material, though the first cost is small. A load of straw will do 1½ “squares” of roofing, or 150 superficial feet. First class thatching is an art not readily acquired. While really good thatching will stand for 20 years, average work will not endure 10.

A convenient roofing material when wood is cheap and abundant consists of a kind of “wooden slates,” split pieces of wood measuring about 9 in. long, 5 in. wide, and 1 in. thick at one end but tapering to a sharp edge at the other. Shingles, or wooden slates, are made from hard wood, either of oak, larch, or cedar, or any material that will split easily. Their dimensions are usually 6 in. wide by 12 or 18 in. long, and about ¼ in. thick.

Roofing felt is a substance composed largely of hair saturated with an asphalte composition, and should be chosen more for closeness of texture than excessive thickness. It is sold in rolls 2 ft. 8 in. wide and 25 yd. long, thus containing 200 ft. super in a roll. Before the felt is laid on the boards (¾ in. close boarding), a coating composed of 5 lb. ground whiting and 1 gal. coal tar, boiled to expel the water, is applied, while still slightly warm, on the boards themselves; the felt is then laid on, taking care to stretch it smooth and tight, and the outside edge is nailed closely with ⅞ in. zinc or tinned tacks. The most common application to a felt roof is simple coal tar brushed on hot and sprinkled with sharp sand. It is not well adapted to dwellings.

Dachpappe is a kind of asphalte pasteboard much employed in Denmark; it is laid on close boarding at a very low pitch, and forms a light, durable covering, having the non-conducting properties of thatch. It is

sold in rolls 2 ft. 9 in. wide and 25 ft. long, having a superficial content of 7½ sq. yd., at the rate of 1*d.* per sq. ft. When laid, it requires dressing with an asphalte composition called "Erichsen's mastic," sold at 9*s.* 9*d.* per cwt., 1 cwt. of the varnish sufficing to cover a surface of 65 sq. yd.

Willesden paper is another extremely light, durable, and waterproof roofing material, which differs essentially from the 2 preceding substances in needing to be fixed to rafters or scantling, and requiring no boarding on the roof. It is a kind of cardboard treated with cuprammonium solution, and has become a recognized commercial article. It is made in rolls of continuous length, 54 in. wide, consequently, when fixing the full width of the card (to avoid cutting to waste), the rafters should be spaced out 2 ft. 1 in. apart from centre to centre, so that the edge of one sheet of card laid vertically from eaves to ridge will overlap the edge of the adjoining sheet 4 in. on every alternate rafter.

By far the most important and generally used roofing material in this country is slate. Its splitting or fissile property makes it eminently useful as a roofing material, as, notwithstanding the fact that it is one of the hardest and densest of rocks, it can be obtained in such thin sheets that the weight of a superficial foot is very small indeed, and consequently, when used for covering roofs, a heavy supporting framework is not required. Slate absorbs a scarcely perceptible quantity of water, and it is very hard and close-grained and smooth on the surface; it can be laid safely at as low a pitch as 22½°. In consequence of this, the general introduction of slate as a roofing material has had a prejudicial effect upon the architectural character of

buildings. The bold, high-pitched, lichen-covered roofs of the middle ages—which, with their warm tints, form so picturesque a feature of many an old-fashioned English country town—have given place to the flat, dull, slated roofs. The best roofing slate is obtained from North Wales, chiefly in the neighbourhood of Llanberis. Non-absorption of water is, of course, the most valuable characteristic; an easy test of this can be applied by carefully weighing one or two specimens when dry, and then steeping them in water for a few hours and weighing them again, when the difference in weight will of course represent the quantity of water absorbed. The light-blue coloured slates are generally superior to the blue-black varieties. (J. Slater.)

Some architects bed the roofing slates in hydraulic cement, instead of having them nailed on dry in the usual way, which leaves them subject to be rattled by the wind, and to be broken by any accidental pressure. The cement soon sets and hardens, so that the roof becomes like a solid wall. The extra cost is 10 or 15 per cent., and it is good economy, considering only its permanency, and the saving in repairs; but, besides this, it affords great safety against fire, for slate laid in the usual way will not protect the wood underneath from the heat of a fire at a short distance.

Tiles are much used in some districts, and are often made of a pleasant tint; but a great objection to all tiles is their porosity, which causes them to absorb much water, rotting the woodwork and adding to their own already considerable weight.

Metallic roofing embraces sheet copper, sheet zinc, sheet lead, “galvanised” iron, and thin plates of “rustless” (Bower-Barff) iron. These materials are

only used on flat or nearly flat spaces.

Floors.—Tiles or flags are most frequently used for the floors of kitchens, sculleries, and lobbies. They serve this purpose very well, as they are easily washed and not likely to be injured, but the joints should be made impervious to moisture. In some parts of the country, concrete is used; this answers very well for the same purpose, but it is not good for bedrooms, as it is so cold to the feet. Wood makes the most comfortable floor for sitting or bed rooms, and the best is hard wood capable of bearing a polish. From its convenience and cheapness, common deal is used very generally, and too often in a damp and unsound state, so that the boards shrink and wide gaps are left between. This allows all the foul air from any space—as a cellar or a cavity between the floor and the soil—to ascend into the room. The boards ought to be as close together as possible, and any spaces left between them should be packed tightly with oakum. If this is done, the floors may be stained and varnished, when they can be swept and rubbed clean, and do not require such frequent washing as the ordinary unvarnished floors. This is an important gain, for there is no doubt that emanations rising with the damp from newly-washed floors are often most injurious. If a varnished floor is washed, it dries almost at once. Spaces must be left under the floors, on the ground level, if they are of wood, or they will soon decay; and they ought to be well ventilated. Ceilings, leaving a space between them and the boards of the room above, have come into use, most likely to deaden sound. They often fail of this, while affording fine playgrounds to mice, and even rats. Well-laid boards, of sufficient thickness, and plugged with oakum, would, as regards health, be preferable. (Dr. Simpson.)

General Arrangement.—The chief points to be insisted on in a dwelling are enumerated by Simpson as follows:—Every room should obtain light and air from the outside, and there should be free communication from front to back, so that a current of air may pass through the house. What are called back-to-back houses are very objectionable, and to be carefully avoided. If there is a closet attached to the house, it should, as a matter of course, be ventilated by a window opening both above and below, and, if possible, should be built in a projecting wing or tower, and have double doors, with space between them for a window on each side, so as to have cross ventilation. When there is no closet in the house, it should be completely detached from it, and all piggeries, middens, &c., should be as far removed as possible. Speaking even of large houses, Eassie remarks that they are often very faultily planned in respect to the position in that portion of the interior which is usually appropriated to sinks and water-closets. In the basement, for instance, closets are often placed almost in the middle of the house, and the same mistake is committed on the floors above, a worse error by far; because then the closet would be placed on the landing of the stair opposite the best ground-floor, and chamber-floor rooms—the only ventilation from the closet-rooms being into the staircase, and consequently into the house.

Precaution against Snakes entering Dwellings.—There is no regular system adopted to prevent snakes entering dwelling-houses in Ceylon, as it is of rare occurrence to find any but rat snakes in European dwellings, and these are not venomous; but it is usual to clear away a portion of space about each

bungalow and put on sharp gravel, and also to have coir matting laid down upon the verandahs, as snakes dislike crossing over rough surfaces such as gravel and coir. Trees should be at such a distance from the house (or bungalow) as to prevent the possibility of snakes dropping from the branches on to the roof.

Reducing Echoes and Reverberations.—The report of a committee of a Würtemberg association of architects upon the deadening of ceilings, walls, &c., to sound, gave rise to considerable debate, after which the following conclusions were reached. The propagation of sound through the ceiling may be most effectually prevented by insulating the floor from the beams by means of some porous light substance, as a layer of felt, a filling of sand, or of stone coal dust, the latter being particularly effective. It is difficult to prevent the propagation of sound through thin partitions, but double unconnected walls filled in with some porous material have been found to answer the purpose best. Covering the walls and doors with hangings, as of jute, is also quite serviceable.

To those who carry on any operations requiring much hammering or pounding, a simple means of deadening the noise of their work is a great relief. Several methods have been suggested, but the best are probably these:

1. Rubber cushions under the legs of the work-bench. *Chambers's Journal* describes a factory where the hammering of fifty coppersmiths was scarcely audible in the room below, their benches having under each leg a rubber cushion.

2. Kegs of sand or sawdust applied in the same way. A few inches of sand or sawdust is first poured

into each keg; on this is laid a board or block upon which the leg rests, and round the leg and block is poured fine dry sand or sawdust. Not only all noise, but all vibration and shock, is prevented; and an ordinary anvil, so mounted, may be used in a dwelling-house without annoying the inhabitants. To amateurs, whose workshops are almost always located in dwelling-houses, this device affords a cheap and simple relief from a very great annoyance.

Echoes are broken up by stretching wires across the room at about 4-5 ft. above the heads of the audience. Often there is strong echo from the windows, which is lessened by the use of curtains, but with some sacrifice of light. Very thin semi-transparent blinds would check echo a good deal, but architects should not have large windows in the same plane; large unbroken surfaces of any kind are very apt to reflect echoes, yet we constantly see rooms intended for public meetings so built as to be spoiled by the confusing echoes.

Waterproofing Walls.—In many badly constructed houses with thin walls there is a tendency for damp to make its way into the interior. Several remedies for this inconvenience have been published at various times. The following procedure is described by a German paper as a reliable means of drying damp walls. The wall, or that part of it which is damp, is freed from its plaster until the bricks or stones are laid bare, next further cleaned off with a stiff broom, and then covered with the mass prepared as below, and dry river-sand thrown on as a covering. Heat 1 cwt. of tar to boiling-point in a pot, best in the open air; keep boiling gently, and mix gradually 3½ lb. of lard with it. After some more stirring, 8 lb. of fine brickdust are successively put

into the liquid, and moved about until thoroughly disintegrated, which has been effected when, on dipping in and withdrawing a stick, no lumps adhere to it. The fire under the pot is then reduced, merely keeping the mass hot, which in that state is applied to the wall. This part of the work, as well as the throwing on of the river-sand against the tarred surface, must be done with the trowel quickly and with sufficient force. It must be continued until the whole wall is covered both with the tar mixture and the sand. The tar must not be allowed to get cold, nor must the smallest possible spot be left uncovered, as otherwise damp would show itself again in such places, and where no sand has been thrown the following coat of plaster would not stick. When the tar covering has become cold and hard, the usual or gypsum coating may be applied. It is asserted that, if this covering has been properly dried, even in underground rooms, not a sign of dampness will be perceived. About 300 sq. ft. may be covered with the quantities above stated.

An excellent asphalte or mortar for waterproofing damp walls or other surfaces is the following patented composition:—Coal tar is the basis, to which clay, asphalte, rosin, litharge, and sand are added. It is applied cold, and is extremely tenacious and weather-resisting. The area to be covered is first dried and cleaned, then primed with hot roofing varnish—chiefly tar. The mortar is then laid on cold with trowels, leaving a coat ⅜ in. thick. A large area is then coated with varnish and sprinkled over with rough sand. To frost or rain this mortar is impervious. The cost is 5*d.* per sq. ft., and for large quantities 4*d.* In the case of stone walls the following ingredients, melted and mixed together, and applied hot to the surface of stone, will prevent all damp

from entering, and vegetable substance from growing upon it. 1½ lb. rosin, 1 lb. Russian tallow, 1 qt. linseed-oil. This simple remedy has been proved upon a piece of very porous stone made into the form of a basin; two coats of this liquid, on being applied, caused it to hold water as well as any earthenware vessel.

For brickwork, the *Builder* gives the following remedy:—¾ lb. of mottled soap to 1 gal. of water. This composition to be laid over the brickwork steadily and carefully with a large flat brush, so as not to form a froth or lather on the surface. The wash to remain 24 hours to become dry. Mix ½ lb. of alum with 4 gal. of water; leave it to stand for 24 hours, and then apply it in the same manner over the coating of soap. Let this be done in dry weather.

Another authority says, coat with venetian red and coal tar, used hot. This makes a rich brown colour. It can be thinned with boiled oil.

A Devonshire man recommends “slap-dashing,” as is often done in Devon. The walls are, outside, first coated with hair-plaster by the mason, and then he takes clean gravel, such as is found at the mouth of many Devonshire rivers, and throws—or, as it is called locally, “scats” it—with a wooden trowel, with considerable force, so as to bed itself into the soft plaster. You can limewash or colour to your liking, and your walls will not get damp through.

Perhaps no application is cheaper or more efficacious than the following. Soft paraffin wax is dissolved in benzoline spirit in the proportion of about one part of the former to four or five parts of the latter by weight. Into a tin or metallic keg, place 1 gal. of benzoline spirit, then mix 1½ lb. or 2 lb. wax, and when well hot pour into the spirit. Apply

the solution to the walls whilst warm with a whitewash brush. To prevent the solution from chilling, it is best to place the tin in a pail of warm water, but on no account should the spirit be brought into the house, or near to a light, or a serious accident might occur. The waterproofed part will be scarcely distinguishable from the rest of the wall; but if water is thrown against it, it will run off like it does off a duck's back. Whilst it is being applied the smell is very disagreeable, but it all goes off in a few hours. On a north wall it will retain its effect for many years, but when exposed much to the sun, it may want renewing occasionally. Hard paraffin wax is not so good for the purpose, as the solution requires to be kept much hotter.

Curing a Damp Cellar.—A correspondent inquired of the editor of the *American Architect* what remedy he would suggest for curing a damp cellar. The difficulty to be overcome, presents the questioner, in a new house is the wet cellar. Conditions present, concrete not strong enough to resist the hydraulic pressure through a clay soil. No footings under wall (which are of brick.) No cement on outside of wall. The water evidently, however, forces its way through the concrete bottom.

(*a*) Will reconcreting (using Portland cement) resist the pressure of water and keep it out?

(*b*) If not, will a layer of pure bitumen damp-course between the old and new concrete do the work?

(*c*) Will it do any good to carefully cement the walls on the inside with rich Portland cement, say 3 ft. high, to exclude damp caused by capillary attraction through the brick wall?

In reply to the above queries the editor gave the following hints, which are equally applicable to builders of new houses as to those occupying old houses with damp cellars:

It is doubtful whether even Portland cement concrete would keep back water under sufficient pressure to force it through concrete made of the ordinary cement. The best material would be rock asphalte, either Seyssel, Neufebatel, Val de Travers, Yorwohle, or Limmer, any of which, melted, either with or without the addition of gravel, according to the character of the asphalte, and spread hot to a depth of ¾ in. over the floor, will make it perfectly water-tight. The asphalte coating should be carried without any break 18 or 20 in. up on the walls and piers, to prevent water from getting over the edge; and if the hydrostatic pressure of the water should be sufficient to force the asphalte up, it must be weighted with a pavement of brick or concrete. This is not likely to be necessary, however, unless the cellar is actually below the line of standing water around it.

This, although an excellent method of curing the trouble, the asphalte cutting off ground air from the house, as well as water, will be expensive, the cost of the asphalte coating being from 20 to 22 cents (10-11*d.*) a sq. ft.; and perhaps it may not be necessary to go to so much trouble. It is very unusual to find water making its way through ordinary good concrete, unless high tides or inundations surround the whole cellar with water. If the source of the water seems to be simply the soakage of rain into the loose material filled in about the outside of the new wall, we should advise attacking this point first, and sodding or concreting with coal-tar concrete, a space

3 or 4 ft. wide around the building. This, if the grade is first made to slope sharply away from the house, will throw the rain which drips from the eaves, or runs down the walls, out upon the firm ground, and in the course of two or three seasons the filling will generally have compacted itself to a consistency as hard as or harder than the surrounding soil, so that the tendency of water to accumulate just outside the walls will disappear; while the concrete, as it hardens with age, will present more and more resistance to percolation from below.

For keeping the dampness absorbed by the walls from affecting the air of the house, a Portland cement coating may be perhaps the best means now available. It would have been much better, when the walls were first built, to brush the outside of them with melted coal tar; but that is probably impracticable now. If the earth stands against the walls, however, the cement coating should cover the whole inside of the wall. The situation of the building may perhaps admit of draining away the water which accumulates about it, by means of stone drains or lines of drain tile, laid up to the cellar walls, at a point below the basement floor, and carried to a convenient outfall. This would be the most desirable of all methods for drying the cellar, and should be first tried.

Construction for Earthquake Countries.—The conditions will vary somewhat according to the nature of the climate.

R. H. Brunton, who was for many years resident lighthouse engineer in Japan, follows the principles enunciated by Mallet and Prof. Palmieri, giving the buildings weight and great inertia, coupled with a good bond between their various parts. Prof.

Palmieri states that, although solidity and strength in a building do not afford perfect protection, still, so long as fracture does not occur, overthrow is impossible. Dyer states that in his opinion, for dwelling-houses in Japan, the modifications of external design required, as compared with those in Britain, arise not so much on account of the earthquakes as from the heats of summer, the colds of winter, and the typhoons of autumn. Iron roofs are good from a merely structural point of view; but in summer it would be impossible to live in the houses provided with them. If a non-conducting material of the same strength and durability as iron could be found, it might be used. “If the houses are so designed as to be comfortable as regards temperature, and the construction made in good brick, or equally strong stone and mortar, so that the walls are of nearly a uniform strength; if no unnecessary top weights are used, and if the various parts do not vibrate with different periods, they will withstand all ordinary earthquakes, and other precautions will be unnecessary, as these generally produce results more serious than those due to the earthquakes.”

The city of Arequipa, Peru, is particularly liable to earthquakes, owing to its proximity to the great volcano, the Misti, 19,000 ft. in height above sea-level, the city being 7000 ft. above sea-level. The general construction of the houses is peculiar. A light coloured volcanic stone is largely used; this, when quarried, is easily shaped, and it hardens gradually. The roofs are for the most part strong arches, a very good mortar being used. In the earthquake of 1868, it was not so much those arches which failed as the walls, and the spandrels between the arches at front and rear. In some parts of the city, arches extending

in one direction stood, while those at right angles to these were thrown down. Since 1868, a good many corrugated iron roofs have been introduced; but they are not suitable to the climate, and are not durable.

Earnshaw, from an experience of 25 years in Manila, where the earthquakes are sometimes very severe, comes to the conclusion to build as strongly as possible, and chiefly in wood, tied and bolted together as in a ship, stone and brickwork only being used in the lower story and in the foundations, and especial attention ought to be paid to the quality of the lime and mortar used in construction. Many materials have been used as roofing, such as the heavy tiles made in the country and others imported there. When, in 1880, fully 60 per cent. of the buildings in Manila had been ruined, an order was issued by the municipal authorities to use corrugated iron or zinc sheeting for that purpose. A diversity of opinion existed as to which was the best and most suitable, for not only had earthquakes to be guarded against, but intense heat and disastrous typhoons. With reference to the latter, in 1881, sheets of iron were flying about in the air like paper. He thinks, therefore, that a light, strong tile roofing is preferable to any other.

Prof. C. Clericetti, of Milan, and W. H. Thelwall relate that after the earthquake in the island of Ischia in 1883, which was of a most destructive character, and caused an enormous amount of damage in the island, 2000 persons having lost their lives, and many more being injured, a commission was appointed by the Italian Government to obtain information, and to frame rules for the rebuilding of the structures. It was ascertained that, speaking generally, buildings founded on hard, solid lava had

withstood the shock successfully, whilst those founded upon looser or lighter materials, such as tufa or clay, had suffered very much, and therefore in regard to the re-erection of buildings it was pointed out that the first thing to do was to select eligible sites, and to build, wherever possible, upon lava; and, where that was not possible, to dig down to comparatively solid ground, and then fill in a heavy platform of masonry or concrete, 3 ft. or 4 ft. thick, extending over the whole area of the building, and projecting 3 ft. or 4 ft. beyond. The building of any kind of vaulting above ground was forbidden. Light arches were only to be allowed over window's and openings of that kind. The heavy flat roofs formerly used to a large extent were condemned. The commission recommended that buildings should be chiefly constructed with an iron or wooden framework, carefully put together, joined by diagonal ties, horizontally and vertically, with spaces between the framework filled in with masonry of a light character. The joists and the roof trusses were to be firmly connected together. In plan, buildings should be square, and where the direction of the last shock could be traced, one diagonal should be placed in this direction. Not more than two stories above ground were to be allowed, and there might be one under ground, but it must be of very moderate height. In no case was the height from the lowest point of the ground to the top of the walls to exceed 31 ft. Openings for doors and windows were to be vertically over each other, the jambs being not less than 5 ft. from the corner of the building. No openings for flues were allowed in the thickness of the walls, and no projections from the face of a building, except light balconies of wood or iron. If solidly built structures, and particularly if there was

only one story above ground, the roofs might be covered with tiles; but these must be light, and fastened with nails or hooks, so as not to be displaced even by violent shocks.

Water Supply and Purification.—The supply of water to both town and country houses has been dealt with at length by Eassie and Rogers Field in essays written for the Health Exhibition Handbooks, and the following information is mainly condensed and adapted from their papers.

The conditions of supply in the two cases differ in being from a general and public source in the one and from a special and private source in the other. In each case, the consumer has to control the purity and application of the supply after its delivery into the dwelling; and in the second case he is further responsible for the character and quantity of the supply before delivery. The second case, therefore, in a great measure covers the first, and demands extended treatment.

Amount required.—The first consideration is the quantity of water required. The supply to towns from waterworks is usually expressed in "gallons per head of population per diem," and varies exceedingly, much of the variation being due to waste. This is especially the case in towns where the supply is intermittent. In several towns having a constant supply, steps have been taken systematically to measure the water supplied to different streets and districts, and it has been found that, without restricting the supply in any way, the consumption of water has been immensely reduced, simply by sending inspectors to make a house-to-house visitation and search out and repair leaky pipes and

defective taps and ball-cocks. It is by no means an unusual thing for the consumption to be reduced one-half by inspections of this kind, showing that at least one-half of the water which was previously supplied to the houses was simply wasted through leaky fittings.

Many people are inclined to think that waste of this kind is not a bad thing, as it must help to keep the drains flushed. Field points out that this is quite a mistake. A small dribble of water from a leaky pipe or a leaky tap, though it will waste a great deal of water in the course of 24 hours, is perfectly useless for flushing the drains. What is wanted for this is the sudden discharge of a large quantity of water. The dribble of water from leaky pipes and taps does no good in any way, but simply wastes what might be usefully employed, and in many cases causes a supply to run short which would otherwise be ample for all legitimate uses. Another point that it is difficult to realise is the large quantity of water which will run to waste through what is apparently a very small leak. The quantity leaking looks so small in comparison with the quantity running when a tap is open, that one is inclined to think it perfectly insignificant, forgetting that the leakage goes on continuously night and day, whereas the tap is only open for a few minutes. In country houses, where it is often difficult to obtain a sufficient supply of water, it is particularly important to bear in mind the serious influence that leaky pipes and taps have on the consumption, and never to allow such leakage to go on for any length of time.

While useless waste should be prevented, it is most important that the legitimate use of water should be encouraged in every way. As Dr. Richardson has well

pointed out, absolute cleanliness, properly understood, is the beginning and the end of sanitary design, and thorough cleanliness, of course, can never be obtained without an ample water supply. Not only should there be sufficient water for baths, lavatories, and washing of all kinds, but there should be a liberal allowance for flushing water-closets and all other sanitary appliances. Taking these sanitary considerations into account, as well as giving due weight to the observations which have been made by engineers and others on the quantity of water actually used in houses under different circumstances, it may be assumed that, if waste is efficiently prevented, a supply of 20-25 gallons per head per diem is sufficient in ordinary cases for houses with baths and water-closets. If horses are kept, a separate allowance should be made for them, and for stable purposes (a useful approximate rule being to reckon a horse as a man); and if water is used for watering gardens or ornamental purposes, this must also be reckoned separately. If earth-closets are adopted instead of water-closets, less water will be required, and 15-20 gallons per head per diem will be sufficient. In cottages with earth or other dry closets, the quantity of water required will be still less: 10 gallons per head will be an ample supply, and even 5-6 gallons may do in cases where it is absolutely necessary to limit the quantity used.

Sources of Supply.—Water for country houses is, in the vast majority of cases, derived from springs or wells. Rain-water collected from roofs is very frequently used as an auxiliary, and occasionally as the main supply. There are instances in which the supply is taken from streams or rivers, and even some in which water running off the surface of the ground is collected in “impounding reservoirs” (a

mode often adopted for the water supply of towns); but these cases are exceptional, and attention will here be confined to springs, wells, and roof-water.

The real source of all fresh water supply is rain. Springs and wells form no exception to this rule, though in their case the connection with the rainfall is not so clear at first sight as it is in the case of streams and open watercourses, because the passages by which the rain reaches springs or wells are not visible, and heavy rainfalls often have no apparent effect on their yield. In various parts of the country occur curious intermittent springs (locally called "bournes"), which burst out in some years and not in others, and the connection between which and the rainfall is still more obscure. Rain-water, before it issues from the ground as springs, accumulates in the porous strata beneath, and forms, as it were, large underground reservoirs; it is from these reservoirs that wells, sunk into the porous strata, derive their supply.

The amount of rain varies enormously in different parts of the world, some districts being either absolutely rainless, or having only a very few inches of rain in the year, whereas others have some hundreds of inches in the year. Even in England itself there is considerable variation. The average rainfall for the whole country is about 30 inches a year, but the amount in different parts of the country varies from about 20 inches to nearly 200 inches a year. The eastern side of England, as Field remarks, has much less rain than the western side, and, roughly speaking, if a line be drawn from Portsmouth to Newcastle-on-Tyne, it will divide the country into a dry portion and a wet portion. The portion of the country on the east of this imaginary line will (with

the exception of the south coast, which is wetter) have only 25 inches of rain or less, and the portion on the west of the line will have from 30 to 50 inches, with much larger amount in the Cumberland and Welsh mountains, and at Dartmoor.

The rainfall of the wettest year is about double that of the driest year. This gives a very useful rule for roughly ascertaining the extreme rainfalls, which are really more useful for the purpose of water supply than the rainfall for an average year. The fall in the driest year may be assumed to be one-third less than the average, and for the wettest one-third more. Thus, with an average rainfall of 30 inches, the fall of the driest year would be 20 inches, and that of the wettest year 40 inches.

A portion only of the total rain which falls is available for water supply, as there is always more or less loss. In the case of rain falling on roofs, the loss is comparatively small, but in the case of rain falling on the surface of the earth the loss is considerable. The latter is disposed of in three different ways: part of it runs directly into open watercourses and streams, part is taken up by vegetation or lost by evaporation, and part percolates through the surface ground and accumulates in the water-bearing strata which feed the springs and wells.

From observations made on the amount of percolation in different cases, it has been found that the amount of percolation does not depend so much on the amount of rain as on the conditions under which it falls. By far the greater portion of the percolation takes place in winter and comparatively little in summer, the reason being that in winter the ground is wet, evaporation is small, and vegetation is inactive, so that a large proportion of the rain sinks

into the ground; whereas in summer the reverse is the case, so that most of the rain is taken up before it can percolate. So great is the difference between summer and winter as regards percolation, that one may generally leave the summer rainfall altogether out of consideration, and assume that, in this country, it depends on the amount of rain which falls during the six months from October to March, whether the underground store of water will be fully replenished or not.

The height of the accumulated underground water is indicated by the level at which water stands in wells: and it is found that this height varies considerably, the variations usually following a regular course: the water is generally lowest in October and November, it then rises till it reaches its highest point in February or March, and after this it falls slowly till the following autumn.

A condition to be studied in selecting a spring as a source of water supply is its “seasonal” variation. As Field points out, a spring which will give an ample quantity of water in the winter may give an insufficient quantity in the autumn, so that the measurement of a spring in winter should never be depended on for determining whether it will do as a source of water supply. The only safe way is to wait till the autumn yield has been ascertained; even then an allowance must be made for the previous winter, if it has been a very wet one, the yield of the spring becoming abnormally high.

Wells may be either shallow or deep. The latter are always preferable, but sometimes the former must be relied on. The great and serious danger in connection with shallow wells is their liability to pollution from cesspools and drains, whose liquid contents (fully as

poisonous as the solid) filter through the surrounding soil and go to swell the volume of water in the well, especially if, as nearly always happens, the cesspool is much shallower than the well.

In country villages, frequently the cesspools and wells are so intermixed that the entire bed of water is polluted, and hence all the wells are unsafe. But in isolated houses, if the well and cesspool are some distance apart, pollution of the well will depend chiefly on the direction of the movement of the underground water. If this movement is from the cesspool towards the well, the polluted water will flow towards the well; if the movement is in the contrary direction, the polluted water will flow away from the well. Hence Field's caution, that before sinking a shallow well where sources of contamination are in the neighbourhood, the direction of the flow of the underground water must first be carefully ascertained, bearing in mind that it is not safe to assume that this flow is in the direction of the fall of the land, though it very frequently is so: if there is the slightest doubt, levels must be taken of the underground water in different places, and the source of contamination be accurately localised. Contamination from surface soakage can frequently be prevented by raising the top of the well above the adjoining ground, and paving the surface round the well with a slope so that the rain-water runs away from it. Norton Tube wells, which consist of an iron tube driven into the ground and surmounted by a pump, are useful for excluding surface pollution. If the pollution is sufficient to contaminate the subsoil and reach the underground water, no precautions that can be taken in constructing the well will keep the pollution out.

Generally, deep wells are safer from contamination than shallow wells, but may still, under certain circumstances, be polluted.

On the question whether a well which has been-polluted by a cesspool will become fit for use after the cesspool has been removed, no rule can be laid down. If the removal of the sources of pollution has been thorough, the well will frequently recover its purity; but under other circumstances the well may remain impure. As to the least distance between wells and cesspools compatible with safety, while the Local Government Board of London is content with 20-30 yards, Dr. Frankland insists on at least 200 yards. It would be more rational to forbid cesspools of all kinds; at the same time, possible leakages from drains, through injury or otherwise, must not be omitted from the estimate of risk of pollution. Again, the effect of increased demand upon the contents of the well at once extends the danger, because as the water in the well is lowered so is the area from which the well draws its supply increased, the ratio varying from 20 to 100 times the depression. Where a whole day's supply is pumped at once into an elevated tank, the maximum figure will be reached.

Those who intend sinking wells are advised first to read a little book by Ernest Spon, on the 'Present Practice of Sinking and Boring Wells,' 2nd edition, 1885.

Rain-water collected from roofs forms a valuable auxiliary supply too often disregarded. In towns it is rarely pure enough for domestic use, but in country districts it is generally wholesome.

A country resident thus describes the manner in which he utilises rain-water, falling upon an ordinary tin roof, covered with some sort of metallic paint,

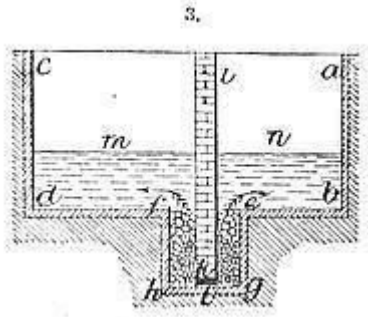
said to contain no lead, and flowing into a large cemented brick cistern, whence it is pumped into the kitchen. The cistern differs from the usual construction in this manner: across the bottom, about 3 ft. nearer one side than the other, is excavated a trough or ditch about 2 ft. wide and 2 ft. deep; along the centre of this depression is built a brick wall from the bottom up to the top of the cistern, and having a few openings left through it at the very bottom. The whole cistern, bottom, sides, and canal included, is cemented as usual, excepting the division wall. Upon each side of the wall, at its base, 6-12 in. of charcoal is laid, and covered with well-washed stones to a further height of 6 in., merely to keep the charcoal from floating. The rain-water running from the roof into the larger division of the cistern, passes through the stone covering, the charcoal, the wall, the charcoal upon the other side, lastly, the stones, and is now ready for the pump placed in this smaller part. It is much better that the water at first pass into the larger division, as the filtration will be slower, and the cistern not so likely to overflow under a very heavy rainfall. He has used this cistern for many years, and was troubled only once, when some toads made their entrance at the top, which was just at the surface of the ground, soon making their presence known by a decided change in the flavour of the water.

If the house chances to be in a dusty situation, several plans will suggest themselves whereby a few gallons at the first of each rain may be prevented from entering the cistern. Should the house be small, and therefore the supply of water from its roof be limited, do not lessen the size of the cistern, but rather increase it, for with one of less capacity some of the supply must occasionally be allowed to go to

waste during a wet time, and you will suffer in a drought, whereas a cistern that never overflows is the more to be relied upon in a long season without rain.

Rainfall varies exceedingly in different places, and even in the same situation it is impossible to foretell the amount to be expected during any short period of time, but the most careful observations show that about 4 ft. in depth descends at New York and vicinity every year, or nearly 1 in. a week. If this amount were to be furnished uniformly every week, the size of a cistern need only be sufficient to contain one week's supply, but we often have periods of 4 weeks without receiving the average of one, and we must build accordingly.

The weekly average of 1 in. equals 1 cub. ft. upon every 12 ft. of surface, or 3630 cub. ft. upon an acre, weighing about 113 tons. Upon a roof 40 ft. by 40 ft., 1600 sq. ft., it would be 133 cub. ft., 1037 gal., or about 26 barrels of 40 gal. each. A cistern 8 ft. across and 10 ft. deep would contain 502 cub. ft.; and one of 10 ft. across and 10 ft. deep, 785 cub. ft., or 6120 gal.—about the average fall upon a roof of the above size for 6 weeks; while the smaller cistern would hold 3900 gal., or a little less than 4 weeks' rainfall. The weekly supply of 1037 gal. is equal to 148 gal. per day, or nearly 15 gal. to each individual of a family of 10. This is certainly enough, and more than enough, if used as it should be; but where water is plentiful it is wasted, and in our capricious climate, whether we depend upon wells or cisterns, it is wise to waste no water at all, at least during the warm summer months, and lay by not for a wet but a dry day. For this country, Field estimates 2-3 gallons of tank capacity for every square foot of roof area.

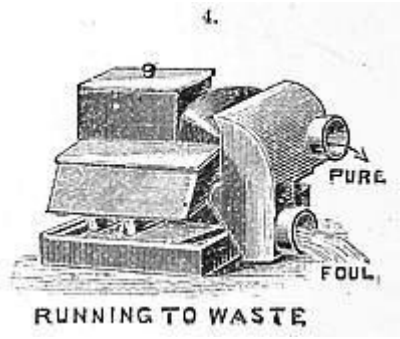


3. Rain-water Tank.

In Fig. 3 *a b c d* show the excavation that must be made for the cistern, and supposing the diagram to exhibit, as it does, a section of the cistern, the receptacle for the water will be, when finished, taking the relative proportions of the different parts into consideration, just about 9 ft. wide and 4½ ft. deep. Of course, the excavation must be made greater in breadth and depth than the dimensions given, to allow for the surrounding walls and the bottom. The walls may be of brick, cemented within, and backed with concrete or puddled clay without, or of monolithic concrete; but the bottom, in any case, should be made of concrete. The trench *e f g h* running across the bottom of the cistern is 2 ft. broad and 2 ft. deep. In the middle of this opening is built up a 9 in. brick wall, or a party-wall of concrete, *i k*. Along the bottom of the wall openings *l* are left at intervals. The party-wall divides the entire space into the larger outer cistern *m*, and the smaller inner cistern *n*. Supposing the breadth from *e* to *f* to be 2 ft., and the wall 9 in., spaces of 7½ in. will be left on each side of the wall. These are filled to ¾ the height, or for 18 in., with lumps of charcoal, smooth pebbles, 1-3 in. in diameter, being laid along the top of the charcoal till the trench is filled up. The cistern

is so constructed that the water from the roof enters *m*; it passes downwards through the stones and charcoal, as shown by the arrow at *f*, goes through the opening and forces its way upwards in the direction of the arrow at *e* into the cistern *n*, in which it rises to the level of the water in *m*, to be drawn thence for use by a small pump.

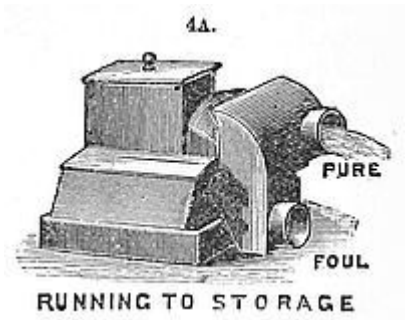
Various modifications of this form of tank-filter will suggest themselves to readers possessing any mechanical genius. The great point is to prevent contamination from the soil by using good material and making sound work. Further, the overflow pipe of the tank must not communicate with any drain or sewer.



4. Rain-water Separator.

Recently several inventors have introduced apparatus for separating rain-water from impurities. One of these, bearing the name of Roberts, is illustrated in Fig. 4. Its principle of action is to reject the first portion of the rain which falls (as it is this which chiefly washes the dirt off the roof), and only to collect the latter portion of the rain. The water from the roof first runs on to a strainer, that intercepts rubbish; it then passes through one of two channels in the upper part of the canter, balanced upon a pivot. At the commencement of a shower, the

canter is raised in the position shown in Fig. 4, “running to waste,” and the bulk of the water passes through a channel which directs it into the lower or wastewater outlet. Meanwhile, a very small proportion of the water is accumulating in the lower part of the canter, very slowly in light rain but more rapidly in heavy rain, so that it is filled up by the time the roof has become clean. Then the weight of water causes it to fall down as shown in Fig. 4A “running to storage,” so that the clean water may run through the upper storage outlet pipe. This very useful little apparatus is made and sold by C. G. Roberts, Collards, Haslemere, Surrey.



4A. Rain-water Separator.

Perhaps this affords as good an opportunity as any of drawing attention to the highly artistic rain-water heads that have lately been introduced by Thomas Elsley, of 32 Great Portland Street, W. These are made to suit every style of architecture and every variety of roof and guttering, and practically without limit as to size. Their quality is beyond praise.

It is essential to bear in mind that rain-water is liable to exert considerable solvent action on lead, consequently pipes and cisterns of this metal must be avoided. The pipes may be of iron, or of specially lead-encased block-tin, and the cisterns of

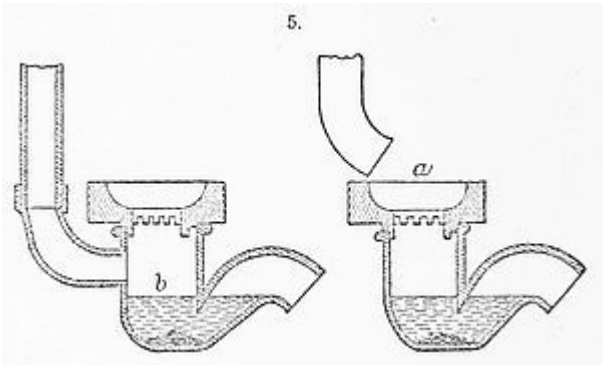
“galvanised” iron or slate.

As Eassie has pointed out, there is much to be considered in the arrangement of rain-water pipes from a sanitary point of view, where a separator and storage tank are not in use, because the foul air delivered from them is sucked into the rooms near the roof, on which the sun’s heat pours. A fire lighted in a room develops the same danger when the rain-water pipe terminates near the windows of the room. Another danger accruing from rain-water pipes which connect directly with the drain is due to the fact that the joints of the iron rain-water pipes are seldom air-tight, and foul air is therefore often driven or sucked into the rooms when the windows are open. It is easy to imagine how dangerous this must be in houses which have been fitted up with iron (or even lead) rain-water pipes running down the interior walls, and having their terminations close to a dormer window, skylight, or staircase ventilator on the roof, with the foot of the rain-water pipe taken direct into a drain leading to a town sewer. But the risk is greatly increased when the rain-water pipes are connected with a closed cesspool, to which the rain-water pipe is acting as a ventilator.

When rain-water pipes deliver into the drain directly, they are often made to act as soil pipes from the closets, in which case the evil is intensified. The soil from the closets is apt to adhere to the interior of the pipe, generally on the side opposite to that traversed by the rain-water, and the poisonous smell escapes at any bad joints and always at the roof orifice.

When the rain-water pipe is of cast iron, other sources of danger are present if the pipe is used also

for conveying soil from a closet. Unless the rim of the soil pipe from the closet is joined to the rain-water pipe by a proper cast-iron socketed joint, the connection must be made by means of a piece of lead pipe which receives the soil pipe, and the joint between the lead soil pipe and the upper and lower parts of the cast-iron pipe cannot be properly soldered. Here sometimes grievous calamity follows cases where the combined pipe is ventilating the drain and sewer; the pipe joints are frequently open, and when the windows are unclosed for ventilation the foul air is whisked into the house. Eassie insists that it is cheaper to owner and dweller alike to have a separate soil-pipe erected at first.



5. Outlet of Rain-water Pipes.

All rain-water pipes should deliver into the open air, and have no connection with the drains, except when they are disconnected. They should discharge their contents over a gully grating as at *a*, Fig. 5, or underneath the grating as at *b*, the ends of the pipes in both cases being in the open air. Every householder should insist upon this being carried out. But occasionally the rain-water pipes descend inside the house and there is no open yard where a disconnecting gully can be fixed. In such a case a

separate drain should be laid to the nearest area or yard, and separation ensured. In laying down new drains in a house, where the rain-water pipes must descend in the interior, it will be better to provide a separate or twin drain to the nearest open-air space.

Provision must be made at the roof for keeping foreign matters out of the rain-water pipes. Leaves, soot, and dirt will accumulate round the pipe orifices, and very often will cause the gutter to be flooded during a storm. The usual way to avert this is to fix over the opening of the pipe in the bottom of the gutter a galvanised open wire half-globe, or a raised cap of thick lead pierced with tolerably large holes. The cost for this is trifling, but the value is great. Whenever rain-water pipes *must* run down the inside wall of a house, lead should be adopted. Sometimes rain-water pipes are taken down in the interior, when a very little initial study could have brought them to the exterior face of a wall—where alone they should be taken, whenever it is possible to do so.

On attic roofs, and where only one side of the house can be used for the attachment of rain-water pipes, the water from one side is brought across the roof by means of a “box” gutter of wood, lined at the bottom and sides with lead or zinc, and covered with a board. This often emits a very foul smell, owing to the accumulation of decaying matter. When such guttering cannot be avoided, it should occasionally—say once a week—be carefully cleaned out. The same matters will sometimes silt up and stop the gullies, shown at the foot of the rain-water pipes (Fig. 5), hence it is equally necessary to see that these traps are cleaned out, say monthly.

Rain-water pipes are often made the waste pipes of

lavatories, baths, sinks, and slop-pails. When properly disconnected at the foot, in the open air, and when the top of the rain-water pipe does not terminate under a window of an inhabited room, this does not much matter; but when the court-yard is limited in area, and there is a window belonging to a living or sleeping room just overhead, where the rain from the roof delivers itself into the upright pipe, an offence will arise from the decomposing fats of soap, which form a slimy mess adhering to the interior of the pipe, that no amount of rainfall will dislodge.

Cisterns.—Cisterns should be in a cistern-room if possible, but, at all events, placed where they can be got at, covered over with suitable fittings, and ventilated to the open air. A drinking-water cistern should never be placed in a water-closet, for no amount of disconnection in such a case will suffice to counteract its evil surroundings. Neither should it be placed in a bath-room, which is liable to a steam-laden atmosphere. Nothing can be said against a site out of doors, on the flats, or below (if away from dustbins and ash-heaps); but in such cases the cistern, with its service pipes, should be well protected from frost. The position of a cistern should be equally carefully chosen no matter whether the supply be constant or intermittent, or whether there be a high or a low pressure cistern. And not only should it be made certain that the “standing waste” pipe of the cistern delivers in the open air, but that any “overflow” pipe of the cistern delivers in like cleanly fashion. It is too common to take these wastes down to the nearest sink. It might prove expedient to thus disconnect a cistern waste when time presses, and when the alternative is costly, but the practice is not to be commended.

Eassie's strictures with regard to cisterns apply equally to those feed cisterns which supply hot-water circulating cisterns or boilers where water is heated for kitchen, scullery, still-room, or bath-room uses. It is too common to find the feed cistern, which is the small iron cistern that automatically keeps the kitchen or other basement boiler full, placed in the darkest corner of the commonest stowaway cupboard, with its overflow pipe joined to the drain.

The materials of which cisterns are constructed vary much in town and country. In old houses will be frequently found cisterns formed of slabs of stone, just as they have been raised from the quarry, and sometimes of slabs of rough slate, and than these, provided they are regularly cleaned out and the waste pipes disconnected, probably no better basement cistern could be found. The same might perhaps be said of brickwork cemented inside. Cisterns composed of slate possess a drawback in their weight, which sometimes prevents them from being adopted upstairs. It has become a frequent practice now to have them enamelled white inside, so that the slightest discoloration of the water, or sediment at the bottom, can be instantly detected.

Cisterns composed of metal throughout embrace old cisterns of cast lead, dated early in the 18th century; these are quite harmless, on account of their natural silver alloy, and they may be trusted, all other conditions being satisfactory. Cast-iron cisterns, made of plates bolted together, if kept full, and not subject to rust, are unobjectionable. Wrought iron, which has afterwards been "galvanised," is a very common form of cistern, and appears to be the cheapest. Little can be said in its disfavour, although experiments made in America have proved that some

waters attack the inner coating. The commonest form of cistern is composed of wooden framing lined inside with sheet lead. This is not the best for storing drinking-water, and slate would be preferable; but no one would say that all water drawn from leaden cisterns would injuriously affect health. The interior of a lead-lined cistern will be found to acquire a whitish coating, and it is due to this chemical alteration of its surface that the contained water can be drunk with more or less impunity. Nevertheless, there are some waters which very readily attack lead, and care should be exercised in this respect. In cleaning out a lead cistern the surface should never be scraped, but simply washed down with a moderately hard brush. Sometimes houses are provided with zinc-lined wooden cisterns; this metal for several reasons is one of the worst materials for water storage, and should never be used for drinking-water. Neither should wooden butts or barrels be employed for storing water anywhere in a house, as they speedily become lined with a low vegetable growth detrimental to health.

A great mistake consists in storing away a great quantity of water in abnormally large cisterns, in consequence of which the tap is drawing off for a very long period the water first delivered to it, and which is not the cleanest water. This does not so much matter in cisterns which supply closets or baths, but it is reprehensible when the water is for the bedroom decanter and the nursery.

Pipes.—Pipes for conveying water are generally of lead, because it is more easily bent than any other metal; but frequently iron pipes are substituted when the water main has to be brought from a great distance. Eassie remarks that the conveyance of some

waters in long lengths of leaden pipe, in which the water must necessarily stand, and the use of leaden suction pipes in wells, is not a thing to be looked upon with great favour. Hence it is that galvanised iron pipes are used by some, and in the case of water conveyance from a long distance, the cast-iron pipes coated inside with Dr. Angus Smith's solution, or subjected to the Bower-Barff system of protection against rust, are now very largely adopted. Glass-lined pipes of the American pattern have also been introduced into this country, but have not yet made much headway, which is a pity, seeing that glass forms the best of all conduits for water. Much depends upon whether the water is of such a character as to rapidly decompose lead.

Leaden pipes, of sufficient weight per lineal foot, may fitly conduct the flushing water for closets and the cold water to baths and lavatories; but what is called "lead-encased block-tin pipe" should be used in conveying water from the separate drinking-water cistern. The cost is some 50 per cent. more than for leaden pipe, and there is more difficulty in making the joints, but these points are overbalanced by the certainty of non-pollution of the water. Water pipes should be fixed in separate wall chases, easy of access. Service pipes should also be kept separate from each other, and provided with proper stop-cocks in case of accident.

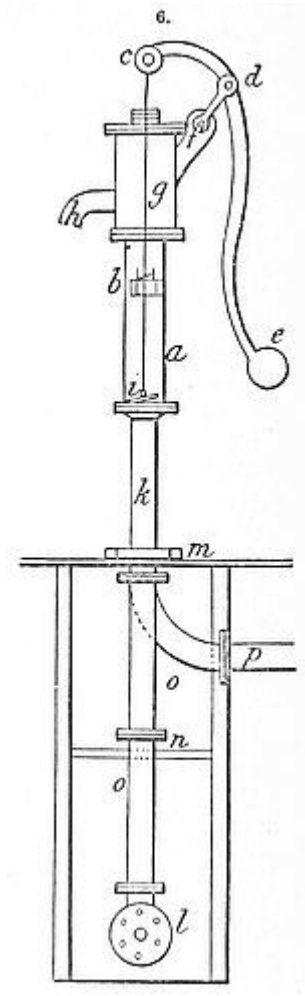
Pumps.—It will not be out of place here to offer a few remarks on the construction, capacity, and working of the 3 kinds of common pump in everyday use—i.e. (1) the lift-pump; for wells not over 30 ft. deep, (2) the lift and force, for wells under 30 ft. deep, but forcing the water to the top of the house, and (3) the lift and force, for wells 30-300 ft. deep.

The working capacity of a pump is governed by the atmospheric pressure, which roughly averages 15 lb. per sq. in. It is also necessary to remember that 1 gal. of water weighs 10 lb. The quantity of water a pump will deliver per hour depends on the size of the working barrel, the number of strokes, and the length of the stroke. Thus, if the barrel is 4 in. diam., with a 10 in. stroke, piston working 30 times a minute, then the rule is—square the diameter of the barrel and multiply it by the length of stroke, the number of strokes per minute, and the number of minutes per hour, and divide by 353, thus:—

$$\frac{42 \text{ in.} \times 10 \text{ in. stroke} \times 30 \text{ strokes} \times 60 \text{ minutes}}{353}$$

= 815 gal. per hour. About 10 per cent. is deducted for loss. The horse-power required is the number of lb. of water delivered per minute, multiplied by the height raised in ft., and divided by 33,000. Thus:—

$$\frac{815 \text{ gal.} \times 10 \text{ lb.} \times 30 \text{ ft. lift}}{33{,}000} = 7{\cdot}4 \text{ H.P.}$$



6. Lift Pump.

Fig. 6 shows a vertical section of the simple lift-pump. *a* is the working barrel, bored true, to enable the piston or bucket *b* to move up and down, air-tight. The usual length of barrel in a common pump is 10 in. and the diameters are 2, 2½, 3, 3½, 4, 5, and 6 in.; a 3 in. barrel is called a 3 in. pump. The stroke is the length of the barrel; but a crank, 5 in.

projection from the centre of a shaft, will give a 10 in. stroke at one revolution; but in the common pump shown, use is made of a lever pump handle, whose short arm *c d* is about 6 in. long, and the long arm or handle *d e* is usually 36 in., making the power as 6 to 1; *f* is the fulcrum or prop. Improved pumps have a joint at *f*, which causes the piston to work in a perpendicular line, instead of grinding against the side of the barrel. The head *g* of the pump is made a little larger than the barrel, to enable the piston to pass freely to the barrel cylinder; in wrought-iron pumps, the nozzle is riveted to the heads, and unless the head is larger than the barrel these rivets would prevent the piston from passing, and injure the leather packing on the bucket. The nozzle *h*, fixed at the lower part of head, is to run off the water at each rise of the piston. There is 1 valve *i* at the bottom of the barrel, and another in the bucket *b*.

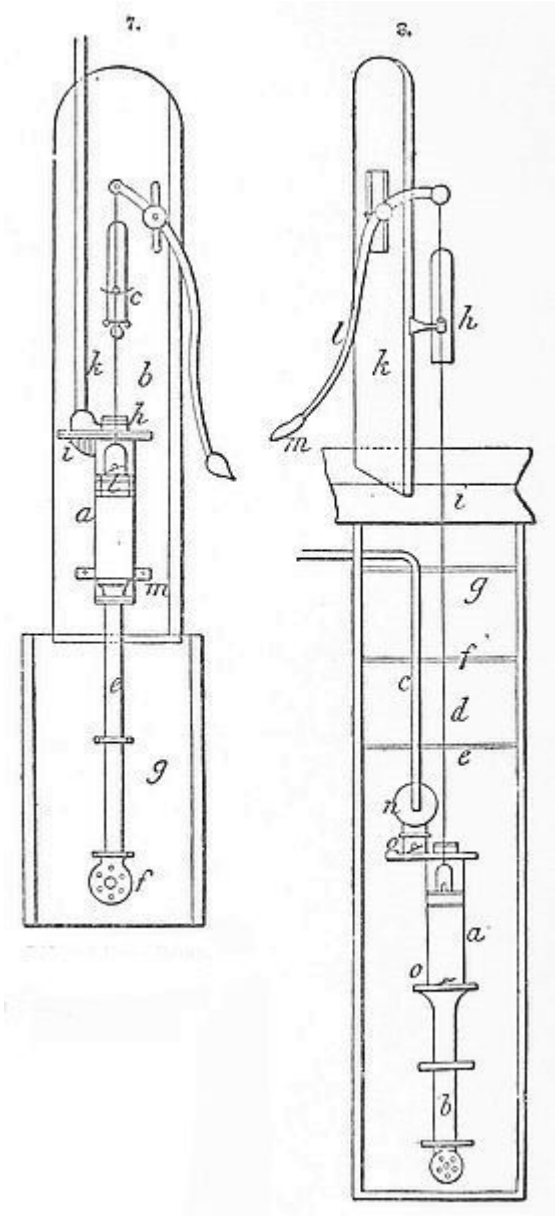
The suction pipe *k* should be ⅔ the diameter of the pump barrel. A rose *l* is fixed at the end of the suction pipe to keep out any solid matter that might be drawn into the pump and stop the action of the valves. The suction pipe must be fixed with great care. The joints must be air-tight: if of cast flange-pipe, which is the most durable, a packing of hemp, with white and red lead, and screwed up with 4 nuts and screws, or a washer of vulcanised rubber ⅜ in. thick, with screw bolts, is best. If the suction pipe is of gas-tube, the sockets must all be taken off, and a paint of boiled oil and red-lead be put on the screwed end, then a string of raw hemp bound round and well screwed up with the gas tongs, making a sure joint for cold water, steam, or gas.

Many plumbers prefer lead pipe, so that they can make the usual plumbers' joint. The tail *m* of the

pump is for fixing the suction pipe on a plank level with the ground. Stages *n* are fixed at every 12 ft. in a well; the suction pipe is fixed to these by a strap staple, or the action of the pump would damage the joints. There are two plans for fixing the suction pipe; (1) in a well *o* directly under the pump; (2) the suction pipe *p* may be laid in a horizontal direction, and about 18 in. deep under the ground (to keep the water from freezing in winter) for almost any distance to a pond, the only consideration being the extra labour of exhausting so much air. In the end of such suction pipe *p* it is usual to fix an extra valve, called a "tail" valve, to prevent the water from running out of the pipe when not in use. The action is simply explained. First raise the handle *e*, which lowers the piston *b* to *i*; during this movement the air that was in the barrel *a* is forced through the valve in the piston *b*; when the handle is lowered, and the piston begins to rise, this valve closes and pumps out the air; in the meantime the air expands in the suction pipe *k*, and rises into the barrel *b* through the valve *i*; at the second stroke of the piston this valve closes and prevents the air getting back to the suction pipe, which is pumped out as before. After a few strokes of the pump handle, the air in the suction pipe is nearly drawn out, creating what is called a vacuum, and then as the water is pressed by the outward air equal to 15 lb. on the sq. in., the water rises into the barrel as fast as the piston rises: also the water will remain in the suction pipe as long as the piston and valves are in proper working order.

The following table of dimensions for hand-worked simple lift-pumps will be found useful:—

Height for Water to be raised.	Diam. of Pump Barrel.	Water delivered per Hour at 30 Strokes per Min.	Diam. of Suction Pipe.	Thickness of Well Rods for Deep Wells.
ft.	in.	gal.	in.	in.
14	6	1640	4	1
20	5	1110	3	1
30	4	732	2½	⅞
40	3½	555	2½	¾
50	3	412	2	¾
75	2½	260	2	⅝
100	2	183	1½	⅝



7. Lift and Force Pump. 8. Deep-well Pump.

Fig. 7 shows a lift- and force-pump suitable for raising water from a well 30 ft. deep, and forcing it to the top of a house. The pump barrel *a* is fixed to a strong plank *b*, and fitted with "slings" at *c* to enable the piston to work parallel in the barrel, a guide rod working through a collar guiding the piston in a perpendicular position, *d* is the handle. The suction pipe *e* and rose *f* are fixed in the well *g* as already explained. At the top of the working barrel is a stuffing-box *h*, filled with hemp and tallow, which keeps the pump rod water-tight. When the piston is raised to the top of the barrel, the valve *i* in the delivery pipe *k* closes, and prevents the water descending at the down-stroke of the piston. The valve in the bucket *l*, also at *m* in the barrel *a*, is the same as in the common pump. The pipe *k* is called the "force" for this description of pump.

Fig. 8 shows a design for a deep-well pump, consisting of the usual fittings—viz. a brass barrel *a*, a suction pipe with rose *b*, rising main pipe *c*, well-rod *d*, wooden or iron stages *e f g*, and clip and guide pulleys *h*. The well-rod and the rising main must be well secured to the stages, which are fixed every 12 ft. down the well. An extra strong stage is fixed at *i*, to carry the pump—if of wood, beech or ash, 5 ft. × 9 in. × 4 in.; the other stages may be 4 in. sq.

The handle is mounted on a plank *k* fitted with guide slings, either at right angles or sideways to the plank. The handle *l* is weighted with a solid ball-end at *m*, which will balance the well-rod fixed to the piston. By fixing the pump barrel down the well about 12 ft. from the level of the water, the pump will act better than if it were fixed 30 ft. above the water, because any small wear and tear of the piston does not so soon affect the action of the pump, and

therefore saves trouble and expense, as the pump will keep in working order longer. It is usual to fix an air-vessel at *n*. The valves *o* are similar to those already described. In the best-constructed pumps, man-holes are arranged near the valves to enable workmen to clean or repair the same, without taking up the pump. Every care should be given to make strong and sound joints for the suction pipe and delivery pipe, as the pump cannot do its proper duty should the pipes be leaky or draw air.

To find the total weight or pressure of water to be raised from a well, reckon from the water level in the well to the delivery in the house tank or elsewhere. For example, if the well is 27 ft. deep, and the house tank is 50 ft. above the pump barrel; then you have 77 ft. pressure, or about 39 lb. pressure per sq. in. That portion of the pipe which takes a horizontal position may be neglected. The pressure of water in working a pump is according to the diameter of the pump barrel. Suppose the barrel to be 3 in. diam., it would contain 7 sq. in., and say the total height of water raised to be 77 ft., equal to 39 lb. pressure, multiplied by 7 sq. in., is equal to 539 lb. to be raised or balanced by a pump handle; then if the leverage of the pump handle were, the short arm 6 in. and long arm 36 in., or as 6 to 1, you have (539 $\times$ 1) $\div$ 56 = 90 lb. power on the handle to work the pump, which would require 2 men to do the work, unless you obtained extra leverage by wheel work. When the suction or delivery pipe is too small, it adds enormously to the power required to work a pump, and the water is then called “wiredrawn.” When pumps are required for tar or liquid manure, the suction and delivery pipe should be the same size as the pump barrel, to prevent choking.

The operations of plumbing and making joints in pipes will be found fully described and illustrated in 'Spons' Mechanics' Own Book'; and many other methods of raising water for household and agricultural purposes are explained in 'Workshop Receipts,' 4th series.

Purification.—At a recent meeting of the Institution of Civil Engineers, Prof. Frankland read a paper dealing with the question of water purification, in which he remarked that the earliest attempts to purify water dealt simply with the removal of visible suspended particles; but later, chemists have turned their attention to the matters present in solution in water. Since the advance of the germ theory of disease, and the known fact that living organisms were the cause of some, and probably of all, zymotic diseases, the demand for a test which should recognise the absence or presence of micro-organisms in water had become imperative. It was, however, only during the last few years that any such test had been set forth, and this was owing to Dr. Koch, of Berlin. By this means the only great step which had been made since the last Rivers Pollution Commission had been achieved. It had been supposed that most filtering materials offered little or no barrier to micro-organisms; but it was now known that many substances had this power to a greater or less degree. It had also been found that, in order to continue their efficiency, frequent renewal of the filtering material was necessary.

Vegetable carbon employed in the form of charcoal or coke was found to occupy a high place as a biological filter, although previously, owing to its chemical inactivity, it had been disregarded. Being an inexpensive material, and easily renewed, it was

destined to be of great service in the purification of water. Experiments were also made by the agitation of water with solid particles. It was found that very porous substances, like coke, animal and vegetable charcoal, were highly efficient in removing organised matter from water when the latter came in contact with them in this manner. Also, it was found that the well-known precipitation process, introduced by Dr. Clark, for softening water with lime, had a most marked effect in removing micro-organisms from water. In the case of water softened by this process, it was found that a reduction of 98 per cent. in the number of micro-organisms was effected, the chemical improvement being comparatively insignificant.

Water which had been subjected to an exhaustive process of natural filtration had been found to be almost free from micro-organisms. Thus, the deep-well water obtained from the chalk near London contained as few as eight organisms per cubic centimetre, whereas samples of river water from the Thames, Lea, and Wey had been known to contain as many thousands.

The same well-known authority on water published the following statements in the *Nineteenth Century*. He described the subject of domestic filtration as one which, in a town with a water supply like that of London, possesses peculiar interest, and is of no little importance. Most people imagine that by once going to the expense of a filter they have secured for themselves a safeguard which will endure throughout all time without further trouble. No mistake could be greater, for without preserving constant watchfulness, and bestowing great care upon domestic filtration, it is probable

that the process will not only entirely fail to purify the water, but will actually render it more impure than before. For the accumulation of putrescent organic matter upon and within the filtering material furnishes a favourable nest for the development of minute worms and other disgusting organisms, which not unfrequently pervade the filtered water; whilst the proportion of organic matter in the effluent water is often considerably greater than that present before filtration.

Of the substances in general use for the household filtration of water, spongy iron and animal charcoal take the first place. Both these substances possess the property of removing a very large proportion of the organic matter present in water. They both, in the first instance, possess this purifying power to about an equal extent; but whereas the animal charcoal very soon loses its power, the spongy iron retains its efficacy unimpaired for a much longer time. Indeed, in spongy iron we possess the most valuable of all known materials for filtration, inasmuch as, besides removing such a large proportion of organic matter from water, it has been found to be absolutely fatal to bacterial life, and thus acts as an invaluable safeguard against the propagation of disease through drinking-water.

It is satisfactory to learn that in countries where the results of scientific research more rapidly receive practical application than is unfortunately the case amongst us, spongy iron is actually being employed on the large scale for filtration where only a very impure source of water supply is procurable. This refers to the recent introduction of spongy-iron filter beds at the Antwerp waterworks. It would be very desirable that such filter beds should be adopted by

the London water companies until they shall abandon the present impure source of supply.

Animal charcoal, on the other hand, far from being fatal to the lower forms of life, is highly favourable to their development and growth; in fact, in the water drawn from a charcoal filter which has not been renewed sufficiently often, myriads of minute worms may frequently be found.

Thus spongy iron enables those who can afford the expense to obtain pure drinking-water even from an impure source; but this should not deter those interested in the public health from using their influence to obtain a water supply which requires no domestic filtration, and shall be equally bright and healthful for both rich and poor.

In a publication by Prof. Koch (*Med. Wochenschrift*, 1885, No. 37) on the scope of the bacteriological examination of water, it is asserted that a large proportion of micro-organisms proves that the water has received putrescent admixtures, charged with micro-organisms, impure affluxes, &c., which may convey, along with many harmless micro-organisms, also pathogenous kinds, i.e. infectious matters. Further, that as far as present observations extend, the number of micro-organisms in good waters ranges from 10 to 150 germs capable of development per c.c. As soon as the number of germs decidedly exceeds this number the water may be suspected of having received affluents. If the number reaches or exceeds 1000 per c.c., such water should not be admitted for drinking, at least in time of a cholera epidemic.

Dr. Link has lately examined a great number of the Dantzig well-waters chemically and bacterioscopically. The results obtained agree,

however, very ill with the above opinions of Koch. On the contrary, it appears very plainly that regular relations between the chemical results and those of the bacterioscopic examination do not obtain. Many well-waters, chemically good and not directly or indirectly accessible to animal pollutions, often contained considerable numbers of microbia, whilst other waters, chemically bad and evidently contaminated by the influx of sewage, showed very small numbers of bacteria undergoing development. If we further consider that, by far the majority, indeed, as a rule the totality of the bacteria contained in well-water, are indubitably of a harmless nature, and that when a pollution of the water by pathogenous germs has actually occurred, such germs will not in general find the conditions necessary for their increase, especially a temperature approximating to that of the body and a sufficient concentration of nutritive matter, but that they will rather perish from the overgrowth of the other bacteria inhabiting the water, we shall see that a judgment on the quality of water—according to the results of a bacterioscopic examination extending merely to a determination of the number of germs capable of development—must lead to inaccurate conclusions, which contradict the results of chemical analysis.

The attempt to put forward bacterioscopic examination as a decisive criterion for the character of a water is therefore devoid of a satisfactory basis. For the present, Dr. Link thinks the decision must be left to chemical analysis.

At any rate it is doubtful whether the test of the number of micro-organisms should determine the question whether a water is or is not safe to drink.

Dr. Koch's gelatine peptone test has enabled the analyst to recognise the absence or presence of microphytes; but, as was stated at a recent meeting of the Society of Medical Officers of Health, a sample of river water which might be marked "very good" by this test would develop an enormous number of colonies if kept for a few days, even in a "sterilised flask" protected from aerial infection. Prof. G. Bischof says, in fact, that a sample of New River water kept for six days in the above manner compares unfavourably as regards the number of "colonies" with a sample taken from the company's main and polluted with one per cent. of sewage, or with a sample of Thames water taken at London Bridge. It seems certain too that the water stored on board ship must develop an enormous number of "colonies"; but no special amount of disease is attributable to them, and it would seem to follow that, unless the number of microphytes can be shown to indicate, or to be a measure of, pollution, Koch's test is of little utility except as a guide to waterworks' engineers, by pointing out that the filters want cleaning. In the laboratory the test is no doubt of considerable value; but in analysing water it must be applied with discrimination, and waters of a totally different character should not be compared by the number of organisms. For instance, the water from Loch Katrine might contain large numbers of micro-organisms, and yet be perfectly safe as compared with a water in which few microphytes could be found, but which had been accidentally polluted by some of those pathogenous germs which undoubtedly exist, and which produce disease when they find a suitable environment. Not until we are able to discriminate between the harmless and the disease-producing microphytes, shall we be able to

test a water supply and declare it practically pure.

The foregoing paragraphs will suffice to show what a very unsatisfactory state our present knowledge of water is in. The only useful fact to be deduced from all the argument is that every household should filter its own drinking-water and take care that the filters are always kept clean and in good working order. There is one simple test for the purity of water, introduced by Dr. Hager in 1871, consisting of a tannin solution, directions for which will be found in the Housekeeper's section. It remains to notice the chief kinds of filter.

Filtration is destined to perform three distinct functions, at least where the water is required for domestic use; these are (1) to remove suspended impurities; (2) to remove a portion of the impurities in solution, and (3) to destroy and remove low organic bodies.

The first step is efficiently performed by nature, in the case of well and spring water, by subsidence and a long period of filtration through the earth; in the case of river water supplied by the various companies, it is carried out in immense settling ponds and filter beds of sand and gravel. This suffices for water destined for many purposes. The second and third steps are essential for all drinking-water, and are the aim of every domestic filter. The construction of water filters may now be discussed according to the nature of the filtering medium.

Gravel and Sand.—The usual plan adopted by the water companies is to build a series of tunnels with bricks without mortar; these are covered with a layer of fine gravel 2 ft. thick, then a stratum of fine gravel and coarse sand, and lastly a layer of 2 ft. of fine

sand. The water is first pumped into a reservoir, and after a time, for the subsidence of the coarser impurities, the water flows through the filter beds, which are slightly lower. For the benefit of those desirous of filtering water on a large scale with sand filtering beds, it may be stated that there should be 1½ yd. of filtering area for each 1000 gal. per day. For effective work, the descent of the water should not exceed 6 in. per hour.

This simple means of arresting solid impurities and an appreciable portion of the matters in solution, may be applied on a domestic scale, in the following manner.

Procure an ordinary wooden pail and bore a number of ¼ in. holes all over the bottom. Next prepare a fine muslin bag, a little larger than the bottom of the pail, and about 1 in. in height. The bag is now filled with clean, well-washed sand, and placed in the pail. Water is next poured in, and the edges of the bag are pressed against the sides of the pail. Such a filter was tested by mixing a dry sienna colour in a gallon of water, and, passing through, the colour was so fine as to be an impalpable powder, rendering the water a deep chocolate colour. On pouring this mixture on to the filter pad and collecting the water, it was found free of all colouring matter. This was a very satisfactory test for such a simple appliance, and the latter cannot be too strongly recommended in cases where a more complicated arrangement cannot be substituted. The finest and cleanest sand is desirable, such as that to be purchased at glass manufactories.

This filter, however, at its best, is but a good strainer, and will only arrest the suspended particles. In a modern filter more perfect work is required, and

another effect produced, in order that water containing objectionable matter in solution should be rendered fit for drinking purposes. Many persons when they see a water quite clear imagine that it must be in a good state for drinking. They should remember, however, that many substances which entirely dissolve in water do not diminish its clearness. Hence a clear, bright water may, despite its clearness, be charged with a poison or substances more or less injurious to health; such, for instance, as soluble animal matter.

To make a perfect filter, which should have the double action of arresting the finest suspended matter and removing the matters held in solution, and the whole to cost but little and capable of being made by any housewife, has long been an object of much attention, and, after many experiments and testing various substances in many combinations, the following plan is suggested as giving very perfect results, and costing only about 8*s.*

Purchase a common galvanised iron pail, which costs 2*s.* Take it to a tin-shop and have a hole cut in the centre of the bottom about ¼ in. diameter, and direct the workman to solder around it a piece of tin about ¾ in. deep, to form a spout to direct the flow of water downward in a uniform direction. Obtain about 2 qt. of small stones, and, after a good washing, place about 2 in. of these at bottom of pail to form a drain.

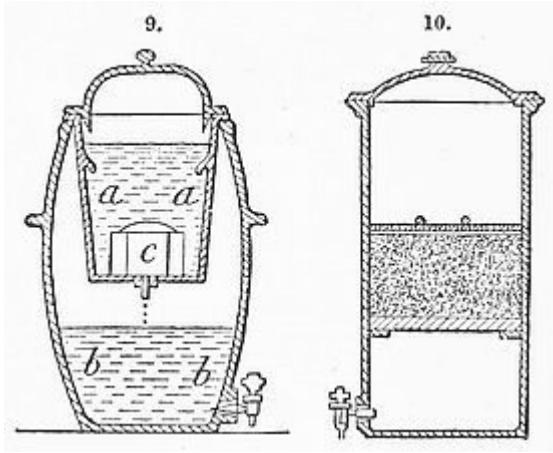
On this lay a partition of horse-hair cloth or Canton flannel cut to size of pail. On this spread a layer of animal charcoal, sold by wholesale chemists as boneblack at about 5*d.* a lb. Select this about the size of gunpowder grains, and not in powder. This layer should be 3 or 4 in. A second partition having

been placed, add 3 in. of sand, as clean and as fine as possible. Those within reach of glassmakers should purchase the sand there, as it is only with that quality of sand that the best results can be obtained. On this place another partition, and add more fine stones or shingle—say for 2 or 3 in. This serves as a weight to keep the upper partition in place, and completes the filter. By allowing the filtration to proceed in an upward instead of a downward direction much better results are obtained.

Charcoal, simple.—All kinds of charcoal, but especially animal charcoal, are useful in the construction of filters, and have consequently been much used for that purpose. Charcoal, as is well known, is a powerful decolorising agent, and possesses the property in a remarkable degree of abstracting organic matter, organic colouring principles, and gaseous odours from water and other liquids. It has been shown that it deprives liquids, for example, of their bitter principles, of alkaloids, of resins, and even of metallic salts, so that its usefulness as a medium through which to pass any suspected water is undoubted. The one point to be observed is that it does not retain its purifying power for any great length of time, so that any filter depending upon it for its purifying principle must either be renewed or the power of the charcoal restored from time to time, and this the more frequently in proportion to the amount of impurity present in the water. A combination filter of sand or gravel and granulated charcoal is a good one; but the physical, or chemico-physical, action of such compound filters, or of the other well-known filter, composed of a solid porous carbon mass, differ in no respect from that of the simple substances composing

them; that is to say, such combinations or arrangements are much more a matter of fancy or convenience than of increased efficiency.

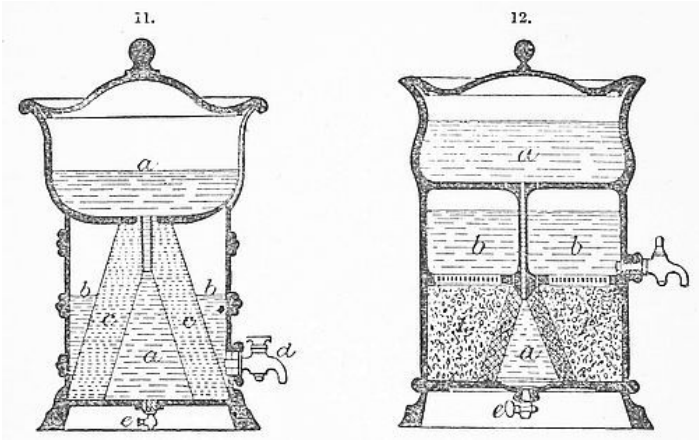
Experiments on the filtration of water through animal charcoal were made on the New River Company's supply in the year 1866, and they showed that a large proportion of the organic matter was removed from the water. These experiments were afterwards repeated, in 1870, with Thames water supplied in London, which contains a much larger proportion of organic matter, and in this case also the animal charcoal removed a large proportion of the impurity. In continuing the use of the filter with Thames water, however, it became evident that the polluting matter removed from the water was only stored up in the pores of the charcoal, for, after the lapse of a few months, it developed vast numbers of animalcula, which passed out of the filter with the water, rendering the latter more impure than it was before filtration. Prof. Frankland reported in 1874 on these experiments as follows:—"Myriads of minute worms were developed in the animal charcoal, and passed out with the water, when these filters were used for Thames water, and when the charcoal was not renewed at sufficiently short intervals. The property which animal charcoal possesses in a high degree, of favouring the growth of the low forms of organic life, is a serious drawback to its use as a filtering medium for potable waters. Animal charcoal can only be used with safety for waters of considerable initial purity; and even when so used, it is essential that it should be renovated at frequent intervals, not by mere washing, but by actual ignition in a close vessel. Indeed, sufficiently frequent renovation of the filtering medium is an absolutely essential condition in all filters."



9. 10. Atkins's filters

Fig. 9 shows Atkins's filter, in which *a* is the unfiltered and *b* the filtered water, *c* being a block of charcoal formed by mixing powdered charcoal with pitch or resin, moulding and calcining. The filter is capable of being taken to pieces and can thus be easily and frequently cleaned. The block should on such occasions be scraped, washed, boiled, and baked.

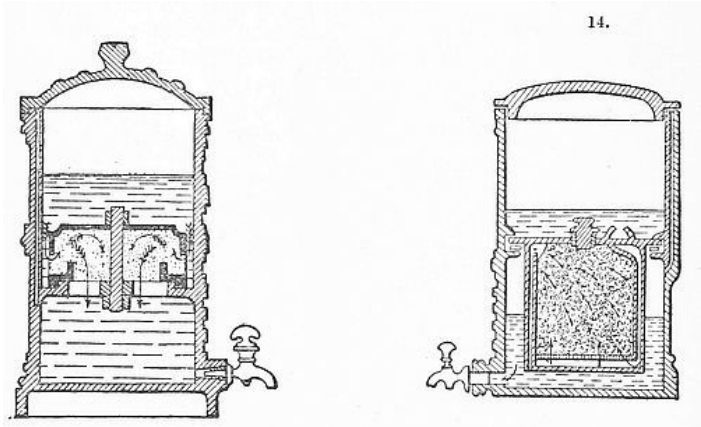
Fig. 10 illustrates another form of Atkins's, in which powdered charcoal is used, retained between movable perforated earthenware plates.



11. 12. Sawyer's Filters.

Figs. 11, 12 represent Sawyers filters, in which *a* is unfiltered water; *b*, filtered water; *c*, charcoal hollow cone; *d*, filtered water tap; *e*, sediment tap; *f*, mass of granular charcoal. The most important feature here is the *upward* filtration.

Charcoal modified.—Several substances have been proposed for combination with carbon to improve its filtering capacity or increase its germ-destroying powers.

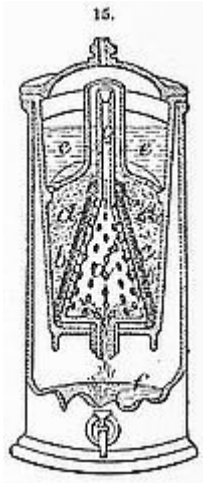


13. Silicated Carbon. 14. Silicated Carbon.

Silicated Carbon.—This was one of the earliest modifications of the simple carbon block. Figs. 13, 14 show respectively the forms adopted for downward and upward filtration. In the former, the stoneware receptacle is divided into two parts by a diaphragm upon which there is fixed, by a porcelain stay, a silicated carbon block, which entirely closes the apertures in the diaphragm. The upper surface and corners of the filtering block are non-porous, consequently the water has to enter at the edges and follow the course indicated by the arrows, before it can reach the clear water compartment below. In cleaning the filter, it is only necessary to unscrew the nut, when the block can be lifted out and soaked in boiling water, after which the surface can be scrubbed.

The ‘Army Medical Report’ says of filters employing carbon in porous blocks that “These are powerful filters at first, but they are apt to clog, and require frequent scraping, especially with impure waters. Water filtered through them and stored,

shows signs of the formation of low forms of life, but in a less degree than with the loose charcoal. After a time, the purifying power becomes diminished in a marked degree, and water left in contact with the filtering medium is apt to take up impurity again, though perhaps in a less degree than is the case with the loose charcoal." The advantages of combining silica with the carbon are not at first sight apparent.



15. Maignen's Filter.

Maignen combines charcoal with lime to produce a compound which he calls "carbo-calcis." At the same time he employs an asbestos filtering cloth. The arrangement of his filter is shown in Fig. 15. The hollow, conical, perforated frame *a* is covered with asbestos cloth *b*; *c* is a layer of finely powdered carbo-calcis, deposited automatically by being mixed with the first water poured into the filter; *d* is granular carbo-calcis filling up the space between *c* and the sides of the containing vessel; *e*, unfiltered water; *f*, filtered water; *g*, tube for admitting air to aërate the water and correct the usually vapid flavour of filtered water. This filter has remarkable power; wine passed through it will come out colourless and tasteless. Moreover the cleansing and renewal of the filtering media are simple in the extreme.

Prof. Bernays, of St. Thomas's Hospital, has taken out a patent for a new filtering material, consisting of charcoal combined with a reduced manganese

oxide. The well-known purifying action of charcoal (animal and vegetable), which in its ordinary state is liable to certain difficulties and objections, is in this invention supplemented and improved by heating it in covered crucibles with 5 to 15 per cent. or more of powdered manganese black oxide (the mineral pyrolusite), together with a very small quantity of some fixed oil, resin, or fat. Having ascertained that the simple admixture of the manganese dioxide with the charcoal without previous heating had no utility as a filtering medium, and was even injurious by reason of the diminution of the porosity of the charcoal, Prof. Bernays devised the above method with the object of oxidising the hydrogen and other oxidisable impurities of the charcoal, and hence approximating it to pure carbon in a state similar in efficacy to platinum black rather than in its ordinary less powerful analogy to spongy platinum. The heating is of course out of contact with air, and the temperature sufficiently high to cause the reduction of the manganese dioxide at least to manganous-manganic oxide, which afterwards acts as a carrier of oxygen, and thereby much prolongs the purifying action of the medium. Another method of obtaining charcoal in combination with manganous-manganic oxide is to saturate charcoal with manganous chloride (or even manganese residues) and afterwards subject it to a strong heat in closed crucibles. The charcoal prepared in the above manner may be employed in the filtration of water in layers with sand and other filtering material in the usual manner.

A filtering material which has all the properties of animal charcoal, and is said to give higher results, is magnetic carbide, discovered by Spencer, many years ago, and consists of iron protoxide in chemical

combination with carbon. It is considered that the purifying effect is produced by its power of attracting oxygen to its surface without the latter being acted on, the oxygen thus attracted being changed to ozone, by which the organic matter in the water is consumed.

There can be no doubt of the value of this filtering material. Its manufacture is very simple, as it is obtained by roasting hematite iron ore with granulated charcoal for 12 to 16 hours at a dull red heat, and used in a granular form. Another form for making this material is to heat the hematite (iron red oxide) with sawdust in a close vessel. The product is magnetic, and never loses its activity until the pores are choked up. The Southport Water Company formed their filtering beds of this material, and after years of use it is still giving satisfaction.

Iron.—From experiments made by allowing water to filter through spongy iron on to meat, it has been found that after 6 weeks the meat remained fresh. Another test was made by preparing a hay infusion, which was kept till it showed abundance of organic life. The infusion was filtered through spongy iron with layers of pyrolusite, sand, and gravel, and then was kept in contact with meat for many weeks. The meat showed no signs of putrescence. In some of the experiments filtered air was supplied, which proves conclusively that bacteria or their germs are not revived when supplied with oxygen after the filtration; this is a result of importance, as it demonstrates that by filtration through spongy iron, putrefaction of organic matter is not only suspended for a time, but that it ceases entirely until reinstated by some putrefactive agent foreign to the water. The peculiar action of spongy iron is believed to be thus

explained. If a rod be inserted into a body of spongy iron which has been in contact with water for some time, gas bubbles are seen to escape. These are found to contain carbon and hydrogen, and experiments lead to the conclusion that the carbon is due to the decomposition of organic matter.

The material was introduced for filtration purposes some years ago by Prof. Bischof. His ordinary portable domestic filter consists of an inner, or spongy iron, vessel, resting in an outer case. The latter holds the “prepared sand,” the regulator arrangement, and the receptacle for filtered water. The unfiltered water is, in this form of filter, mostly supplied from a bottle, which is inverted into the upper part of the inner vessel. After passing through the body of spongy iron, the water ascends through an overflow pipe. The object of this is to keep the spongy iron, when once wet, constantly under water, as otherwise, if alternately exposed to air and water, it is too rapidly oxidised.

On leaving the inner vessel, the water contains a minute trace of iron in solution, as carbonate or ferrous hydrate, which is separated by the prepared sand underneath. This consists generally of 3 layers, namely, commencing from the top, of pyrolusite (manganese black oxide), sand, and gravel. The former oxidises the protocompounds of iron, rendering them insoluble, when they are mechanically retained by the sand underneath. Pyrolusite also has an oxidising action upon ammonia, converting it more or less into nitric acid.

The regulator arrangement is underneath the perforated bottom, on which the prepared sand rests. It consists of a tin tube, open at the inner, and closed by screw caps at its outer end. The tube is cemented

water-tight into the outer case, and a solid partition under the perforated bottom referred to. It is provided with a perforation in its side, which forms the only communication between the upper part of the filter and the receptacle for filtered water. The flow of water is thus controlled by the size of such perforation. Should the perforation become choked, a wire brush may be introduced, after removing the screw cap, and the tube cleaned. Thus, although the user has no access to the perforation allowing of his tampering with it, he has free access for cleaning. Another advantage of the regulator arrangement is that, when first starting a filter, the materials may be rapidly washed without soiling the receptacle for filtered water. This is done by unscrewing the screw cap, when the water passes out through the outer opening of the tube, and not through the lateral perforation.

Various modifications had, of course, to be introduced into the construction of spongy iron filters, to suit a variety of requirements. Thus, when filters are supplied by a ball-cock from a constant supply, or from a cistern of sufficient capacity, the inner vessel is dispensed with, as the ball-cock secures the spongy iron remaining covered with water. This renders filters simpler and cheaper.

As the action of spongy iron is dependent upon its remaining covered with water, whilst the materials which are employed in perhaps all other filters lose their purifying action very soon, unless they are run dry from time to time, so as to expose them to the air, the former is peculiarly suited for cistern filters.

Cistern filters are frequently constructed with a top screwed on to the filter case, by means of a flange and bolts, a **U**-shaped pipe passing down from this

top to near the bottom of the cistern. This tube sometimes supplies the unfiltered water, or in some filters carries off the filtered water, when upward filtration is employed. This plan is defective, because it practically gives no access to the materials; and unless the top is jointed perfectly tight, the unfiltered water, with upward filtration, may be sucked in through the joint, without passing at all through the materials. This is remedied by loosely surrounding the filter case with a cylindrical mantle of zinc, which is closed at its top and open at the bottom. Supposing the filter case to be covered with water, and the mantle placed over the case, an air valve is then opened in the top of the mantle, when the air escapes, being replaced by water. After screwing the valve on again, the filter is supplied with water by the siphon action taking place between the mantle and filter case and the column of filtered water, which passes down from the bottom of the filter to the lower parts of the building. These filters are supplied with a regulator arrangement on the same principle as ordinary domestic filters. The washing of materials, on starting a filter, is easily accomplished by reversing 2 stop-cocks, one leading to the regulator, the other to a waste pipe.

The use of spongy iron has now been applied on a large scale to the water obtained from the river Nette, for the supply of the city of Antwerp. Dr. Frankland has visited the Antwerp Waterworks at Waelheim, about 15 miles above that city, and reported on the result of his inquiry. He attaches especial value to the fact that spongy iron filtration "is absolutely fatal to *Bacteria* and their germs," and he considers it would be "an invaluable boon to the Metropolis if all water supplied from the Thames and Lea were submitted to this treatment in default of a

new supply from unimpeachable sources."

Many preparations of iron have long been known to possess a purifying influence on water containing organic impurities. Thus Scherer, years ago, recommended a solution of iron sulphate where the impurities were present in large quantity. Later still, iron chloride was proposed as suitable, the salt being precipitated in the presence of organic matter as ferric oxide, the oxide thus formed acting also mechanically on the suspended impurities in course of precipitation, very much as white of egg acts in clarifying liquids, when it coagulates and carries impurities with it to the bottom. Other iron preparations have a similar action, notably dialysed iron, while several oxidising agents, such as potash permanganate, are also well known to possess a powerful effect on organic impurities. It will at once be seen, however, that all such substances are inadmissible as filtering media, or purifying agents for potable waters, for the reason, that in the case of some at least of the agents mentioned, decompositions take place, which in themselves might prove dangerous, while in the case of all an excess (and it would be almost impossible to avoid an excess) of the purifying agent would be equally bad, and would render the water quite unfit for domestic purposes. It has been found, however, that various kinds of native rock containing iron protoxide effect the filtration of water very completely, and Spencer, acting on this idea, after experimenting, found that when the iron protoxide was isolated as magnetic oxide, it both freed the water from turbidity and effected decoloration very quickly. Thus bog-water, as dark as porter, when filtered through it speedily lost its colour and became clear and sweet, the carbonic acid given off during

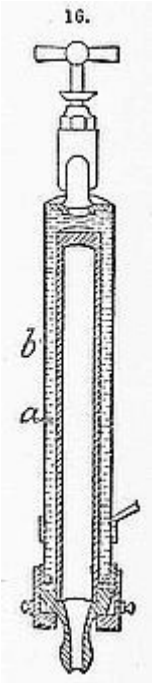
the process of decomposition rather tending to improve the water. The purifying power of the magnetic oxide does not deteriorate with use. The oxide gets coated with a slimy deposit, owing to the deposition of decomposed organic matter, but this being removed, it is as powerful as ever in its purifying action. Unfortunately this iron rock is not found native to any extent, but the fact of its action being determined, Spencer continued his experiments with the result that it can now be produced artificially, and forms one of the most efficient and useful filters for domestic purposes.

Metallic iron is employed by Jennings & Hinde. The filtering material consists of fine iron or steel shavings, filings, turnings, or borings obtained from the swarf or skin of cast iron, wrought iron, or steel; this material may either be used by itself, or it may be used with other materials, either mixed with them or in separate layers. The iron or steel shavings, &c., are obtained from iron or steel that has been brought to a state of fusion either by melting or the processes necessary for making cast iron, wrought iron, or steel, and being separated from many of the impurities contained in the ore from which it was obtained, will have but a comparatively small portion of earthy impurities mixed with it, and will be for this reason superior to iron which is obtained from native ores or oxides without fusion.

By filtering water through small divided swarf or skin of cast iron, wrought iron, or steel, free oxygen will be withdrawn from the water, and consequently any insects or animalculæ contained in the water will be deprived of life, and any germs contained in the water will be deprived of the oxygen necessary for their development and life, and the water will be

consequently purified and rendered wholesome. A convenient way of forming a filter is to use a layer of the turnings, shavings, &c., together with layers of other filtering material resting upon a perforated partition placed across a closed vessel. The materials are cleaned by boiling them in hot water with a small quantity of ordinary washing soda, to remove any oil or grease that might accidentally be associated with the materials above mentioned. Afterwards the iron borings should be well washed before being put into the filter. The filter vessel may be of any ordinary construction and shape. If sand is used in conjunction with the above-mentioned materials, it is preferable to place some of the sand at the bottom of the filtering vessel, and the iron or steel materials, or both, over the sand, and then more sand over them. These materials are disposed so that they may be partially separated from each other by perforated plates of earthenware, glass, or other suitable material. But this partial separation, though convenient, is not essential, as the perforated plates may be dispensed with and the material placed over and under each other in layers without plates to separate them.

Porous Pottery.—Chamberland has found that the liquid in which microbes have been cultivated becomes absolutely pure if passed through unglazed porcelain. Its purity can be demonstrated by mixing it with liquids sensitive to the action of microbes, such as veal broth, milk, and blood, in which it produces no alteration.



16. Chamberland Filter.

A tube *a* (Fig. 16) of unglazed porcelain is enclosed in another *b* of metal, and the water to be filtered is admitted to the space between the two by turning a stop-cock. Thence it slowly filters through to the inside of the porcelain tube, and flows out at the bottom. Under a pressure of 2 atmospheres, or 30 lb. to the sq. in., a tube 8 in. in length, with a diameter of 1 in., will yield about 5 gal. of water daily. For a larger supply, it is only necessary to increase the size or the number of the tubes.

In cleansing the filter, the porcelain tube is removed, and the microbes and other matter that have accumulated on the outer face of it are brushed off. The tube may also be plunged in boiling water in order to destroy any germs that may be supposed to

have penetrated beneath its surface; or it may be heated in a gas jet or in a furnace. In fact, it can be more readily and more thoroughly cleaned than most of the domestic filters in ordinary use.

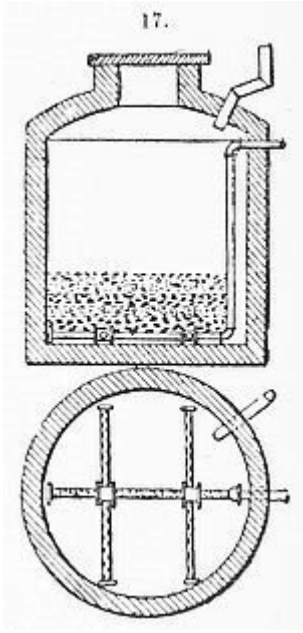
It is interesting to remark that some of the earliest filtering vessels of which we have any knowledge are simply made of porous earthenware. After all our modern researches after antiseptic filtering media, we are reverting to the ways of our remotest forefathers.

Filtering Cisterns.—The following is a description of a filter which purifies foul water from organic impurities held in solution as well as from suspended solids. Take any suitable vessel with a perforated false bottom, and cover it with a layer of animal charcoal, on the top of that spread a layer of iron filings, borings, or turnings, the finer the better, mixed with charcoal dust; on the top of the filings place a layer of fine clean siliceous sand, and you will have a perfect filter. Allow the foul water to filter slowly through the above filter, and you will produce a remarkably pure drinking-water. Before placing the iron filings in the filter, they must be well washed in a hot solution of soda or potash, to remove oil and other impurities, then rinse them with clean water; the filings should be mixed with an equal measure of fine charcoal. If the water is very foul, it must be allowed to filter very slowly. The deeper the bed of iron filings is the quicker they will act.

In Bailey-Denton’s cistern filter, the principal novelty is that it runs intermittently, and thus allows the aëration of the filtering material, and the oxidation of the impurities detached from the water. The oxidation is effected by the perfect aëration of

the filtrating material, which may be of any approved kind, through which every drop of water used in the kitchen, bedrooms, and elsewhere must pass as it descends from the service cistern for use. As water is withdrawn from this filter, fresh water comes in automatically by the action of a ball-tap; and this fresh water immediately passes through the aërated material into a lower chamber, forming the supply cistern of filtered water for the whole house. The advantages claimed for the filter are that it secures pure water for the whole house. It is attached by pipe to, but is distinct from, the service cistern; it can be placed in any part of the house, and it cannot get out of order. Any approved filtering material may be used, and being aërated between each passage of water through it, oxidation is made certain.

A slate or iron cistern and filter combined may be made by dividing the cistern with a vertical partition perforated at the bottom, and placing in the half of the cistern which receives the water, a bed of filtering material, say 6 in. of gravel at the bottom, 6 in. animal charcoal in granular form in the middle, and 6 in. clean sharp sand at the top, covering all by a perforated distributing slab.



17. Filter Cistern.

Fig. 17 illustrates a method of preparing an ordinary house cistern for filtering. The pipe and fittings should be of galvanised iron; black or plain iron is better as long as it lasts, as it rusts fast; in either case it is better to waste the water first drawn, for the water absorbs both the zinc and the iron when standing overnight. The zinc is not healthy, and the taste of the iron is unpleasant.

The perforations should equal 3 or 4 times the area of the suction pipe, which in ordinary cisterns may be 1¼ in. pipe, while the branches may be ¾ in. pipe. The holes, if ⅛ in., should number at least 200, distributed along the lower half of the pipes. Smaller holes are preferable; of $^{1}/_{16}$ in. holes, 800 will be required.

For the filtering material we recommend a layer of

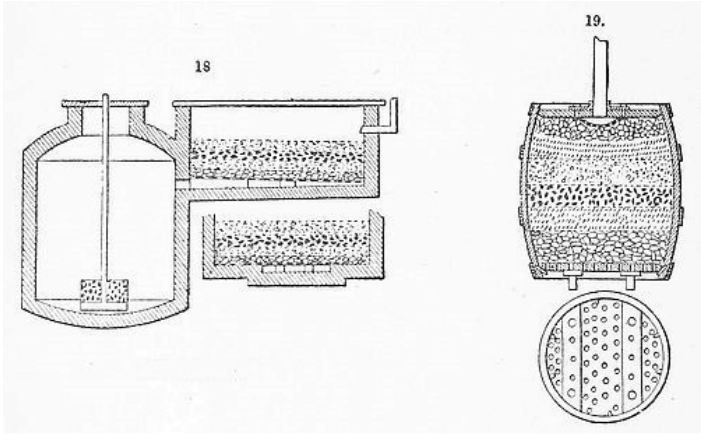
fine gravel or pebbles for the bottom, 3 or 4 in. in depth, or heaped up over the perforated pipes; upon this a layer of sharp, clean sand, 9 in. in depth; upon this a stratum of pulverised charcoal, not dust, but granulated to size of peas or beans, or any of the material above mentioned, 4 in. deep; and upon this a stratum of fine, clean sand 6 to 12 in. in depth.

Such a filter should be cleansed at least twice in a year by pumping out all the water, taking out the mud or settlings, and one-half the depth of the top layer, and replacing with fresh sand.

The double filter cistern, Fig. 18, has much to recommend it, having a large receiving basin which in itself is a filter placed in a position for easy cleaning. The recess at the bottom may be covered with a perforated plate of galvanised sheet iron, upon which may be laid a filter bed of gravel, sand, charcoal, spongy iron, and sand in the proportions as stated above. This enables the frequent cleaning by removing the top layer of the filter bed without disturbing the water supply. The cover should fit tight enough to keep out insects and vermin.

A double-bottomed basin perforated and filled with clear, sharp sand and charcoal should be attached to the bottom of the pump pipe, as shown.

This enables the small filter to be drawn up and cleaned, without the necessity of emptying the cistern or interrupting the water supply.



18. Filter Cistern. 19. Keg Filter.

The half barrel or keg filter, as illustrated in Fig. 19, is a convenient form of cistern filter where filtered water is required from cisterns already filled.

This is also a convenient form for readily cleaning or changing the filter without the necessity of discharging the water from the cistern.

This filter can be made from an oak keg or half barrel, such as is used for liquors or beer. Take out one of the heads and cut away the edge, so that it will just drive into the end of the keg, fasten 2 battens of oak across the head with oak pins left long enough to serve for legs for the filter to rest upon.

Bore this head full of holes ¼ in. diameter. In the other head bore a hole 1¼ in. diameter, and bolt an iron flange into which the pump pipe is to be screwed. Let the bolts also fasten upon the inside a raised disc of galvanised sheet iron, perforated with a sharp point or chisel. Proceed to charge the filter by turning the top or flanged head down, and placing next the perforated plate a layer of fine gravel 3 in.

thick, then a layer of sharp, clean sand 3 in. thick, then a layer of pulverised charcoal free from dust, 3 in. thick, then a layer of sharp clean sand mixed with spongy iron, pulverised magnetic iron ore, or blacksmiths' scales, followed by a layer of coarse sand, gravel, and broken stone, or hard burnt bricks broken into chips to fill up. Place the perforated bottom in as far as the head was originally; bore and drive a half-dozen oak pegs around the chine to fasten the head. Then turn over the filter, screw the pump pipe into the flange, and let it down into the cistern.

Such a filter requires to be taken out and the filtering renewed in 6 to 12 months, depending upon the cleanliness of the water catch. With the precautions mentioned above in regard to the care of the roof, such a filter should do good work for one year.

Sanitation.—This heading is intended to embrace the removal and disposal of the various kinds of refuse and waste produced in the dwelling from day to day. Endless volumes have been written on the subject, but in plain words the whole art resolves itself into sound pipes for the conveyance of the fluid portion and efficient ventilation of the receptacles and conduits.

House Drains.—It was pointed out by Burton,[1] before the Society of Arts, that where, as in London, the sewerage system is fairly good, dangers to health arise not from the sewers direct, but either from the sewers by means of the house drains, or even more often from the house drains themselves. It is quite agreed by medical authorities that diseases may arise from gases evolved from the drains, or even

discharge pipes in a house, entirely apart from any specific infection such as may be conveyed by means of sewers.

This being the case, it will be seen that the thing which most behoves us is to make sure that the house system is efficiently doing its work. It is evident that the objects to be aimed at in constructing a system of house drainage, are as follows:—

First. All matter placed in any of the sanitary appliances in the house must be carried, with the greatest possible expedition, clear of the premises, leaving behind it as little deposit as possible.

Second. All sewer air must be prevented from entering the houses by the channels which serve to carry away the sewage.

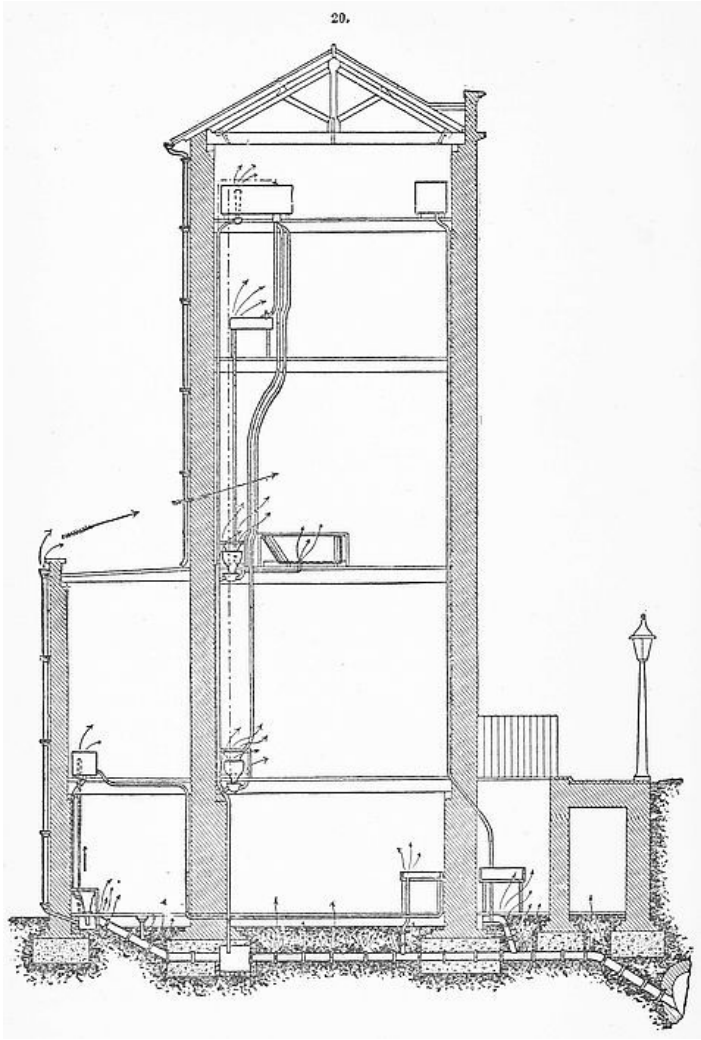
Third. Since it is impossible to have house drains absolutely clean, that is, devoid of all decomposing matter, all air from house drains, and even from sink, bath, and other waste pipes must be kept out of the dwelling-rooms.

To which might be added a fourth, that a constant current of fresh air must be established along every pipe in which it is possible that any decomposing matter may remain, so that such matter may be rapidly oxidised, or rendered innocuous.

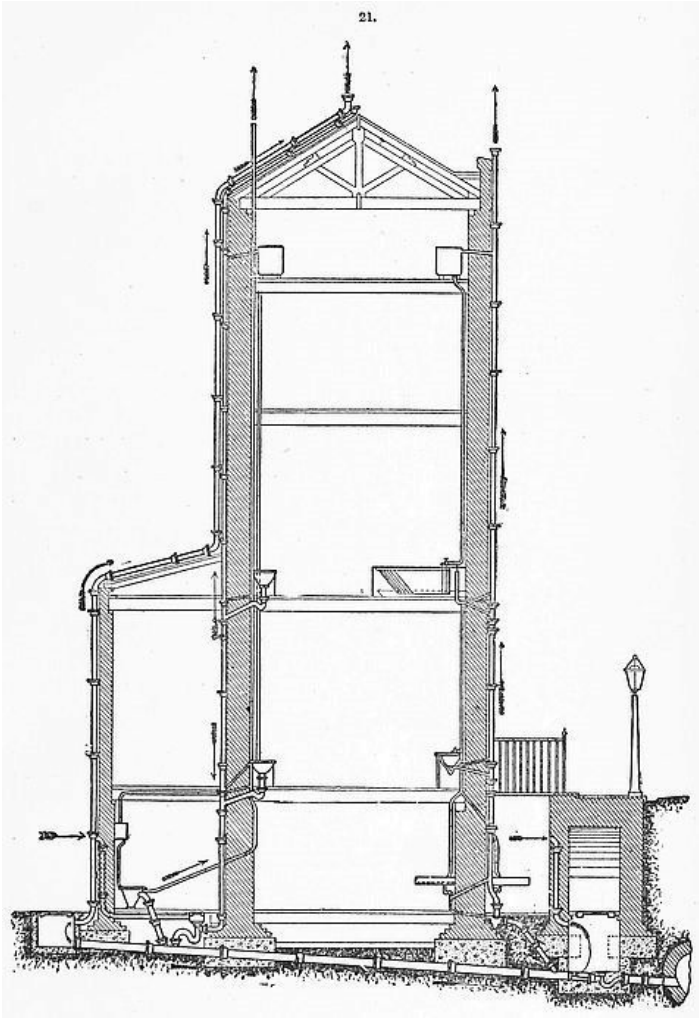
The number of houses in which sanitary inspectors find the drainage arrangements to be thoroughly good, and to be fulfilling these conditions, is surprisingly small. In fact, in all the houses they are called upon to examine, except those which have been arranged, within the last dozen years or so, by some engineer, builder, or plumber who has made a special study of the matter, are found defects which

interfere with the due fulfilment of one or other of these conditions.

Attention is called to Fig. 20, in which the drainage arrangements are shown to be defective. Here Burton has taken such a state of affairs as is by no means uncommon in a London house. Alongside it is a drawing which illustrates a well-drained house (Fig. 21). By their juxtaposition, the defects exhibited will be made more patent.



20. Ill-arranged House.



21. Well-arranged House.

The first point demanding attention is the condition of the main drain. It will be seen that it is little other than an elongated cesspool. The size is unnecessarily large. As a consequence, even if it were perfect in all other respects, it would not be self-

cleansing, inasmuch as there can never pass down the drain which serves for a single house enough water to scour out pipes of the size illustrated, namely, 9 in. diameter.

It will be seen, however, that the state of affairs is far from correct, apart from the size of the pipes. In the first place, the joints are not tight; sewage will soak out into the ground through them. In the second place, although there is ample allowance between the two ends of the drain for a good fall, or incline, this fall has all been confined to a few feet of its length, the part underneath the house being laid almost level. This is done simply to avoid the trouble of excavating the ground to a sufficient depth.

Let us now follow the action of a drain of this kind, and see what it will lead to. Sewage matter finds its way into it. As we all know, this matter depends on water to carry it forward. It is probable that, while the drain is new and the ground comparatively solid around it, sufficient water will remain in it to carry the greater part of the sewage to the sewer. But this state of affairs will not last. Before long, some unusually heavy or obstinate matter will get into the drain. It will be carried only so far, and will then stick. Any water now coming behind it will “back up,” to a certain extent, and will very soon find its way into the soil, from one or more points behind the obstruction—not yet amounting to a stoppage. As a consequence, sewage now passing into the drain, loses its carrying power, and gets no farther than a certain distance. Before long, a complete stoppage takes place, and all the sewage of the house soaks into the ground under the basement. After this, things go from bad to worse. The saturated ground no longer properly supports the

pipes, which, as a consequence, will become more and more irregular, and all hope of the drain clearing itself is lost. It is only a question of time, with a drain such as that shown, and the inmates of the house will be living over a cesspool.

As a matter of fact, total obstruction or stoppage has been discovered in 6 per cent. of the houses which have been inspected.

The next point worthy of attention is the soil pipe; this term being at present used to signify the vertical portion of the drain only, although it very often is also used as meaning the almost horizontal drain under the house.

The soil pipe is of lead. This is an excellent material if the pipe be properly arranged, but here it is not. The great fault is that there is no ventilation. As a consequence, the upper part of the pipe will always be filled with sewer gas, which tends to rise in a somewhat concentrated state. Now, sewer gas has a powerful action on lead, and, therefore, a soil pipe arranged without ventilation never stands many years before it becomes "holed," that is to say, is worn through at its upper part. When this occurs, of course, there is ventilation enough, but it is into the house. The ventilation in this case will, in fact, be most active, because every house, on account of the fires in it, acts, especially in winter, as a chimney, and draws in sewer or other gas from every possible crevice.

At the top of the soil pipe will be found the commonest of all water-closet arrangements, namely, the pan-closet with **D** trap. This arrangement is exceedingly well known: it is a most skilfully devised piece of apparatus for retaining sewage in the house, and distilling sewer gas from the same, and it is the

cause of probably nine out of ten of the actual smells perceived in houses, even if it does not (as some say) give rise to much actual disease.

The soil pipe discharges over a small cesspool at the foot. This is a very common arrangement. The cesspool is usually dignified by the name of a dip trap. The percentage of houses showing leaky soil pipes is 31.

Now, observe that, although our constructor has not ventilated his soil pipe, he has been careful not to leave the system entirely without ventilation. On the contrary, by the simple device of leaving a rain-water pipe untrapped at the foot, he has ventilated the drains, and also the public sewer, into the back bedroom windows! This is a quite common arrangement, and frequently results in typhoid fever.

Next, in order, we may take the case of the discharge pipes from baths, sinks, basins, and all such appliances. It has been laid down as a rule by the best sanitary authorities that these appliances must discharge not into the soil drains, but into the open air over trapped gullies, as it has been found that this is the only way of being absolutely certain that no sewer air shall enter the rooms by the discharge pipes. It is quite true that if a trap be fixed on a discharge pipe of, say, a sink, the greater part of the sewer air may be kept back from the house; but traps, however excellent they may be in *assisting* to keep out sewer air, are not alone sufficient. There are several reasons for this. In the first place, there is the fact that a certain amount of sewer gas will pass through the water of a trap, or, to speak more strictly, will be absorbed by the water on one side, and afterwards given off on the other side. It is true that in the case of a well-ventilated drain this

amount will be infinitesimal, and might even be disregarded, but there are other causes for the uncertainty of a trap. If the appliance, on the discharge pipe of which it is, be disused for a long time, there is the possibility that the water in the trap may dry. In this case, of course, there is no further security. Besides this, however, there is an action known as siphonage, in which the rush of water through a pipe carries with it the water which ought to remain in the trap and form a seal. In Fig. 21 are shown several different ways of connecting sinks, &c., with drains. The discharge pipe often carries an apology for a trap, in the form of a little apparatus called a bell trap. But, as a matter of fact, it is the commonest thing possible to find the bell trap lying on the sink. It has been lifted out of its place to let the water run down the waste pipe more quickly. It is no unusual thing to go into the scullery of a house, and to find the discharge pipe of the sink quite open, and a blast of sewer air issuing from it which will extinguish a candle.

In other cases the sink has an arrangement which is called a grease trap, but is, in reality, nothing more nor less than a particularly foul cesspool. It calls for little remark. The pipe from the sink dips into the foul water to make a trap. In many cases, the pipe does not dip into the water; but there is a bell at the top. Sometimes the drain is at various places made up with bricks. This is a very common thing to find in houses. The bricks are used to save the trouble of getting special junction bends, &c. The other sinks and baths in the house are shown as discharging into the closet traps. This is a very common and objectionable arrangement. Sixty-eight per cent. of houses examined show the defects last mentioned; that is to say, the sinks, baths, or fixed

basins are connected with the drain or soil pipe, a trap of some kind generally, but not always, forming a partial security against sewer gas.

As mentioned before, the only ventilation in this case is such as will permit the issuing sewer gas to find its way into the house. It is by no means unusual to find no provision at all for ventilation, or to find the ventilating pipes so small that they are totally useless. In more cases than one, Burton found the soil pipe carried up as a rain-water pipe into the attics, where it received rain-water from two gutters, one from each side of the roof, and discharged all the sewer gas which escaped by it. Generally, the drinking-water cisterns are situated in such attics.

It may be noted, in the other drawing (Fig. 21), that a trap is fixed on the main drain, which will keep back almost all sewer gas, and that ventilating pipes are so arranged that a constant circulation of fresh air exists through the whole drainage system, and will carry away with it any little sewer gas which passes through the trapping water.

The most perfect water-supply arrangement does not necessitate the existence of cisterns in the house at all. This is beside the mark, for the reason that in London, to which Burton confines his remarks, the supply of water to the greater portion of the town is intermittent, so that cisterns are a necessity.

Water, even in London, is almost always delivered in a sufficiently pure state to be drunk, but it is a very common thing for it to be contaminated in the cisterns. Even if there be no actual disease germs carried into the water, there is liability of deterioration from the mere fact of a large quantity of water being stored for a long time before use. If the cisterns are of so great size as to hold as much

water as is used in, say, three or four days, it follows that all water drawn has remained in these cisterns for an average time of several days. This is by no means likely to improve its quality, but, on the contrary, if it does nothing else, it renders it flat. There are far more dangerous causes of contamination than this, however. The commonest of these is to be found in direct communication between the drains and the cisterns through the overflow pipes of the latter. This is shown in Fig. 20. It will be seen that there is a trap on the pipe by way of protection against the sewer gas. This is a by no means uncommon arrangement; but, as will be readily understood, such a trap is absolutely of no good. An overflow pipe to a cistern is merely an appliance to be put in use in case of an emergency; that is, in case of derangement of the ball valve through which the water enters. As a matter of fact, an overflow may not occur from year's end to year's end—probably does not—and, as a consequence, the trap soon becomes dry, and the temporary security afforded by it is lost. In 37 per cent. of houses inspected, Burton found direct communication between the drain or soil pipes and the drinking-water cisterns.

Another means by which the water of cisterns is contaminated is by their being placed in improper positions. Quite frequently, a cistern in which drinking-water is stored, is situated in, or even under the floor of a w.c. Burton has known more than one case in which the drip tray under a closet actually discharged into a cistern.

It is even possible for contamination of water to occur through the mere fact that a water-closet is supplied from a certain cistern. With a water-closet

supplied by the modern regulator-valve apparatus, this is most unlikely; but it will be readily seen how it may occur with such an arrangement as that shown in Fig. 20, which is common. Here it will be seen that for each water-closet there is a plug in the cistern. This plug is so arranged that when it is raised by the wire which connects it with the water-closet branch, it suddenly fills what is called a service box, this being a subsidiary cistern fixed under the body of the main cistern, and in direct communication with the water-closet. After the water has run out of the service box, this is free to fill itself with foul gas from the water-closet by the service pipe, and the next time the plug is lifted this same foul gas passes into the water, which absorbs a part of it.

There are many other points in the drainage arrangements of a house which may possibly become causes of danger, such as surface traps in areas, &c. In speaking of the drain of a house, it has been considered as a single length of pipe; but it must be remembered that in any drainage system, except the most simple, there are branch drains, often many of them, and that these are liable to the same evils as the main drains, and require the same attention. In fact, seeing that less water is likely to pour down them, they require more attention.

Burton concludes his paper with a brief description of the methods in use for discovering defects in house sanitation.

One thing that is absolutely necessary for such inspection, and without which it would be quite incomplete, is to open down to the drain. This should be done at the nearest point to that at which it leaves the premises. There is no absolute guide to tell where this point is, but after some experience it is generally

possible to hit upon the spot with very little searching. In the house illustrated in Figs. 20, 21, it would be under the front area or cellar. The ground should be entirely removed from the drain for at least two lengths of pipe. It is also very desirable that a portion of the ground over the top of the drain should be removed.

We may next take the point of trapping of the main drain and ventilation of the system. It will be seen that, in the case of the drawing of the imperfect arrangements, the drain is shown to be in direct communication with the sewer. The consequence is that any leakage which may exist in the house drain permits gas not only from the drain itself, but from the sewer also, to find its way into the house.

The engineer will now be able to tell much of the state of affairs. He will see of what size the drain is; he will be able to tell of what material the joints are made, taking those exposed as samples; he will, in all probability, find the ground under the pipes soaked with sewage, and be able at once to say that the drain is in a leaky and bad condition; he will find whether it is properly supported on concrete, or has been “tumbled” into the soil; he will be able readily to discover what is the total fall in the drain from back to front. At this stage of the proceedings, the drain itself should not be opened; but, on the contrary, if the taking up of the ground should have exposed any joints which are evidently leaking, these should be made temporarily good with clay. The reason is, that it is desirable, before anything has been disturbed, to test the system for the purpose of discovering what amount of leakage there is into the house.

There are various ways of doing this, but the two

commonest, which Burton describes and illustrates, are those known as the “peppermint test,” and the “smoke test.”

The smell of peppermint is well known, possibly to some of us unpleasantly well known, but probably its excessive pungency when in the form of the oil, and when brought into contact with hot water, is not generally understood. It will readily be believed that if such an excessively pungent mixture as this be introduced into the drainage system of a house, even the smallest leakage will become evident. Suppose the least possible defect to exist in any joint of any of the pipes, a strong smell of peppermint will be evident near the defect. The only difficulty is in finding a place to introduce the peppermint. It will be quite evident that it is no use to pour it into any of the appliances in the house, as, were such done, this smell would so rapidly permeate the whole of the premises, by way of the staircase, passages, &c., that time would not be allowed to detect the leakages. Some means must be discovered of getting the peppermint in from the outside. This is not always possible, but generally it is. In the case illustrated, there would be no difficulty. The rain-water pipe at the back admirably suits the purpose. One person gets out on the flat roof, near the top of the pipe, and provides himself with peppermint, and 4 or 5 gallons of water, as nearly boiling as possible. Meantime, all doors and windows are closely shut, and persons are stationed about the house to observe if the smell expected becomes evident, and to locate, as far as possible, the point from which it issues. The man on the roof pours about ½ oz. of the oil down the pipe, and follows it with the hot water. He need then retreat from the place a little, for the peppermint-laden steam which will come from the

pipe is blinding in its pungency. As soon as possible, he plugs up the top of the pipe with a towel, or some such thing, to prevent the occurrence of the vacuum which would otherwise be in the pipes, and which would tend to draw air from the house into the pipes instead of from the pipes into the house at any leakage. It would probably not be a minute before the people in the house would perceive the smell at various places. The manipulator of the peppermint must remain perched on the roof until those inside have had time to make their observations, otherwise he will infallibly bring the smell with him.

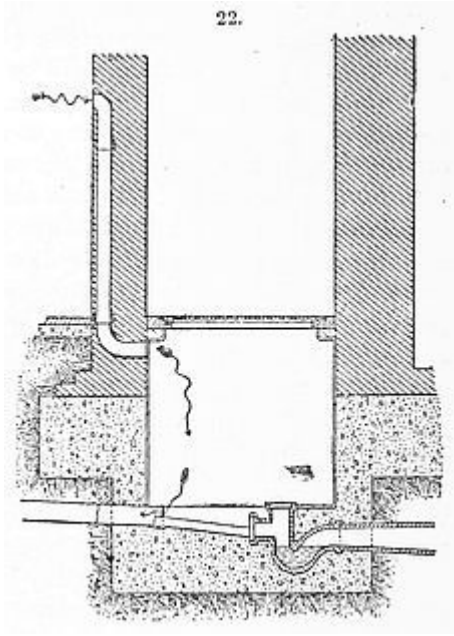
The test described is an excellent one. It is searching, and is simple in application, but it has one drawback. It is impossible by means of it exactly to localise a leakage. This drawback does not apply to the smoke test. A smoke machine is nothing more nor less than a centrifugal pump attached to a vessel for generating smoke. The pump pumps smoke out by a pipe, which may be inserted in any pipe in direct communication with the drain or in an aperture made for the purpose. The test is, in all respects, similar to the peppermint one, except that the leakage is not smelt but seen.

After the test has been performed the drain may be opened. This may be done by breaking into a pipe in front, by breaking off a collar, or by punching a round hole in the pipe. In any case it will be possible to judge much of the condition of the drain by the manner in which water runs through the pipes. If we have discovered that there is sufficient total fall, we can now see whether or not it is uniform. We shall, as remarked before, find in six cases out of every hundred examined that there is total stoppage, that no sewage whatever leaves the premises, and that

consequently it must all be depositing under the basement.

If the drain, after all tests so far applied, and from what can be seen of it, appear to be in good condition, it may be further tested by filling, or attempting to fill it with water. There is probably not an average of one drain in a thousand in London which would remain full of water for an hour. For the rest it is necessary to examine all appliances, to trace the pipes from them, and sometimes to test these pipes.

The engineer has now completed his inspection, and has but to consider how he will make the best of a bad job, and put things to rights. At the beginning of his paper Burton expressed his intention of confining himself to a description of defects, and said he should not describe what he considered a perfect system; he, however, points out one or two of the chief features of the arrangements in the house which he calls well drained.



22. Disconnecting Chamber.

Most notable, probably, is the small size and sharp fall of the drain pipes. Further than this, it will be seen that the drain is disconnected from the sewer by a trap, and that it is accessible for inspection throughout, simply by lifting certain iron covers (Fig. 22). A close examination would show that every foot of drain pipe and discharge pipe is so ventilated, that there will be a current of air through it; that no appliance discharges into the drain direct, but that there is an atmospheric disconnection in every case; that air from discharge pipes of sinks, &c., is all trapped from the house; that there is separate water supply for closets, and for other purposes; and that no cistern has any connection with the drains. Further will be noticed, the difference in construction of the closets, &c.

The foregoing abstract of Burton's paper is replete with valuable information. One obvious inference to be drawn from it is that where the occupant of a dwelling has serious doubts as to its sanitary conditions and cannot rely on his own observation for ascertaining the facts, he should forthwith engage the services of a specialist like the author of the paper to aid him in coming to a decision.

One of the most instructive lectures on house sanitation was that delivered by Prof. Corfield at the Parkes Museum in 1883. He considers that the best plan in the examination of a house is to begin at the top of it, proceeding downwards, and noting the different mistakes that are likely to be made in the sanitary arrangements in various parts of the house. Following out this idea, we will deal with each item in descending order.

Rain-water.—The first thing which we must consider is that we have to get rid of the water that falls on the roof. The water from the gutter in front of the house may be disposed of in one of several ways. It may be conducted by a pipe outside of the house down the front into the area; or it may be conducted by a gutter through the roof, or, perhaps, through one of the rooms in the upper story into a gutter, over the middle of the house, between two parts of the roof, and down the middle of the house by a pipe into the drain; or it may be conducted direct from the gutter by a pipe, not outside the house, but inside the house, passing down through one or two stories, inside the rooms, perhaps through the best bedroom in front of the house, through the drawing-room, carefully hidden by some casing made to look like an ornament, through the dining-room and kitchen into the drain in the basement.

Smells having been perceived in different parts of the rooms, especially in the bedrooms, various sanitary arrangements may be improved, and even made as perfect as they can be, by a kind of amateur tinkering prevalent nowadays in sanitary matters; and yet this defect which is so exceedingly serious, which is known to give rise to serious disease, is entirely overlooked—perhaps for years. The same is the case when the rain-water is carried in a gutter through the roof into a gutter between the two roofs in the middle of the house, and down by a rain-water pipe inside the house. In such cases similar disasters may occur.

But there is an additional danger from the fact that these inside gutters are in themselves most pernicious things. Soot and rotten leaves collect in them, and air blows through them into the house; and especially when these gutters are under the floors of bedrooms, this foul air is often the cause of illnesses which occur in these rooms. Even gutters which are not themselves directly connected with the drains, and which are open at both ends, but in which decayed leaves and soot accumulate and give off foul air into the rooms, may be the cause of sore throats.

Another plan to dispose of the rain-water is to carry it in a gutter right through the house to the back (the gutter may pass through the roof or the garrets), and the same remark applies to this method of construction as to those just described, except that it does not imply necessarily a defective pipe running down to the drain.

Well, then, the rain-water from the roof should be conducted by pipes placed outside the house; and there is no reason why this should not be always the

case. If these pipes are not disconnected from the drains below, but are connected with them either directly, or even indirectly (with a bend in the pipe to hold water), in either instance cases of disease will arise in the rooms, the windows of which are near the rain-water pipes.

It is exceedingly difficult to persuade people upon this point; but such is the case. When the rain-water pipes starting from the top of the house below the bedroom windows, and frequently behind parapets, so that any air that comes out at the top comes out exactly close to the bedroom windows, and when these pipes come down straight into the drains and so ventilate the drains, foul air from the drains gets into the house, and disease is the result. But it is more difficult to make people understand that even when these rain-water pipes are trapped at the foot they are almost as dangerous as the untrapped ones, because foul air from the drains will pass gradually through the water in the traps into the pipes, so that these pipes are always filled with foul air and contain gases that have come from the drains.

As soon as it rains, water passes down, and the air of these pipes is displaced, comes out at the top, and so if these tops are near the windows of rooms, cases of disease will happen in those rooms.

The rain-water pipes ought to discharge on to the surface of the areas, where there ought to be siphon gullies connected with the drains.

Ventilating Pipes.—While on the roof we can look around and observe the ventilating pipes: 1st, whether there are any or not; 2nd, of what size; 3rd, whether they have cowls or not; and 4th, in what positions they are. If we observe that they end at the top, near to chimneys, we shall see that there is

liability, on account of the down draught, of the foul air from these ventilating pipes passing down the chimneys.

Chimneys often have down draughts, and if ventilating pipes are placed near them, the foul air may pass down into the rooms. If, on the other hand, although not ending near the tops of the chimneys, they are placed close to the chimneys or to walls so that their tops are sheltered, they will not act properly, and they ought to *be carried above the ridge* of the roof, and end away from walls or chimneys. The same rule applies to chimney tops, they should not be sheltered by higher buildings.

Cistern.—The first thing we come to inside or just below the roof (or perhaps on the roof), is the cistern.

The first point to observe is the material of which it is made. Lead cisterns (and so, too, galvanised iron cisterns) are affected by certain kinds of water; and it is important, in certain places, that cisterns should be used which are not capable of being affected by the water. Galvanised iron cisterns cause certain forms of poisoning with some waters. However, as a matter of fact, both lead and galvanised iron cisterns are used enormously, without any serious results following from their use.

A cistern is provided with an overflow and waste pipe. If the cistern is on the roof you would think it the natural thing that the overflow pipe should discharge on to the roof or leads, or into an open head; but, as a matter of fact, it is generally not the case. (By an “overflow” pipe is meant a pipe from the top, and by a “waste” pipe a pipe starting above the level of the water and passing through the bottom of

the cistern.)

Overflow pipes were not in fashion at all until recently. The fashion was to have a waste pipe, and the most convenient place to take that into was some pipe passing down the house, which might be a rain-water pipe, but more frequently it was the pipe into which the water-closets discharged, which is called the “soil” pipe.

When this is the case the waste pipe of the drinking-water cistern becomes the ventilator of the pipe into which the water-closets discharge; and so in nine cases out of ten the ventilator of the house drain and of the sewer under the street, and, indeed, one of the ventilators of the main sewer. So foul air passes continually by means of this ventilator into the drinking-water cistern at the top of the house. Now foul air in sewers and drains contains matters in suspension, and often the poisons of certain diseases, such as typhoid fever; it gains access to the water in the cistern and contaminates it, and the main cause of typhoid fever in London and many other large towns is the connection of the drinking-water cisterns with the drains by means of the waste pipes.

Of course the remedy for this—the first remedy—is to put a trap on the waste pipe, as, for instance, connecting it with the trap in one of the closets or sinks. This, of course, is only a palliative, it is not the true remedy. The true remedy is to disconnect this pipe and make it discharge by itself, no matter where, in the open air. Sometimes this pipe is made to discharge into the same pipe that the sink waste-pipe discharges into. It is the practice in London to have a separate pipe for the various wastes and sinks not discharging directly into the drain, and usually carried outside the house. It is also the practice to

make the waste pipes of cisterns to discharge into the same pipe. This is entirely wrong. Because, although disconnected at the foot, it is to be regarded as a foul-water pipe, and foul air passes through it up the waste pipe into the cistern. So this practice is to be condemned.

Now from the cistern, besides the waste pipe, there are pipes which supply the water to different parts of the house; there are pipes from the cistern to supply water to the taps, which are called “draw-off” pipes; and pipes from the cistern to supply water to the closets; and, as a rule, the same cistern is used for the supply of water to the closets direct and the taps at the upper part of the house. This plan may or may not be very dangerous.

There are two ways of supplying the water-closets in the upper part of the house with water. The one is to have what is called a spindle valve in the cistern, which fits a hole in the bottom of the cistern, and which is raised by a ball lever being pulled by a wire, which arrangement necessitates a contrivance called a valve box, which has a small air pipe, and with this arrangement there is liability for foul water to be jerked in the cistern. Moreover, the pipe from this valve box passes into the pan of the water-closet and becomes full of air, which air is liable to get into the valve box in the cistern. This arrangement, therefore, is decidedly bad. But there is another, in which the valve which supplies the water-closets is under the seat, and the pipe from the cistern is full of water; and that is now becoming the more usual plan. With that plan there is nothing like so much danger as with the other method; in fact, so little, that many people hesitate to condemn this arrangement.

However, to put it on no other grounds, it is clearly desirable not to have cisterns supplying drinking-water and the water-closets direct. It is better to lay down a right principle, and abide by it, than to see how you can avoid it. The best rule is that water-closets should not, for the reasons stated, under any circumstances be supplied direct from the cistern supplying the taps; Prof. Corfield lays down the rule that *every tap is a drinking-water tap, because any one may draw water at it.*

Housemaid's Sink.—The housemaid's sink is often placed in a small closet just under the stairs, without any window or any sort of ventilation whatever (and we know what kind of things are kept in the sink!), so that in such a position it has not by any means a very savoury odour. The housemaid's sink should under no circumstances be in such a position. It should be against an outside wall, and have a window. As a rule, the material used for the sink itself is lead, wood lined with lead. Now lead is not a good material. Grease, soap, and so on, have a tendency to adhere to lead, and it is very difficult to keep such sinks clean, and it would be better to have the sink of glazed stoneware.

The waste pipe of the housemaid's sink, as a rule, is connected directly with the trap of the nearest w.c. There is a grating in the sink, and there is no trap in or under the sink, but the waste pipe is connected with the trap of the nearest water-closet. This is a bad arrangement. A worse arrangement is for the waste pipe to be connected with the soil pipe of the water-closet, in which case some kind of trap is generally placed on the waste pipe of the sink. This trap is frequently what is called a "bell" trap, and is placed in the sink. The disadvantage of the bell trap

is, that when you take the top of it off you take the bell with it. The bell is the arrangement which is supposed to form the trap by the edges of it dipping in the water in the iron box; and you see at once, when the bell is removed, the trap is removed and the waste pipe, wherever it goes, is left wide open, and, if connected with the soil pipe of the water-closet, the foul air comes up into the house. Very frequently also the waste pipe of the sink has underneath it what is called a **D** trap. A **D** trap is a trap which the water passing through it can never clean; so it retains foul water; and therefore, even under sinks, such traps ought not to be allowed on account of the foul matters which accumulate in them.

The waste pipe of the housemaid's sink should not be connected with the water-closet or soil pipe; neither with any pipe that goes directly into the drain. Its own pipe should not go directly to the drain, which is very frequently the case, but through the wall of the house into an open head or a gully outside. Very frequently the housemaid's sink is supplied with water, not from the cistern on the roof, but from the cistern not only supplying the nearest water-closet, *but actually inside the nearest water-closet*, in which case, no matter what valves you have, you are supplying your sink with water which is kept in a cistern inside the water-closet, and that is far worse than supplying a sink with water from a cistern which also supplies the water-closet, with a reasonably protecting valve.

Close to the housemaid's sink, and very frequently over it, is the feed cistern to the hot-water apparatus, which has also an overflow pipe, and the same remarks refer to this overflow pipe, except that it is a

thing much more liable to be overlooked, as to the overflow pipe of the drinking-water cistern.

Water-closets.—In the great majority of instances, the apparatus of this closet is what is known as the "pan" closet, that is, a closet apparatus which has a conical basin with a tinned copper bowl, called the "pan," from which the closet gets its name. In order that this "pan" which holds water, may be moved, there is a contrivance underneath called a "container," which is generally made of iron, and allows room for the pan to be moved. On pulling the handle the water is discharged into the pipe below. The container being generally made of iron it is liable to rust. Now the disadvantage of this apparatus consists in this large iron box, which is under the seat of the closet, being generally full of foul air. The contents of the pan are splashed into it, and it becomes coated with foul matters which decompose and continually give off foul air. Every time the handle of the closet is pulled some foul air is forced up into the house. That foul air is kept in this box between the trap which is below it and the pan which contains the water above it. In order to allow of the escape of this foul air it is not uncommon to have a hole bored in the top of the container. You would suppose that hole was intended to fix a ventilating pipe to, but nothing of the kind; the hole has been made merely to allow the escape of foul air into the house. Sometimes a ventilating pipe is attached to this hole and taken out through the wall, but that is the exception. This form of closet is the worst form of closet apparatus yet devised, and is very generally in use.

An attempt has been made to improve it by having a stoneware container, with a place for ventilation at

the side, only it is an attempt to improve a radically bad arrangement, and not worth further consideration. Underneath this closet apparatus you will, as a rule, find, if you take the woodwork down, a tray of lead, called the “safe” tray. But there is no other word in the language that would not be a better description of it than this word! This tray is intended to catch any water that may escape from leaky pipes, or any slops that may be thrown over; and so it is necessary that this tray should have a waste pipe. The waste pipe in nine out of ten cases, probably in much greater proportion, goes into the trap immediately underneath the closet, and so it forms a communication for foul air from this trap to get into the house.

In some instances it goes directly into the soil pipe, and forms a means of ventilation of the soil pipe into the house. Sometimes a trap is put on this waste pipe, and it is then connected with the soil pipe, which goes on well so long as there is any water in the trap; but as soon as the water becomes evaporated, foul air gets into the house again.

Sometimes (to show the ingenuity which people often expend upon bad things) this waste pipe has a trap, and a little pipe from the water supply fixed to feed the trap; but all these ingenious plans have been devised in order to improve upon a principle radically wrong. The pipe should be carried through the wall and end outside the house as a warning pipe.

Scarcely any water ever comes out at all; if any does come out, it shows there is something wrong, so that this pipe should pass through the wall, and be made to discharge outside the house.

In order to prevent wind blowing up the pipe, it is

usual to put a small brass flapper on the end. Its weight keeps it shut, and the pressure of water opens it.

Underneath the safe-tray you will find as a rule a trap of some kind, and generally the trap that is found is a D trap, a trap whose name indicates its shape, and which cannot be washed out by the water that passes through it. The pipe from the closet passes so far in it that it dips below the level of the out-going pipe, and thus forms a sort of dip-trap. The pipe which is the inlet from the closet is not placed close to the edge, but a little way in, to form a receptacle for all kinds of filth!

You will see it is impossible for the water that passes through it to clear the contents out, so that the trap is simply a small cesspool, nothing more nor less. Into that trap various waste pipes are frequently connected.

There is another form of **D** trap in which there are two waste pipes going into the water near the bottom of the trap (probably the waste pipe of the safe and the waste pipe of the cistern).

The **D** trap, then, is a bad form of trap, because it is not self-cleansing. The water cannot possibly keep it clear of sediment. So that some trap should be used which is self-cleansing, and the water which passes through it is capable of keeping it clean. Now that trap is a mere ∿-shaped bend in the pipe, to which we give the name of siphon, not because we want it to act as a siphon—for if it acts as a siphon it is of no use!

A curious thing about siphon traps and pan closets is, that the form of trap which was used first in connection with water-closets was the siphon trap,

which we now praise; and the form of trap which supplanted it was the **D** trap, which we are now condemning and taking out wherever we can. A still more curious thing is that the form of water-closet which we now condemn (the pan closet) was the form of closet which supplanted the closet we are now using (the valve closet). The valve closet was invented long before the pan closet. Bramah valve closets fixed forty years ago often act tolerably well now, and at the present day they are only taken out because they are really actually worn out.

The valve closet, which we often find upstairs in old houses instead of the pan closet, has no large iron container under the seat, but it has a water-tight valve under the basin, and so requires a small valve-box; so that there is no great collection of foul air immediately under the basin of the closet. The valve closet, however, has a disadvantage in that it requires an overflow pipe; because the valve is water-tight, and if servants throw slops into it, or the supply pipe to it leaks, the water goes on running and the basin fills, and, if there were no overflow pipe, it would overflow on to the floor; so that probably the pan closet ousted the valve closet because it was found that people could go on throwing in any amount of slops and using it in the roughest manner without getting their ceilings damaged. However, the valve closets, as they were originally made, generally had overflow pipes which went into part of the apparatus below. Occasionally these overflow pipes are connected with soil pipes or the trap of the closet below, but these are exceptional instances.

One of the water-closets in the basement is very frequently in an exceedingly improper position—

either in the scullery or actually in the kitchen. These w.c.'s ought all to be outside the house.

If closets are in the middle of the house they ought to be done away with, and should be put against an outside wall. This might be done by sacrificing a bit of some room which can be spared, or by converting some small bedroom into a bath-room and closet, or still better, by making a sort of tower outside the house.

The merits and demerits of the various kinds of water-closet were discussed in a paper by Emptage before the Congress of the Sanitary Institute at Glasgow. To be rightly considered wholesome and adapted for general use, a closet should, in Emptage's opinion, possess the following qualifications:—

1st. The water seal of its trap should be in sight, should stand up in the basin, and be quite safe from either momentum or siphonage.

2nd. It should be so thoroughly flushed that at each discharge every part of the basin and trap would be properly cleansed.

3rd. It should be as well adapted for the discharge of slops as for a w.c.

A closet possessing these advantages is perfectly safe to use anywhere, and the only kind which, in his opinion, comes up to this standard, is that known as the "direct action." Within the last few years several inventors have turned their attention to the manufacture of this kind of closet, and there are now several in the market to choose from, each of which has some advantage peculiar to itself.

Emptage has found:

1st. That these closets, when properly trapped, flushed, and ventilated, are perfectly safe and wholesome, and are free from the evils and annoyances attendant upon most other forms.

2nd. That to ensure a thorough flush out, the water must fall with an avalanche-like action direct upon the surface of the water in the basin.

3rd. That those basins which show an **O G** section are more readily flushed than those which have sides in the form of inclined planes.

4th. That with a suitably shaped basin 2 gal. of water, delivered in 5 seconds, will thoroughly cleanse the closet.

5th. That the ordinary round **P** or half **S** trap should never be used beneath these closets, because no reliance can be placed upon the safety of its seal.

6th. Care is required in fixing these closets to ensure adequate ventilation to the trap, because, owing to the exposed position of its seal, it is liable, unless so guarded, to be destroyed at any moment by the discharge of a pail of slops: but if properly protected, it is quite safe from this action.

Where the position is such that this necessary protection cannot be given, on no account should a “direct-action” closet be used. It is better, under such circumstances, of the two evils to choose the lesser, and fix a good “Bramah” pattern valve closet and **D** trap.

One word with respect to closet seats. It is the prevailing fashion to have them fit as closely as possible, and to keep the lid shut. Emptage thinks this is a mistake. If there are any gases to escape, they should be allowed to do so at once, rather than

be kept boxed in, ready to belch forth into the face of the next visitor. For this reason, he would discard lids altogether, and, provided a suitably finished apparatus could be introduced, the riser also, and allow the floorcloth to run right under the seat, leaving no space in the room where bad air could be detained.

Eassie recommends one of the various kinds of "wash-out" closet, and specifies Jennings's as being good in every respect, especially for nurseries. For general household use he favours the valve closet on the Bramah pattern. In other details he directly opposes Emptage, warning the householder above all "not to fix a **D** trap under the apparatus, but only a **P** trap or **S** trap of cast lead." Care should also be taken to make sure that the waste pipe from the leaden tray, or "safe"—which is usually placed under a closet in order to avoid any damage to the ceiling below should the basin overflow—is not led into the trap underneath the closet, but taken direct through the outer wall, and with a small copper flap at the end of the 1 in. pipe, in order to keep out the cold air. A sufficient supply of flushing water is indispensable, and many houses can be much improved in this respect by simply enlarging the service pipe which conveys water to the basin. See also p. 991.

In country dwellings, where earth-closets can be used, the following system works well. The refuse to be disposed of embraces rain and surface water, wash-waters, ashes, and excreta. The water is partly stored and partly run into the nearest brook. The ashes and excreta (no closet being fitted inside the dwelling) are carried to the garden. The wash-waters are emptied into a sink, which communicates

directly with either a small trap, through a grating (the pipe being disconnected with the trap), or, if there be a sufficient fall, to a garden, by an open gutter, or open tile drain. The ashes and excreta are mixed together, and removed by the agency of one or other form of "earth-closet," taking that term generally for an apparatus which is not a cesspool, which has to be frequently emptied of its contents in a more or less dry state, and which is wholly above ground.

The contents of the water-closet are discharged, as a rule, into a separate pipe, called the soil pipe; but sometimes into a rain-water pipe with an open head near the windows, or even *inside* the house. The soil pipe is usually inside the house—probably because it ought to be outside! Even where water-closets are against an external wall, the pipe is often carried down inside the house. The closets themselves, like sinks, ought not to be placed in the middle of the house. They are very frequently under the stairs, close to bedrooms, or in the middle of the house, sometimes ventilating into a shaft. It is of course inevitable in these cases that the pipe must either be carried inside throughout the whole length of the house, or must run nearly horizontally under the floors of bedrooms, &c. Under such circumstances it is often not properly ventilated; and if not ventilated at all, the foul air makes its way out through holes, which it is capable of perforating in lead pipes.

The soil pipes are then frequently inside the house, and they are as a rule made of lead. They are very frequently not ventilated at the top, and the pieces are jointed together by merely being slipped into one another, with perhaps a little putty or red-lead. Of course these joints are not sound joints. The soil pipe

goes down into the drain, and so the foul air gets into the house. The soil pipe, whether inside or outside the house, ought to have sound joints. If a lead pipe, soldered joints; if an iron pipe, the joints ought to be made secure in a proper way.

If any part of the soil pipe must pass inside the house, it should be of lead, and it can be made sound so long as it will last (and is not damaged by driving nails into it).

Iron pipes should not be allowed to be inside the house. It is so very likely that the joints will not be made perfectly tight, so that it is more undesirable to have iron pipes inside the house than it is to have lead pipes.

Of course it is practicable to plug the pipe at the bottom and to fill it with water to ascertain if it is water-tight; but all that is only a device to retain a thing which ought to be altered.

Soil pipes ought always to be ventilated by a pipe as large as the soil pipe carried up above the roof.

The soil pipes ought to be outside the house, and connected with the drain by plain stoneware bends, or, under certain circumstances, disconnected from the drains themselves by a trap with an open grating. Such a trap is called a disconnecting trap.

Bath-room.—The first thing to mention in connection with the bath-room is that the inlet and outlet openings for the water should not be the same. Very frequently in a bath the water goes out by the same apertures as it comes in. This is a bad plan, for some of the dirty water comes back with the clean. The waste pipe should be treated in the same way as the waste pipe of a sink.

Frequently on the best bedroom floor there is a water-closet actually in one of the bedrooms, or opening directly out of it by a door. This ought not to be countenanced under any circumstances whatever.

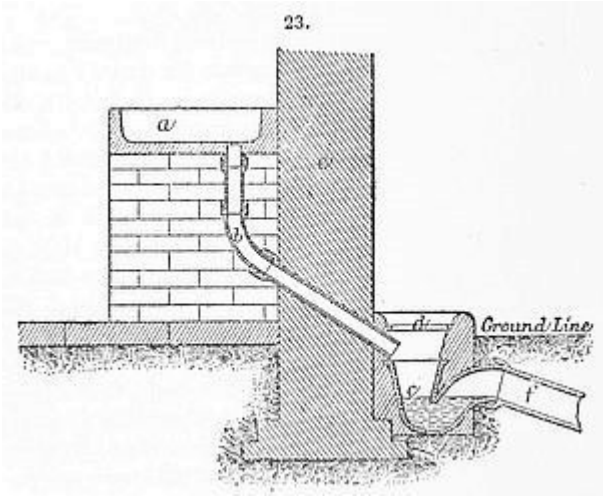
On the drawing-room floor there is generally a balcony, the pipes from which go very frequently straight down to the drain, or they are connected with rain-water pipes from the top of the house, which *themselves* discharge into the drain; so that these pipes from balconies and lead flats are not at all infrequently connected with the drains.

Bell-wire Pipes.—There is sometimes an unaccountable smell in the drawing-room, and people puzzle themselves in all kinds of ways to account for it. It is generally noticed when people are sitting in a particular chair—which particular chair is a chair possibly most frequently sat in—one near to the fireplace. The smell noticed is a smell which comes up the tube that the bell-wire goes down. The bell-wire goes down into the basement. It may go into some part of the basement which is not very savoury, and foul air may be, and frequently is, taken up into the drawing-room or best bed-room. Or the wire may be in the basement passage close to the gas-light, and the products of combustion of the gas may pass up the wire-tube into the drawing-room or bedroom.

Kitchen Waste.—Accumulation of waste animal and vegetable matter should be strictly forbidden; what cannot be used as food, even for domestic animals, ought to be burned daily. Where there is a large garden, refuse may be buried. The objection frequently raised to burning is the unpleasant smell which is caused by it; this may, with a little care,

always be avoided. Where a close range is used, choose a time when the fire is bright but low; draw out all the dampers and put everything into the fire, close the door in front, and a very large amount of rubbish can be got rid of in a quarter of an hour. In open fireplaces this is a little more difficult, but may still be accomplished. Put all vegetable matter under the grate to dry, then put it on the fire. The oven dampers must be drawn out; the strong draught up the oven flue will carry off the smell. Fish-bones and other scraps may thus be burned. The habit prevalent in many country places of keeping a swill-tub cannot be too strongly condemned. A day or two of damp summer weather is enough to cause a most offensive smell to be given off. Dwellings in large towns become dangerous in warm weather from their close proximity to ashpits, which are made the receptacle of all kinds of decaying animal and vegetable matter. Much sickness might be prevented during the summer months if it could be made compulsory to have ashpits, &c., well sprinkled with chloride of lime or some similar disinfectant at least twice a week.

Sinks.—The stoppage of drains by grease may be partially prevented by the use of soap-powder, which combines with the grease; but at least twice a week there should be poured down kitchen sinks one or two bucketfuls of boiling water, in which common soda has been dissolved. A much better plan is to use potash instead of soda, as potash makes a *soft* soap with fats. The application of one or two doses of potash lye in hot water will almost always effect a clearance in stopped drains, which at first appear to be irremediably choked, and at the same time no injury whatever results to the pipes.



23. Kitchen Sink.

The proper arrangement and disconnection of a kitchen sink is shown in Fig. 23; *a*, stoneware trough; *b*, 2 in. stoneware waste pipe; *c*, stoneware gully or trap; *d*, iron grating; *e*, house wall; *f*, pipe leading to sewer.

The sinks in the basement have their waste pipes very frequently either directly connected with the drains or connected with the drains by bell traps. Of course this is a most dangerous state of things. For when the top of the bell trap is taken off, an opening into the drain is directly made. If the bell trap gets broken, no one is told of it, and the drain is ventilated into the house for months. On the other hand, if the top is left on and the bell trap is in a place where water does not get into it continually, or at all, the trap will get dry, and so become a ventilator of the drains into the house; so that this plan of having ventilating pipes in the sinks, or of having bell traps in the floor of basements, is most dangerous, still more dangerous if the sinks are not

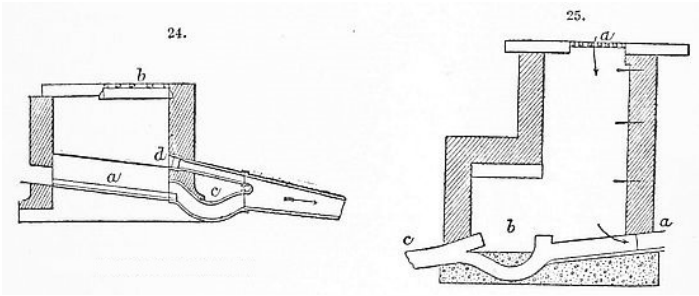
used. Some think in this way:—Oh! this sink is not used, there cannot be any harm in it! But there is, and much more harm too. For the water in the trap dries up, and so foul air comes into the house.

The sinks, then, ought not to be directly connected with the drains, but should discharge through trapped gullies in the area; and not only so, but the waste pipes of the sinks, whether upstairs or downstairs, ought to have siphon traps, with traps and screws fixed immediately under the sinks. These waste pipes are foul pipes even when not connected with the drains, and if you do not have siphon traps immediately under the sinks, foul air will come in, especially during the night, and you will have a very serious nuisance caused in the house in this way. The same remarks about cisterns upstairs apply to cisterns in the basement. The water-closets in the basement are simpler forms of closets, and they are very frequently supplied from water cisterns by means of pipes which have merely a tap which you may turn off or on. This is a most mischievous plan, as the cistern may be emptied and foul air enter it. The closets in the basement, therefore, ought to be supplied by means of water-waste preventers, the best kind being the siphon-action water-waste preventers, which discharge two gallons of water as soon as you pull the chain. These “preventers” are not only to prevent the water being wasted by the handle of the closet being fastened up, but also cut off the direct supply of the closet from the drinking-cistern water.

Grease Traps.—A much-discussed subject is the grease trap. In small houses it is not needed; but in large houses, unless some provision is made for catching the grease sent down the scullery sink, the

drains will soon be choked. Eassie gives a caution against having the grease trap too large for its work, and as to the importance of cleaning it out regularly, say once a week.

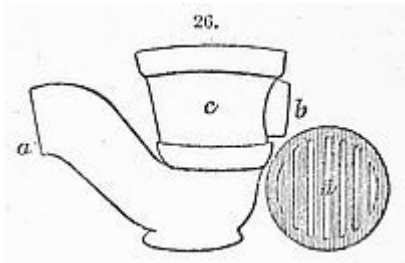
Disconnection Traps.—Whether the house drains into a sewer, a stream, a cesspool, or upon a piece of irrigation ground, one thing which must never be omitted is a disconnection trap or chamber between the house drain and the outfall. These traps—which should be placed close to the house—prevent any smell from the outfall passing into the house, and inasmuch as they have an inlet for the taking in of fresh air between the siphon and the house, this fresh air will course along the underground drains, and be discharged at the ventilating continuations of the soil pipes, or at the tops.



24. Disconnection Chamber. 25. Disconnection Chamber.

Where the house is so large that the air inlet of these siphons would not suffice, the latter are replaced by a chamber as shown in Fig. 24. The sewage flows into the air chamber formed by the half-open pipe *a*, being ventilated through the grating *b*; thence it passes through the siphon *c* to the sewer in the direction of the arrow. There is a raking entry into the sewer side of the siphon at *d*, closed by

a plug, thus preventing any smell from the sewer or drain beyond the siphon entering the air chamber *a*. If the sewers are at a great depth, the walls of the air chamber are made thicker, and a manhole is built the length of the open channel, an arch being turned over when the siphon is fixed, as in Fig. 25. The sewage passes from *a* through the siphon *b* to the drain *c*, *d* being the air inlet. (Eassie.)



26. Houghton's Trap.

One of the best modern traps is that introduced by Houghton (Fig. 26), in which the outlet *a* at the bottom of the gully can be pointed in any direction, and the inlet *b* to the basin *c* of the gully, forming a movable half, can be turned round to accommodate the entering waste pipe *b*; *d* is the open grating which covers the gully.

Drains.—Tho drain itself is got at by opening down to it in the front area. It may be found to be an old brick-drain, in which case it ought to be taken out. Brick drains are pervious, they allow the escape of foul air, and with contaminated air rats also get in the house. Wherever rats can get, foul air can go; and rats coming in through these holes may carry with them the poison of disease, such as typhoid fever. Rats generally go to the larder, and carry with them often the poison of such diseases, which are very largely spread by their poisons being taken in this way by rats into the milk and other foods, and also

into the water in the cisterns.

Whether a brick drain or a pipe drain, it should be trapped before it is connected with the main sewer or cesspool. This trap, in the case of a brick drain called a “dipstone” trap, is a brick pit with a stone across it from one side to another, and dipped into the water which remains in the pit. The object of this stone is to prevent foul air coming into the house. As a matter of fact, the pit holds a large collection of foul matter and becomes a small cesspool, indeed, there is no difference between them.

A drain may be made of glazed stoneware pipes, which may be joined together in one of several ways. They may be laid “dry,” i.e. without any jointing material between the ends, in which case they are, of course, not water-tight; or they may have clay in the joints, in which case you cannot fill them with water —that is to say, they will not hold water under pressure. (If you fill them with water, by plugging at the lower end, the water will come out at the joints.) Or they may be laid with the pipes the wrong way. When the joints are made with clay they will very soon become leaky; and when that happens, the water oozes through the joints, filth collects in the trap, and it gradually plugs up the whole drain from one end to the other. This may go on for years without being found out, and so cause the ground under the house to gradually become a large cesspool. This is an extreme case. Or they may be jointed with cement, and there are some other ways. They may be perfectly well jointed with cement, so as to be water-tight. The drains, then, should answer to this test, i.e. you should be able to plug them at the lower end, and fill them with water. They should not be under the house, if possible. In London we

cannot help it as a rule. If under the house, the straighter the course of the drain the better. Do not let it wind about in order to get away from different rooms. The best thing is to have a straight course through and to see that it is water-tight. It should hold water like a teacup. The drain must not be directly connected with the main sewer or merely separated by a siphon trap; but there should be an air inlet into the drain between the siphon trap and the house. This opening may be of different kinds. The best kind is that of a manhole for access to the drain and trap (so that the trap can be examined and cleared out at any time); the air inlet should be a grating either over the manhole or in the nearest wall opening into a pipe leading into the manhole.

People who are afraid of foul air coming out of these inlets put on a valve with mica flaps, so that the air can blow in, but foul air cannot go out. But, if there are no **D** traps under the water-closets and sinks, if the pipes are straight and sufficiently large ventilators are used, if the ventilating pipes go up above the roof and are not protected from the action of the wind, you will never find foul air coming out at the air inlet though you will find that fresh air is drawn in. There can be no accumulation of foul air, and the air that may be occasionally forced out is the last fresh air that has entered. Should you, however, find foul air coming out you will know that there is something wrong with the drain, that the drain or siphon is plugged, so that this air inlet becomes most valuable in pointing out when anything is going wrong.

Brick drains, says Eassie, are variously shaped. The worst sections are those upon which two upright sides of brick have been built upon flat stones, so as

to form a bottom, and then covered over with other flat stones, because the bricks can never joint tightly with the stone, and there is always a leakage going on into the surrounding subsoil. One great objection to brick drains is due to the fact that they cannot be constructed sufficiently small to meet the requirements of a house, and consequently are seldom found less than 9 inches in diameter, which is far too large a sectional area to properly drain a house.

However compactly and well-burnt the clay has been made into bricks, a brick drain has only a certain life, so to speak, before its decadence begins with the usual attendant danger. Its lifetime is longer or shorter according to the subsoil in which it is placed, the material used as mortar, the gradient at which it is laid, the sewage which it removes, and the quantity of water, and especially of heated water, which passes through it, but the consensus of opinion in their disfavour for use in the interior of a house is overwhelming, and a universal preference is accorded to drains formed of earthenware pipes. A second objection to brick drains, however well they may have been built, is their want of smoothness, especially at the bottom, whereby the effete matters are not carried easily away; and this want of smoothness is aggravated by the roughness due to the unequal perishing of the bricks.

One of the first proofs of the perishing of a brick drain, making it past redemption, is the appearance of rats. Rats will go always to that place which affords them most food; and it is the brick barrel drain which receives the washings from meat plates, and the grease from the scullery pots, which rats most commonly frequent. They will leave a drain,

and nest themselves in the thatched roof of a farmhouse, and they will form whole villages under the floors of a town house. Rats generally find their way into houses by means of holes which have been formed in brick drains by the falling down of perished bricks from the arch, or owing to their having contrived to make a passage through the brick drain above the usual wetted perimeter. These rats, in the case of country houses, may come from the stables, the barns, or the brooks; but in town houses they chiefly emanate from the sewer. No matter whence originally derived, they soon become habituated to a house and its dainty scraps, and having once engineered their way thither, are seldom effectually dislodged, especially in country residences. As fast as a hole is discovered and stopped up, another is made by these persistent vermin, until the foul air evolved from the house drain becomes so distressful, and the rats so multiply, that some further steps are necessary in dealing with them. Where the evil has not yet grown formidable, traps are made use of, or poison; but this last is a dangerous resource, as the rats are apt to die underground and emit during decomposition, which lasts for months, the most horrible smells.

It may be added that rats are remarkably clean animals, and will never allow their fur to come in contact with anything that cannot easily be immediately cleaned from it; hence, very often a dairy, larder, or granary is surrounded by a trench outside the brick walling to a certain depth, by broken glass and gravel, well grouted with tar. Never rely upon a siphon trap in the drain, as a means of keeping out these voracious and fast-breeding animals. They will eat even through lead pipes ⅛ inch in thickness.

Having shown the necessity for discarding brick drains underneath a house, Eassie next considers alternative clay-derived materials, such as pipes formed of baked clay, after the latter has been worked to a consistency which would not naturally allow of an escape of their contents. There are, however, two or three subdivisions of this class. First of all come those kinds whose ends are merely abutted together, and not, as at the present day, socketed at the joints. These are almost equally faulty with brick drains, because when once they are poisoned and become the habitat of life-destroying germs, their normal tone cannot possibly be recovered. The only kind of earthenware drains which ought to be permitted inside a house are glazed socketed pipes, well formed, well kilned, and properly laid down, the whole of the pipes having been set on a concrete bed, and afterwards covered over with properly made concrete, so as to prevent any possibility of sewage reaching the subsoil, and especially water-tanks. It is not every glazed socketed drain-pipe that is fit for laying down, for the most abominably shaped pipes are often met with. There are many makers beyond reproach, and there are scores of pipes showing patent methods of jointing more or less complicated. The majority of the improvements refer to the fast seating of the ends of the pipes in cradles, well covered in cement, and one especially much in use, Stanford's, provides a ring of material fitting truly upon a ring of similar material in the socket of the pipe, so that when the two ends are put together, with a little grease or resin between them, the pipes fit closely in every direction, and require but little other luting. These pipes are generally adopted for use under a house, and ordinary socketed pipes for outside.

Cast-iron drains are now very often used in place of earthenware pipes, and there is a great deal to be said in their favour, especially since the invention of several processes whereby the interior is prevented from rusting and scaling. Pipes of this material are useful underground in rows of houses, and wherever straight lines of delivery are obtainable, and compared with drain pipes of earthenware, with their necessary surrounding of concrete, they would prove not more expensive. Unfortunately, however, this system cannot always be adopted, unless the house has been planned with a view to this method of drainage; and in most houses it will be observed that the pipes would have to run in front of fireplaces and across doorways if above ground. When iron piping is used, great care should be taken with the jointing, to see that it is properly packed, and with material calculated to last as long as the pipe itself. Iron pipes with merely leaded joints are subject to galvanic action, whereby the iron, sooner or later, thins out by corrosion, the iron perishing by "abnormal local oxidation," as has been very forcibly stated by B. H. Thwaite. When iron is contiguous with lead, a galvanic action is set up, and, the latter being electro-negative to the iron, the iron suffers. There ought, therefore, always to be an assistant packing in the pipe, and the majority of engineers make use of this. Eassie advises in addition, a luting of Portland cement with the other materials, which may include a previous stuffing of fibrous packing material together with the old-fashioned iron filings and acids.

Given the best kind of drain to lay down, there is still the question as to where to lay it, and here lamentable errors are frequently made. The chief fault perpetrated in this particular is the laying of

drains inside a house, when they might just as easily have been laid outside. When a drain is laid down, care is exercised to get the pipes as much as possible in straight lines; and at each departure from a straight line a manhole is formed, enabling any one to inspect the drain at any time, by lifting the manhole cover. If a lighted candle is placed at the bottom of the drain in the manholes, the freedom of the drain from obstructions can be ascertained by looking from manhole to manhole. These inspection chambers should be placed at every departure from a straight line, and where several drains junction together; thus each drain delivery is open to sight, and rods can easily be introduced up the drain pipe should any obstruction occur. These inspection chambers are always best protected by an iron manhole cover, fitting down perfectly into their iron frames, which are sunk into the stone floor.

Most houses in connection with a large brick sewer have a “flap-trap,” just where the house drain enters into the sewer; this flap opens to allow the house sewage to enter the sewer, whereupon it should immediately close again to exclude foul air and rats from invading the house. They sometimes, however, do not shut closely, and in that case their action for good is almost at an end. A householder can have an occasional inspection made of the trap by the sewer men, by paying a small fee to the vestry.

Precautions after Floods.—Dwellings which have been invaded by the waters should receive special care, so that those whom the flood has expelled should not occupy them before they have been made sufficiently healthy for habitation. They should first be cleaned out as quickly and thoroughly as possible, and freed from all dirt and debris deposited in

different parts by the water. Continuous aëration and the most active ventilation are the best and most energetic agents. To increase these as much as possible, where it can be done, a large fire should be maintained on the hearth, and the doors and windows opened, so that the light and heat of the sun may contribute their part to purifying the air. At the same time care must be taken to dig a ditch 10-15 in. deep around each house, whose interior is in many cases below the level of the ground. It will also be well, after having torn down all plastering, which will be in a bad condition, to scrape to their bottom all joints in the walls, and to replaster them in the parts of the house most injured, and where bad deposits have principally accumulated. The floors, where such exist, should be carefully attended to, and the soil under them covered with a disinfecting substance, such as pounded charcoal, or sand, or else with an impermeable material, such as flagging, paving blocks, cement, &c. Where the house is several stories high, the top stories should be the first occupied.

Great precautions should also be followed in the treatment of certain articles of furniture, such as beds and mattresses, which must be renovated or replaced, and which should never on any account be used until thoroughly dried. Sanitary treatment, such as adopted for houses, should be applied with no less vigilance to stables and barns. One peculiar feature it is important to note, though it can only be accidentally produced: it is the possible alteration of the water of wells and springs of potable water, in whose neighbourhood matter in a state of decomposition may have been deposited, or piles of excrementitious and organic debris, or sources of water supply which may have been contaminated by

the contents of privy vaults. Attention should be directed to this danger. To disinfect cellars into which, by agency of the inundations, the contents of privy vaults may have penetrated, commercial zinc sulphate may be used, either by sprinkling it in powder in the cellar, or by watering the ground when the water has gone down with a concentrated solution of this salt. Concentrated solution of iron sulphate does well, but the disinfection is not so complete as with salts of zinc; it is, however, cheaper.

Ventilation.—The objects of ventilation are twofold—first to get rid of the poisonous gas (carbonic acid) exhaled from our lungs, and second to furnish a supply of life-supporting gas (oxygen, as it exists in fresh air) to our lungs. For healthy living, every adult individual requires at least 1000 cub. ft. of space, or a room 10 ft. square and 10 ft. high; into this room should pass 3000 cub. ft. of air every hour.

In dwelling-rooms, and especially in bedrooms, the fireplace should always be left unclosed, and the flue or damper open for ventilation. The windows should pull down from the top, and a piece of wire gauze should be fixed along the open space at the top; or a pane of glass should be perforated with holes capable of being closed in stormy weather. All rooms, and especially sleeping apartments, should be well aired during the day.

A good and simple test for impure air is to take a clear glass bottle with a glass stopper, holding about 10 oz., and wipe it carefully inside and out. On entering a room, the air of which you wish to test, stuff a linen cloth into the bottle and rapidly withdraw it, so as to allow the air of the room to

enter the bottle. Then carefully place a tablespoonful of clear lime water in the bottle, and replace the stopper. Shake it for a few minutes; then, if the air is pure, the lime water will remain clear. If bad, and loaded with carbonic acid, the lime water will become turbid, or even milky. This is because lime and carbonic acid together form chalk, which gives the milky appearance. It must be remembered that this test has no reference to the ammonia which often exists abnormally in the bad air of towns, nor does it indicate the presence of disease germs or poisons due to paint, wall-paper, &c.

A fire in an open fireplace is a good ventilator in a way. We may ventilate a room easily by raising the lower window sash, and by placing inside the frame a piece of wood 3-4 in. high, and 1 in. in thickness, and reaching from one side of the frame to the other. When the inside sash is brought down to rest on this piece of wood, it is thus raised 3-4 in. A current of fresh air moves inwards and upwards to the ceiling between the sashes, and if a piece of wood or glass, sloping upwards, be attached to the top of the lower sash, the current of air will be sent upwards to the ceiling, whence it will diffuse itself through the room.

Draughts must be avoided; and it is wonderful how easily they may be prevented. Pettenkofer has shown that if air at ordinary temperatures does not move at a greater rapidity than 1½ ft. per second, its movement is not felt. What is needed, therefore, is some kind of screen that will not prevent the entrance of air, but that will break its force, divide its currents, and make it flow unfelt into the room.

Perhaps the simplest plan of effecting this is the following: Open your window at the top to whatever

degree is necessary to prevent closeness in the room, but if there is a draught open it wider still; place a little loosely-packed cotton-wool between the upper and lower sash, and in the open space above the upper sash place a strip of perforated zinc, with its lower edge turned upwards, so as to direct the draught towards the ceiling. If there is still too much draught, open it still wider, but fasten in front of the perforated zinc a screen of gauze containing loosely-packed cotton-wool. It is noteworthy that there must be a sufficient current to carry the air upwards along the slanting piece of zinc, and towards the ceiling, otherwise, as Corbett has pointed out, the cold air will trickle over the edge and cool the feet of the inmates of the room.

In the hot months it is worth while to bear in mind the plan adopted by Martin in order to keep the rooms of the sick in a state of freshness. This consists in opening the windows wide, and then hanging wet cloths before them. The water, as it vaporises, absorbs the heat, and lowers the temperature of the apartment by several degrees, while the humidity which is diffused renders the heat much more supportable. By adopting this plan, the inmates find themselves, even in the height of summer, in a freshened atmosphere, analogous to that which prevails after a storm. This fact is well known to and utilised by the natives of India. Another plan is to close all windows facing the sun and cover them with blinds or curtains, to exclude the sun's rays and the heated external air. Carpets may be replaced by matting, and the latter may be sprinkled with plain or perfumed water.

In very cold weather it is equally desirable to close all cracks and chinks against the influx of draughts.

Cracks in floors, around the skirting board, or other parts of a room, may be neatly and permanently filled by thoroughly soaking newspapers in paste made of 1 lb. flour, 3 quarts of water, and a tablespoonful of alum, thoroughly boiled and mixed. The mixture will be about as thick as putty, and may be forced into the cracks with a case knife. It will harden like papier-maché. Old windows that do not close tightly may be remedied by smearing the edge on which they close with putty, and that of the sash with chalk, and then closing them as firmly as possible. The putty will fill up the crevices, and the excess pressed out at the sides may be removed with a knife, whilst the chalk prevents adhesion to the sash.

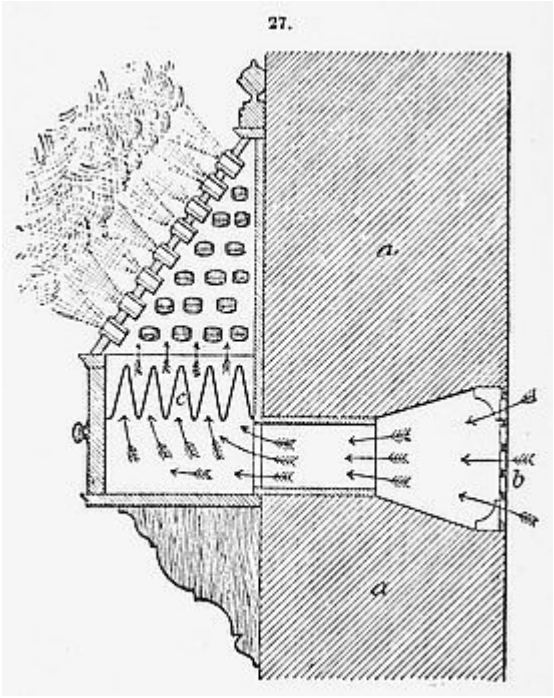
A system in very general use is Moore's patent glass louvre ventilator, consisting of a number of louvres (or slips of glass), which can be opened to any angle up to about 45°, thus always directing the incoming current of air upwards. They are easily regulated and secured by a cord, which when released allows the louvres to close practically air-tight. Moore's circular glass ventilator, which consists of (usually five) pear-shaped openings, neatly cut in the window square, and fitted with a circular glass cover with corresponding holes working on a centre pivot, are also very effective for admission or extraction of air. Moore's sliding ventilator consists of oblong vertical holes, with the cover sliding between guides horizontally, the principle being the same as in the circular ventilator, but it is more suited for the top of shop fronts or shallow fanlights. These are all made by J. Moore and Sons, Sekforde Works, St. James's Walk, Clerkenwell Green, E.C.

Another simple method of admitting fresh air to a room consists in leaving an aperture in the external wall, at a level between the ceiling of one apartment and the floor of the room immediately above, then to convey the fresh air through a channel from the external wall to the centre of the ceiling of the apartment below, where the air can be admitted by an opening, and dispersed by having a flat board or disc to impinge against, suspended 4 in. or 6 in. below the opening of the ceiling, and so scattered over the room. The cold air, however, thus admitted, plunges on the heads of the occupants of the room and mixes with the hot air which has risen near the ceiling. A top window-sash lowered a little to admit fresh air has the same disagreeable effect, the cold air being drawn towards the floor by the chimney draught, and leaving the hot air to stagnate near the ceiling. In any siphon system placed vertically the current of air will enter by the short arm, and take its exit by the long arm, and thus the chimney flue acts as the long arm of a siphon, drawing the fresh air from the nearest opening. Fresh air may be introduced through perforations made in the woodwork of the bottom rail of the door to the room, or through apertures in the outer wall, admitting the fresh air to spaces behind the skirting board, and making the latter perforated. The only objection to this plan is the liability for vermin to lodge between the skirting board and the wall. This may be prevented by covering the outside apertures with perforated zinc, but such covering also helps to keep out the full supply of fresh air.

Butler recommends, while admitting the cold air through side walls near the floor level, and allowing the foul air to escape at the ceiling, that the fire draught should be maintained quite independent of

the air inlet to the room, the requisite amount of air for combustion being supplied by a separate pipe led through the hearthstone with its face towards the fire, the latter acting as a pump, which is sure to procure its own allowance from the nearest source; thus the draught which would otherwise be felt by the fire drawing its supply from the inlet across the room is considerably reduced. The foul air may enter the ceiling in the centre, and be conducted by an air-flue either to the outside or to the chimney. The chimney is the best extractor, as its heated condition greatly favours the ventilating power.

Dr. Arnott was one of the first to draw attention to the value of a chimney as a means of drawing off the foul air from the interior of an apartment. He invented a ventilator consisting of a well-balanced metallic valve, intended by its instantaneous action to close against down draught and so prevent the escape of smoke into a room during the use of fires. If the fire is not alight, what is known as the register of the stove should be closed, or a tight-fitting board placed in front of the fireplace, with the adoption of all chimney-ventilators fixed near the ceiling.



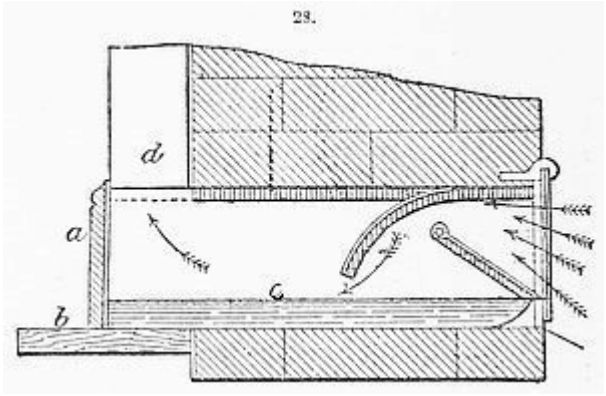
27. Harding's Ventilator.

Harding's ventilators are better known in the north of England than the south. They are recommended by Pridgin Teale, surgeon to the General Infirmary at Leeds, as a means of securing freshness of atmosphere without draught, and free from all mixture of dust, soot, or fog. The outside air is conducted through a grate and aperture in the wall about 7 ft. 6 in. above the floor level, where it is made to pass through a series of small tubes fixed at an angle of about 30° with the wall. The currents of air are said to be compressed while passing through the tubes, but to expand and diffuse in all directions as soon as they are liberated into the apartment. In all filtering arrangements it must be remembered that if air is to pass through a screen or filter without

retarding the current entering the room through a tube, the area of the screen must be greater than the area of section of the tube. This can be effected by placing the screen diagonally within the tube which admits the air. In some buildings the filter is dispensed with, and the apparatus is used simply to diffuse the air as it enters the room. An outlet for the vitiated air is provided by the chimney flue, either through the fireplace or by a mica valve placed in the flue near the ceiling. In rooms where flues do not exist an air extractor is provided, consisting of two perforated cones and a central tube. The external air impinging upon the perforated cones is deflected, creating an induced current up the vertical tube, drawing the foul air from the interior of the room, and expelling it through the perforations. In fixing the extractor, a wooden base or frame is placed on the ridge and covered with lead to make it watertight; the extractor is then placed over this and fixed in the ordinary manner. A small inner cone is provided simply to prevent rain from getting into the tube. Harding's extractors are so designed that they may be easily fixed inside an ornamental turret without in any way affecting their action. They can be obtained in London from Strode & Co., at prices varying from 15*s.* to 6*l.* and upwards. Their action is illustrated in Fig. 27: *a*, wall; *b*, grating outside; *c*, filter.

Another system for admitting fresh air into a room, free from fog and other impurities, is that recommended by the Sanitary Engineering and Ventilating Co., 115, Victoria Street, Westminster. They provide for the introduction of fresh air in vertical currents by means of a suitable number and disposition of vertical tubes, varying in size, section, and weight according to each special case. The

current can be regulated in amount by throttle valves, and the heated or vitiated air is removed by means of exhaust ventilators, placed directly over the roof or in connection with air flues and shafts. The exhaust ventilator is thus described by the makers: There are no working parts to get out of order, and no attention is required to ensure its constant action. In this respect, a great improvement is claimed over the numerous forms of revolving cowls, which require occasional lubrication, otherwise the working parts become corroded and the cowl ceases to act. They are made of circular or rectangular section, or other shapes to suit special circumstances. One great merit of the system is the element of length which is introduced by means of the tube arrangement, and thus a current is continually passing which diffuses itself over the room. The system admits of a patent air-cleansing box being built into the wall at the foot of the tube, fitted with special deflector plates and a tray to hold water or, when necessary, disinfectants. When the arrangements of furniture or fittings in a room preclude the use of vertical tubes fixed near the ground, they recommend the substitution of a ventilating bracket fixed at 6-7 ft. above the floor. This bracket may contain an air purifying or cleansing box; if required, a valve is provided for regulating the admission of fresh air, and a 9 in. by 6 in. hinged air grating to cover the opening outside. The air-cleansing box is illustrated in Fig. 28: *a*, inside of room; *b*, floor; *c*, trough or tray for holding water or disinfectant fluid; *d*, tube.



28. Sanitary Ventilating Company's Ventilator.

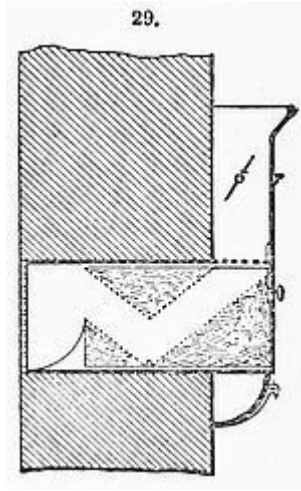
Boyle's patent self-acting air-pump ventilators are well known, and are found to answer well in their continuous action under all varieties of wind pressure; they are often adopted without any inquiry being made as to the scientific principles on which they are constructed. They consist of 4 sections, each acting independently of the other. The exterior curve baffle-plate prevents the wind blowing through the slits formed in the immediate interior plates, and tends to concentrate the current. These interior plates are curved outwards, so as to take the pressure off the vertical slits, which form a communication with the internal chambers, through which the air impinges on inner deflecting plates, and is further directed by the radial plates. The external air impinging on the radial plates is deflected on to the side plates, and creates an induced current. In its passage it draws the air from the central vertical chambers, expelling it at the opposite opening. The vitiated air immediately rushes up the shaft connecting the ventilator with the apartment to be ventilated, extracting the air and producing a continuous upward current without the possibility of down draught. The partitions separating the

chambers prevent the external air being drawn through the slits upon which the wind is not directly acting. The whole arrangement being a fixture, with no mechanical movement, it is never liable to get out of order, and the apparatus can be easily fixed over a wood base or frame covered with zinc or lead to secure a good water-tight connection. Where Boyle's ventilators are used the air is renewed imperceptibly, the vitiated air being extracted as rapidly as it is generated.

A somewhat similar arrangement to Boyle's ventilator is patented by Arnold W. Kershaw, of Lancaster, and consists of 3 rims of deflectors or plates with openings in each, so arranged that the openings in one rim are opposite the deflectors in the next inner or outer rim, the effect being that whatever the direction of the wind, it passes through the ventilator without being able to enter the central shaft, and in passing creates a partial vacuum, which induces an upward current in the upcast shaft without the possibility of down draughts. Both Boyle's and Kershaw's roof ventilators are suitable for fixing in ventilating towers or turrets. While Kershaw's is somewhat simpler in construction, Boyle's is said to possess the additional advantage of preventing the entrance of snow by the curve in which the inner plates are fixed. In the case of chimney flues where there is any obstruction that breaks the wind and produces a swirl, such as would be caused by close proximity to higher buildings or raised gables, a down draught may be prevented by the use of a properly-constructed chimney cowl. Kershaw's chimney cowl is a modification of his pneumatic ventilator, and consists of deflecting plates so arranged that there is no possibility of a down draught. Boyle's chimney cowl is better known

than Kershaw's, and is very effective. It consists of deflecting plates so fixed that if a body of air is forced in at the false top, instead of passing down the vent, it is split up by an inner diaphragm, deflected over the real top, and passed over at the side openings, thus checking the blow down and assisting the up draught. Kershaw's patent inlet and air diffuser consists of a tube connection between the outside and inside of an apartment rising vertically on the inside, the upper extremity having radiating plates, which diffuse the incoming current. Generally speaking, a sufficient amount of fresh air enters under the door to a room or between the window sashes or frames; but in apartments where doors and windows fit tightly, some arrangement for the admission of fresh air becomes indispensable. In this climate, during 7 months of the year, the external air is usually too cold to be admitted directly into the room.

The plan of admitting fresh air to a space behind the grates, leading up the air through channels on each side of the fireplace, and ultimately passing it through perforated gratings within the wall or through perforations in the skirting board on each side of the fireplace cannot be commended, as the passages are apt to get choked up with dust, and the temperature of the air cannot be well regulated in its passage into the room. The true object of a fire and chimney flue should not be to supply fresh air, but to extract it after it has done its work.



29. Boyle's Air-cooler.

Fig. 29 illustrates Boyle's arrangement for cooling the air entering a room in hot weather. It consists of an air-inlet tube of bracket form, made of iron. The part which penetrates the hole in the wall has an outer casing, so that a space of about ½ in. is left between, which is packed with a non-conducting substance, for the purpose of preventing the heat from the wall penetrating into the interior of the opening and acting upon the blocks of ice, which are placed in a movable drawer, and kept in position by means of open galvanised iron or copper-wire netting. The front of the drawer is also double, and packed same as casing. The outer air entering through the grating is deflected by a metal shield on to the suspended blocks of ice, and from thence on to the ice at the bottom of the drawer, and thence up the tube into the room. The air is not only cooled, but purified thoroughly from dust. See also p. 991.

Warming.—In connection with warming an apartment, it is obviously a necessary condition that

the warmth shall be conserved as much as possible. Hence there is an evil in having too much glass, as it cools the room too fast in the winter season: 1 sq. ft. of window glass will cool 1½ cub. ft. of warm air in the room to the external temperature per second; that is, if the room be warmed to 60° F., and the thermometer stands at 30° F. outside, there will be a loss of 90 cub. ft. of warm air at 60° per second from a window containing a surface of glass of 60 sq. ft. In colder climates than that of England, this subject is of much greater importance. In America, for instance, during the cold weather, there will always be found, no matter how tightly or closely the sashes are fitted and protected with weather-strips, a draught of cold air falling downward. This arises from the contact of the heated air with the cold glass, which renders the air cooler and heavier, and causes it to fall. The air, at the same time, parts with a considerable proportion of its moisture by condensation upon the glass. The cold air thus formed falls to the floor, forming a layer of cold air, which surrounds the feet and legs, while the upper part of the body is enveloped in overheated air. The layers of cold and warm air in an apartment will not mix. The warm air will not descend, and the cold air cannot go upward, except the one is deprived of its heat by radiation, and the other receives its heat by actual contact with a heated surface. This radical difference in the upper and lower strata of atmosphere of the rooms, in which people live during the cold season, is the prolific cause of most of the throat and lung diseases with which they are afflicted. Double windows to the houses, therefore, would not only be a great economy as to fuel, but highly conductive to human longevity.

There are only two ways in which dwelling-houses

can be heated, namely, by radiant heat and by hot air. The former is produced by the open fire, and by it alone. The latter is obtained in various ways. The question whether we shall use hot air or radiant heat in our rooms is by no means one to be lightly passed over. Instinct tells us to select radiant heat, and instinct is quite right; it is so because radiant heat operates in a very peculiar way. It is known that as a matter of health it is best to breathe air considerably below the natural temperature of the body—98° F.; in air heated to this temperature most persons would in a short time feel stifled. But it is also known that the body likes, as far as sensation is concerned, to be kept at a temperature as near 98° F. as may be, and that very much higher temperatures can be enjoyed; as, for example, when we sit before a fire, or bask in the sun. Now radiant heat will not warm air as it passes through it, and so, at one and the same time, we can enjoy the warmth of a fire and breathe that cool air which is best suited to the wants of our system. Herein lies the secret of the popularity of the open fireplace. But in order that the open fireplace may succeed, it must be worked within the proper limits of temperature. If air falls much below 40° F. it becomes unpleasant to breathe; and it is also very difficult to keep the body warm enough when at rest by any quantity of clothes. In Russia and Canada the temperature of the air outside the houses often falls far below zero, and in the houses it cannot be much above the freezing-point. Here the open fire fails; it can only warm air by first heating the walls, furniture, and other materials in a room, and these, in turn, heat the air with which they come in contact. But this will not do for North American winters; and accordingly in Canada and the United States the stove or some other expedient for warming

air by direct contact with heated metal or earthenware is imperatively required. But this is the misfortune of those who live in cold climates, and when they ask us to follow their example and take to close stoves and steam-pipes, and such like, they strongly remind us of the fable of the fox who had lost his tail. How accurately instinct works in the selection of the two systems is demonstrated by the fact that a succession of mild winters is always followed in the United States by an extended use of open grates; that is to say, the English system becomes, or tends to become fashionable, while, on the other hand, a succession of severe winters in this country brings at once into favour with builders and others a whole host of close stoves and similar devices which would not be looked at under more favourable conditions of the weather. While English winters remain moderately temperate, the open fireplace will enjoy the favour it deserves, as not only the most attractive, but the most scientific apparatus available for warming houses. (*Engineer.*)

Heat radiated from a fire passes through the air without increasing its temperature, in the same manner that the sun's rays in warming the earth pass through and leave the atmosphere at the higher altitudes so bitterly cold that water and even mercury will freeze: it is for this reason that open fires should be lighted some time before the apartment is required for use, so that firstly a glowing fire be obtained (flames do not radiate any material quantity of heat, and practically heat by contact only), and secondly the surrounding objects, walls, &c., be heated by radiation, and these in their turn warm the air.

In discussing the various methods of warming, it

will be convenient to classify them under general heads.

To put the reader upon a more familiar basis with this subject, a short explanation of the cause of heat will be here given. Combustion is the chemical union of oxygen (contained in the air) with some other substance for which it has an affinity; as applied to coal, it is the combining of oxygen and carbon producing carbonic acid gas, and it is known to every one that all chemical combinations evolve heat.

Combustion may be said to be complete when coke, wood charcoal, or anthracite coal is burnt, as there is no smoke, the up current is colourless, and these fuels burn quite away, leaving nothing except a little ash, &c., which originally consisted of earthy impurities in the fuel. Ordinary coal contains bitumen (pitch) in its composition, which at a temperature of about 500° to 600° F., distils off as a smoky gas (carbon and hydrogen), but at a higher temperature this is ignited, forming flame by the union of oxygen with the smoke (carbon); the main principles of underfed, smoke-consuming grates are based upon this, with the object of causing all gaseous products from the fuel to pass through the incandescent portion of the fire and so render the consumption of the fuel complete, as will be explained later on.

A good authority says that “the correct method of warming is to obtain everywhere, at will, the warmth most congenial to the constitution with air as pure as blows at the mountain top,” and it might have been added “without an unreasonable consumption of fuel.”

Open Grate.—The ordinary open grate is too familiar to need any description, but it is wasteful of

fuel to a degree that could only be tolerated in a mild climate where fuel was cheap. As a matter of fact, only some 10-12 per cent. of the heat generated in an open grate is utilised, the remainder going up the chimney. But this very fault is in one sense a virtue, in that it performs the ventilation of the apartment in an eminently satisfactory manner. By the addition of a contrivance for regulating the combustion in au open grate, the fuel consumption is much reduced, the combustion is rendered more perfect (diminishing or preventing smoke), the radiated heat is much increased, while the appearance of an open grate is retained, though it is in reality converted into an open stove.

It would not be out of place to explain the cause of draught. After a chimney has been used, the brickwork surrounding and forming it becomes warmed and retains its heat for a very considerable period even if no fire is lighted; this heat is slowly radiated, and warms the air contained in the chimney, rendering it lighter and causing it to rise and flow out at the top; this is immediately replaced by cold air from below, which is warmed and rises as before, and so continues, causing an up current of air to be passing through the flue, its swiftness varying with the heat. The more intense the heat produced by the fire, and the greater the height of the chimney, the more swift is the current of air known as the “draught”; and when once the draught is established it will remain for a very long time without any fire being lighted. A good draught is not to be despised, as can be certified by those who have suffered from the annoyance of a smoky chimney; yet too strong a draught is a disadvantage, as consuming the fuel too rapidly, robbing the fire and

apartment of its heat, and causing draughts of another kind, which materially cool the room and tend to cause discomfort; this only applies to the old form of grate, as all or nearly all modern grates have a means of regulating the draught; even the common and old form of grate is provided with a "register" or flap at the back, immediately over the fire (certainly not an economical position for it), through which the smoke passes into the chimney. This flap is provided with the view of having it full open to assist combustion when fire is first ignited, and afterwards partially closing it when fire is established, and so prevent undue loss of heat, but although this "register" is provided with every stove of its kind, *it has not, nor never has had, any means of regulating it*. If the reader has one of these stoves in his residence, as most probably he has, for they are still used in the upper rooms of nearly every building, he can by a simple experiment experience the benefit of regulating this flap. By placing a piece of coal, or stone, or metal, with the tongs, after the fire is established, at the joint or hinge of the register, and then drawing the register forward and letting it rest, so that it is closed all but about 1½ in., it will be immediately found that one-fourth or one-third more heat is thrown into the room, for a similar result is brought about as with the modern projecting or overhanging brick backs, which cause the heat to be deflected forwards which would otherwise have passed directly up the chimney. If an existing stove of this description be fitted with a rack adjustment for the register flap and with an "economiser," an advance of 30 to 40 per cent. in economy and comfort will be experienced, for in the ordinary manner in which these stoves are fitted and used, it can be taken that one-half the heat passes directly up

the chimney; a good proportion of the heat radiated is drawn back by the current of air proceeding from the room towards and up the chimney; a proportion is lost by conduction, the heat being passed away to the walls and surrounding parts, and a fair proportion is lost by the smoke, which is really unconsumed fuel; but this form of stove is improving rapidly in various ways, as will be described hereafter.

Open Stove.—This subject has been most ably discussed by Dr. Pridgin Teale, in connection with the economising of fuel in house fires. His remarks will well bear repeating.

"It is hardly possible to separate the two questions of economy of fuel and abatement of smoke. None who, in their own person, or as the companion or nurse of friends and relatives, have gone through the miseries of bronchitis or asthma in a dense London fog, can fail to perceive that this is a serious medical, not less than a great economical, question. Nine million tons of coal—one-fourth of the domestic fuel consumption in this kingdom—is what I estimate as a possible reward to the public if they will have the sense, the energy, and the determination to adopt the principles here advocated, and which can be applied for a very small outlay. Much has been said by scientific men about waste of fuel, and strong arguments have been advanced which make it probable that the most economical and smokeless method of using coal is to convert it first of all into gas and coke, and then to deliver it for consumption in this form instead of coal. Theoretically, no doubt, this is the most scientific and most perfect use of fuel, and the day may come when its universal adoption may be possible. But before that time

arrives many things must happen. The mode of manufacture, the apparatus on a mighty scale, and the mode of distribution must be developed, nay, almost created, and a revolution must be effected in nearly every fireplace in the kingdom. At present its realisation seems to be in a very remote future. Meantime I ask the public to adopt a method which is the same in principle, and in perfection not so very far short of it. It is nothing, more nor less, than that every fireplace should make its own gas and burn it, and make its own coke and burn it, and this can be done approximately at comparatively little cost, and without falling foul of any patent, or causing serious disturbances of existing fireplaces. We must, first of all, do away with the fallacy that fires won't burn unless air passes through the bottom or front of the fire. The draught under the fire is what people swear by (aye, and many practical and scientific men too), and most difficult it is to sweep this cobweb away from people's brains. They provide 2 or 3 times as much air as is needed for combustion, ⅓, perhaps, being the necessary supply of oxygen, the remainder serving to make a draught to blow the fire into a white heat, and to carry no end of waste heat rapidly up the chimney; ⅔ of cold air chilling the fire, ⅔ more than needful of cold air coming into the room to chill it; and much of the smoke and combustible gases hurried unburnt up the chimney. The two views which I am anxious to enforce upon the attention of the public, of builders, of ironmongers, and of inventors, are these: that the open grating under the fire is wrong in principle, defective in heating power, and wasteful of fuel, and that the right principle of burning coal is that no current of air should pass through the bottom of the fire, and that the bottom of the fire should be kept hot. This

principle is violated by the plan of closing the slits in the grate by an iron plate resting on the grate, which cuts off the draught, but allows the chamber beneath the fire to become cold, and when cinders reach the plate they become chilled, cease to burn, and the fire becomes dead. The right principle is acted upon by the various grates with fire-brick bottoms, and the English public owes much to the inventor of this principle as carried out in the Abbotsford grates, which have done much to educate the British public in the appreciation of the fact that a fire will burn well with a current of air passing over it, and not through it. But there is a better thing than the solid fire-brick bottom, and that is a chamber underneath the grating, shut in from the outer air by a shield resting on the hearth and rising to the level of the bottom bar of the range. This hot-air chamber, into which fine ash can fall, produces on the whole a brighter and cleaner fire, and one which is more readily revived when low, than the solid fire-brick. There is another mighty advantage in the principle of the 'economiser'—an unspeakable advantage, it is applicable to almost every existing fireplace, and it need not cost more than 3-4*s* This idea has now been long on its trial. It has been applied in hundreds of houses. It has been submitted to the very severe test of being applied to an infinite variety of grates, under a great variety of circumstances, and tried with coke, anthracite, and coal, good, bad, and indifferent. The effect has been, in an enormous number of instances, a marked success in saving coal and labour, and in more comfortable uniform warmth to the room. The failures have been very few indeed. I have drawn up 7 rules for the construction of a fireplace, all of which are pronounced to be sound:—

"1. As much fire-brick, and as little iron as possible.

"2. The back and sides of the fireplace should be fire-brick.

"3. The back of the fireplace should lean or arch over the fire, so as to become heated by the rising flame.

"4. The bottom of the fire or grating should be deep from before backwards, probably not less than 9 in. for a small room nor more than 11 in. for a large room.

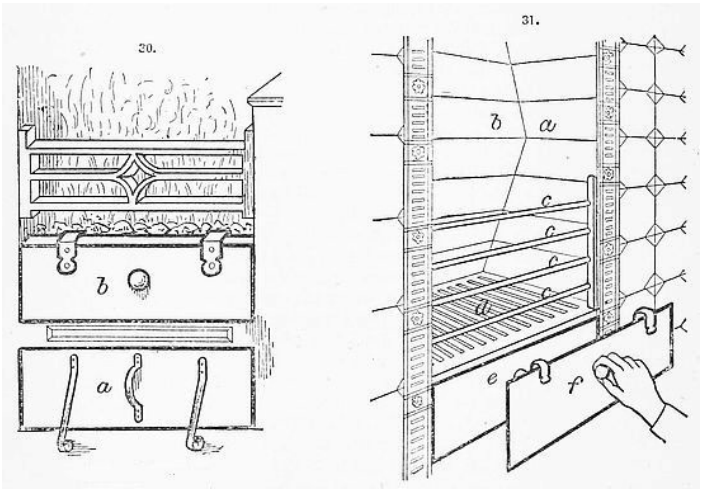
"5. The slits in the grating should be narrow, perhaps ¼ in. wide, for a sitting-room grate, ⅜ in. for a kitchen grate.

"6. The bars in front should be narrow.

"7. The chamber beneath the fire should be closed in front by a shield or economiser.

"There is one caution which should be given. There is no doubt about the fact that immediately beneath the fire the hearthstone is hotter, and the ashes remain much hotter when the 'economiser' is used. This may increase the risk of fire whenever wooden beams lie under the fireplace. In any case of doubt, the best plan would be to take up the hearthstone and examine, and relay with safe materials; but should this be impossible, safety may be secured by covering the hearthstone with a sufficient thickness of fire-brick, just within the space enclosed by the 'economiser'—leaving a space of 2 or more in. between the fire-brick hearth and the bottom of the fire. In lighting the fire, if there be no cinders on which to build the fire, it is well to draw away the 'economiser' for a short time until the fire

has got hold; but, if there be cinders left from the previous day, on the top of which the paper and wood can be placed, then the fire may be lighted with the ‘economizer’ in its place. There is a great art in mending a fire. It is wasteful to throw lumps of coal higgledy-piggledy on the fire. The red embers should be first broken up so as to make a level surface, then pieces of coal should be laid flat on the fire and fitted in almost like pavement; lastly, if the fire is intended to burn slowly and last very long, small coal should be laid on the top. An ‘economised’ fire so made will, in a short time, heat the coal through, and give off gases, which will ignite and burn brightly on the surface of the black mass, and when the gases are burnt off there is a large surface of red-hot coke.”



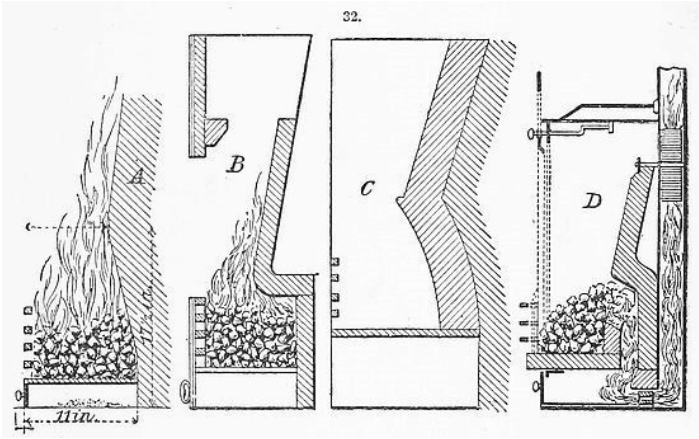
30. Kitchen Economiser. 31. Bedroom Economiser.

The annexed illustrations show the application of the economiser. Fig. 30 is a kitchen range, *a* being the economiser and *b* the front damper. The latter should always be used in warm weather, unless the front of the fire is needed for roasting and should be put on at night. Fig. 31 is a bedroom fireplace having fire-brick sides *a*, fire-brick back *b* leaning over the fire, narrow front bars *c* movable, grating *d* with narrow slits, chamber under the fire closed by economiser *e*, and front damper *f* which can close the lower ⅔ of the front of the fire at night or when a slow fire is needed.

The "economiser" is a shield of sheet iron which stands on the hearth, and rises as high as the lowest bar of the grate, against which it should fit accurately, so as to shut in the space or chamber under the fire. If the front of the range be curved or angular, as in most register stoves, the economiser

will stand, owing to its shape—but if the front be straight, the economiser needs supports such as are shown. “Ordinary economisers” are made of 16-gauge charcoal iron plate, with ⅜ in. bright steel moulding at the top, ½ in. moulding at the bottom, and 1 or 2 knobs as required. “Kitchen economisers” are made of 16-gauge iron, with ½ in. semicircle iron at the top edge; and with supports in scroll form of ½ in. semicircle iron. Some makers use rather thinner iron plate and give strength by the mouldings. Some have used too thin plates, little better than tin, which have warped and so become more or less useless. Great care should be spent in taking the dimensions—as every grate has to be measured—as a foot for a boot. This renders it almost impossible to send orders to a maker by post. Some skilled person must take the measure, and take it accurately. The dimensions to be taken are: firstly, the outline of the bottom bar of the grate. If it be curved, or angular, the outline can be well taken by a piece of leaden gas-pipe, which, moulded to the outline can then be traced upon paper or carried carefully away to the makers; secondly, the height must be measured from the hearthstone to the bottom bar. This is the “economiser” in its simplest and cheapest form, as applicable to nearly every ordinary range.

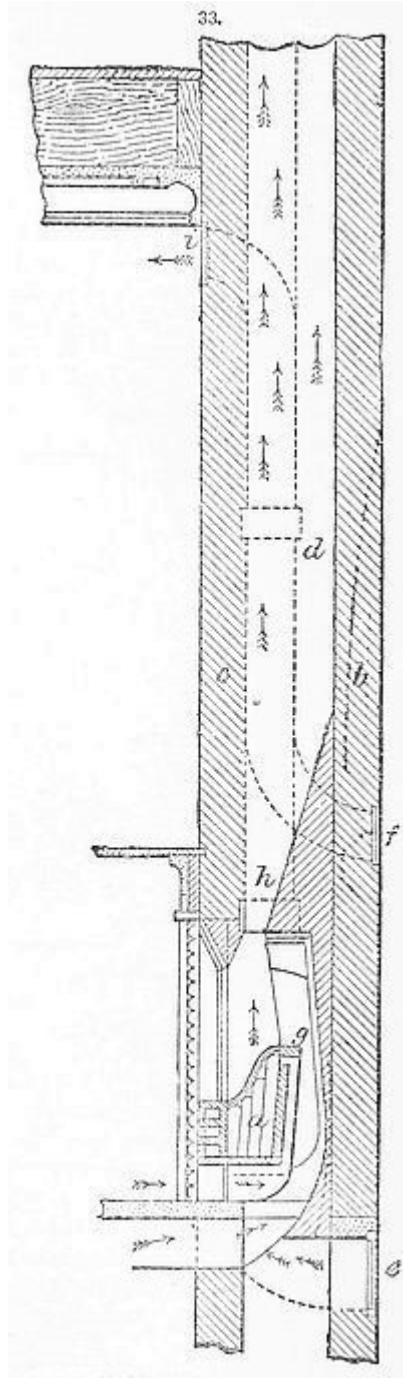
Ornament can be added to taste. It is obvious that the adaptation of the economiser need not displace the old-fashioned ash-pan, and that the two can be combined, or that the economiser may be made like a drawer and catch the ashes. All such variations will work well, provided that the main principles be adhered to of “cutting off the under current,” and “keeping the chamber under the fire hot.” But the simplest form is the best.

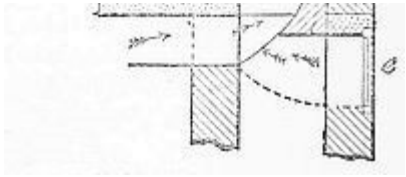


32. Some Modern Open Grates.

Fig. 32 illustrates a few typical specimens of modern improved open grates devised to increase the radiation of heat and perfect the combustion of the fuel: A is a combination of Parson's grate and economiser with a Milner back; B is Nelson and Sons' "rifle" back; C is a Galton back; D, Jaffrey's grate.

"The Manchester Warming and Ventilating Grate" (E. H. Shorland, St. Gabriel's Works, Manchester) is somewhat similar in principle to Captain Galton's grate, i.e. the warm fresh-air inlet is at the ceiling, and the vitiated air is carried off by the chimney, or in some instances ventilation at a lower part of the room is provided. Fig. 33 will acquaint the reader with the details: *a*, fireplace; *b*, outer wall; *c*, inner wall; *d*, smoke flue; *e*, *f*, cold-air inlets; *g*, *h*, warm-air passages; *i*, inlet for cold or warm air into room.


33.
i
d
c
b
f
h
g
e



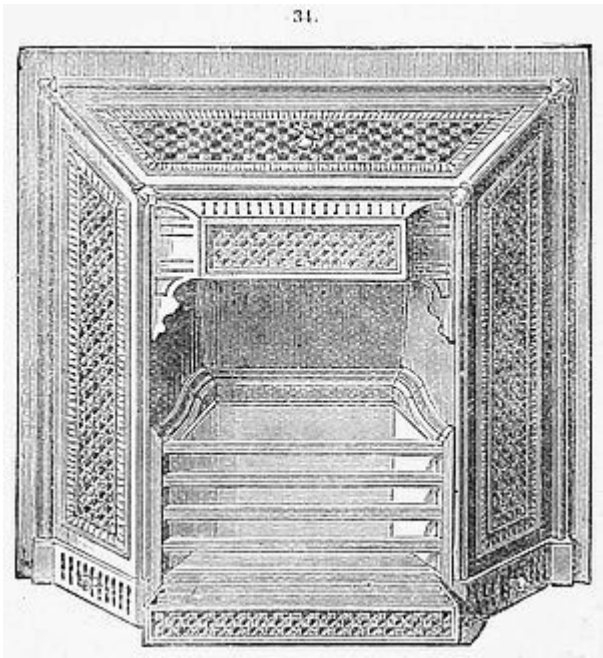
33. Shorland's Manchester Warm-air Grate Back.

The shape of the back brick advocated by Dr. Teale (first invented by the celebrated Count Romford, to whom much is owing for the various means undertaken by him to promote the consideration of the question of improving our fire-grates and to abate the smoke nuisance) has since its discovery met with universal favour, and is coming into general use by all makers, as the expense of the stove is scarcely increased and its result in use is a most decided improvement. The actual shape or section of this brick varies with the different stove makers, but the result is the same; the brick is made to slope forward from the bottom up to about 15 or 16 in. high; at that height the top of the brick overhangs the bottom by about 5 to 6 in.; its section is appropriately defined by a maker, who likens it to a "dog's hind leg." Some makers shape the brick like a curved scallop-shell, inclining forward at the top; the effect is that as the heat ascends from the fire, it strikes or comes in contact with the projecting part, and rebounds or is deflected into the room; it is a similar action to that which takes place if an object, say a ball, is thrown upon a wall and comes in contact with a similar projection—it would bound off or be deflected.

It would be impossible to describe all the existing improvements upon the ordinary or old form of open-fire stove (commonly known as a "register grate"), but the following are some that are tolerably well known and have a good share of favour.

"The Abbotsford Slow-combustion Grate" (Mappin

and Webb, Cheapside, London), which has now been used some years, was about the first recognised form of stove that had the bottom closed, so that the supply of air for combustion is carried through the front only. This is a great improvement (as explained by the economiser), by lessening the consumption of fuel without decreasing the efficiency or its heat-giving properties. The bottom of the fireplace is a solid fire-brick slab, and the chief property of this stove is truly named "slow combustion." Many people have tried to apply this advantage to existing stoves by having a piece of iron cut to lie *upon* the bottom grate; but iron is too rapid a conductor, and failure is experienced by having the lower part of the fire dull and dead. It cannot, however, be said that a solid bottom is the best, for it permits of accumulation of ash, and it is slow lighting.



34. Wharncliffe Grate.

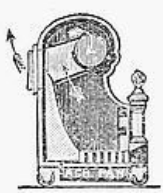
"The Wharncliffe Patent Warming and Ventilating Grate" (Steel and Garland, 18 Charterhouse Street, London, E.C.) Fig. 34, is an excellent form of grate, and is fixed back against the wall, wholly projecting into the room, an air-chamber surrounding the fire-box; this air-chamber is, whenever convenient, connected with the outer air by means of a pipe, and within the chamber gills or ribs are provided, attached to the fire-box (the principle and advantages of these gills or ribs, which are to increase the heat-giving surface and to prevent over-heating of air, will be explained under Gill stoves).

When the fire is established, the metal of the fire-box becomes heated, which then heats the air contained in the air-chamber, rendering it lighter, whereupon it rises and flows out into the room through the perforations provided in the pattern of the ironwork; cold air immediately flows in to take its place, which is then heated, and passes out, so that as its name implies it is a ventilating as well as warming grate, and has the further advantage of the cheerful open radiating fire; but it must be remembered that with ventilating stoves there must be provision made for the removal of vitiated air, which in this case is taken up the chimney along with the products of combustion.

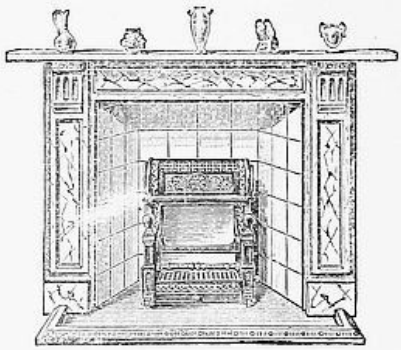
Another improved form of warming and ventilating grate is that invented by and named after Captain Douglas Galton (makers, Yates, Hayward & Co., Upper Thames Street, London). The principle advocated in this instance is contrary to that generally adopted, insomuch that the warmed fresh air is admitted into the room near the ceiling, and the abstraction of vitiated air is performed through

the grate by the chimney draught. This is an open-fire grate fitted within a mantel in the usual way, and is provided with an air-chamber at the back, and which is connected with the outer air as before explained. From this air-chamber a perpendicular shaft or flue is carried, terminating by being turned into the room with an inlet grating or louvre. As before explained, the air within the air-chamber is warmed, and rises and passes into the room close to the ceiling; from there it is drawn down towards the fire, and eventually passes up the chimney, so that there is always a current of warm fresh air from the ceiling downwards. There are as many advocates for this down-current system as for the up current, as in the Wharncliffe and others. The Captain Galton has had about 14 years' trial, and is still largely used. A rather peculiar and advantageous action takes place, by the fact that the apartment becomes fully charged with fresh air and the supply for combustion and draught is not drawn from the crevices beneath doors, &c., so that when a door is opened no inrush of cold air is experienced. This and the Manchester grate can most conveniently be used for warming another apartment also from the same fire.

35.

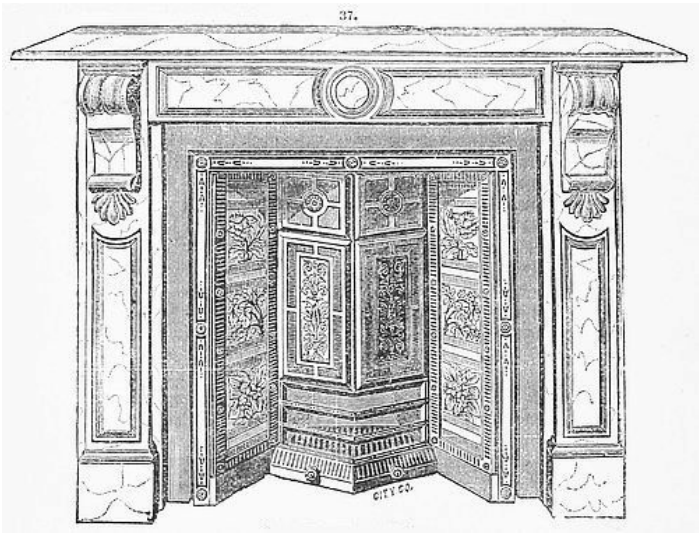


36.



35. Nautilus Grate. 36. Nautilus Grate.

"The Nautilus Grate" (Jas. B. Petter & Co., Yeovil), Figs. 35 and 36, is, as the name signifies, shell-shaped. The products of combustion rise from the fire, and after revolving within the centre or axis pass off by two concealed flues at the back of the grate to a flue prepared in the back of the fireplace; the ashes fall through a small grating into a closed ash pan. The warmth radiated direct from the cheerful open fire and indirectly from the outer case is considerable, and the results are very satisfactory, as no heat is lost by conduction. This grate is also cleanly, economical, and portable. The back, cheeks, and hearth should be tiled; the extra expense is fully compensated for by the handsome appearance.

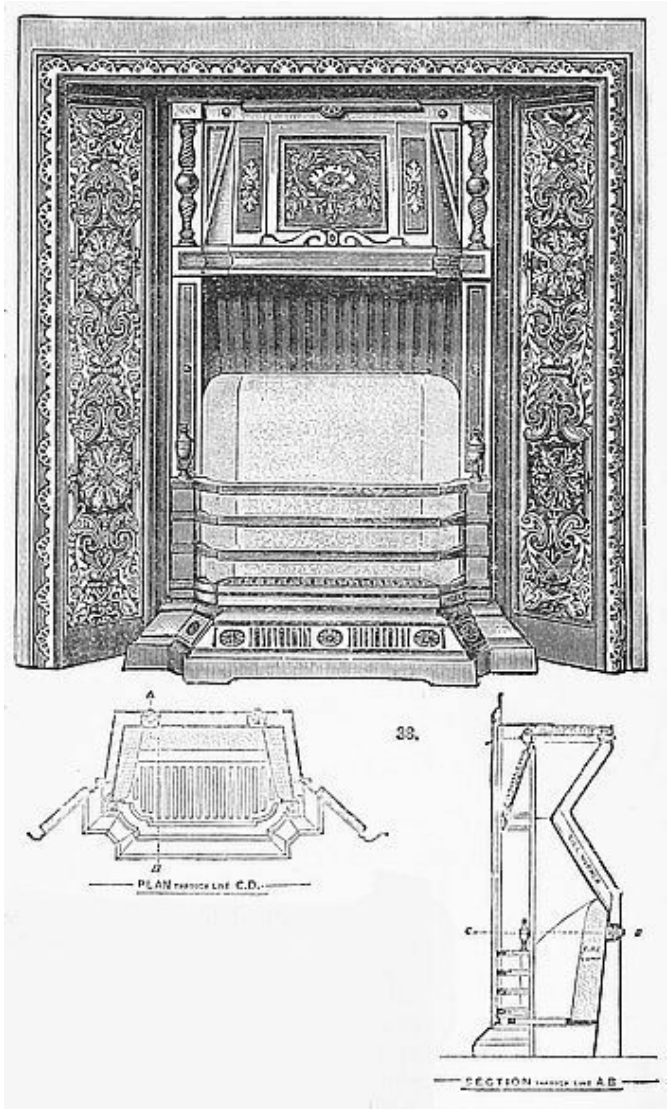


37. Eagle Convertible Grate.

The "Ingle Nook," Wright's Patent (GEORGE WRIGHT & SONS, 113 Queen Victoria Street, E.C.),

Fig. 38, is a combination of all the most recent improvements, with two new features never before introduced into this class of grate, viz. the regulation of draught by means of an ordinary damper, and the complete independence of the actual working part of the stove, so that it may be removed at any time for repairs without disturbing the outer casing or brickwork.

Special features and advantages.



38. PLAN THROUGH LINE C.D.
SECTION THROUGH LINE A.B.

Radiation and complete utilisation of the heat generated from all parts of the grate, as not only the

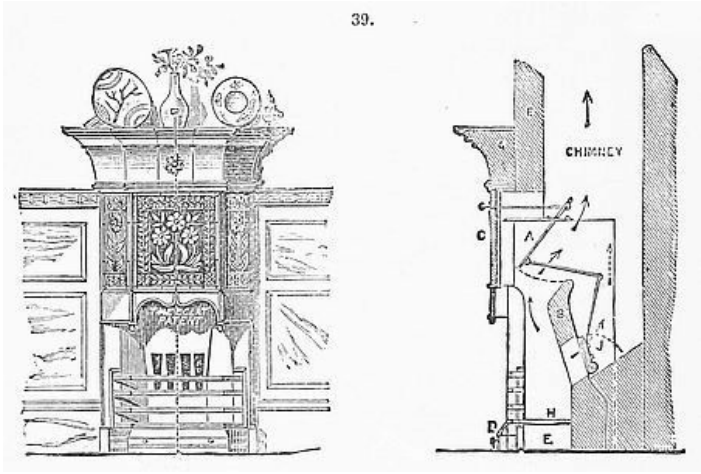
heat given off from front of fire, but also all heat radiated from sides and back of grate, which is usually absorbed in brickwork, is here passed into warm-air chambers and thence into the room. Economy of fuel, with increase of heating power. Prevention of down-draught, and partial consumption of smoke. Simplicity of construction and fixing, so that easy access is afforded to all parts of the grate, more especially those likely to want renewing. Pleasing appearance of the ordinary open fire, with heating power of a warm-air stove. This stove being complete in itself can be fixed by any ordinary workman without removing the mantel-piece or in any way interfering with the decorations of the room. The whole construction and principle of the grate are so simple that they can be readily understood by reference to the plan and section annexed. The interior portion of fire-box is of fire-brick, and can readily be removed from the front without disturbing any other portion of the grate. The back leans forward, deflecting the radiant heat into the room, and contracts the throat of the flue so as to quicken the draught directly the fire is lighted, which flue then expands and is again contracted at the top by means of the damper. Less than half the quantity of fuel is required to warm any given space, and more than double the quantity of heat is given off than from an ordinary grate with the usual supply of fuel. By introducing a fresh-air flue where practicable the perfection of ventilation may be obtained. The cost does not greatly exceed that of an ordinary grate, and is very much below that of any other grate of this description at present in the market. *See advertisement in front of title page.*

"The Rumford-Teale Grate" (made by Verity Bros., 98 High Holborn, London), is made nearly wholly of

fire-brick, upon strictly scientific principles, as the name indicates. There is very little iron in its construction, the front being a steel wire trellis instead of bars; this permits free radiation from the front and reduces loss by conduction. This front, apparently fragile, lasts for a considerable time (4 or 5 years), and is easily replaced by any one at an extremely small cost.

An improvement upon the Rumford-Teale grate is the “Eclat,” by the same makers, shown in elevation and section in Fig. 39. Its distinguishing features are a double flue (one for quick and the other for slow draught), and the projection of the fire in advance of the chimney breast. The figure shows: **A**, damper for regulating combustion; **B**, perforated fire-clay back; **C**, tiles to taste; **D**, economiser; **E**, ashpit; **F**, chimney breast; **G**, frieze; **H**, removable bottom grate with fine mesh; **J**, valve for regulating combustion.

There are several forms of combined open- and close-fire stoves, which stand independent of any brickwork, and are generally known as “American stoves.” These stoves are good heat givers, ornamental, and have several advantages, and can be obtained at almost any hardware stores; they do not work upon strictly hygienic principles, as they are apt to get overheated when closed, and render the air unpleasantly dry; but this can be remedied to some extent by using a vaporising pan, as will be explained later on.



39. Éclat Grate. Éclat Grate.

There is another form of open-fire grate that should be mentioned, viz. those that have the fire replenished by placing the fresh fuel underneath, and are known as underfed smokeless grates. This idea, which deserves high commendation, has been rendered practical, but cannot be said to be perfected yet. It originated in Dr. Arnott's stove, which was made with the usual set of front bars fixed about 12 in. high from the hearth, and the space under the bars closed in front. The bottom of the fire, which is movable, is lowered down to the hearth and the space filled with coal: the fire is laid, and ignited on the top of this store of fuel. As the fire burns down, the bottom grating is raised by means of a lever bringing fresh fuel within the fire-basket, and this bottom is raised as often as the fire burns down; it will be seen that the gaseous products given off by the fresh fuel must pass through the incandescent fire, and so be perfectly consumed, and the space below the front bars is sufficiently large to hold fuel

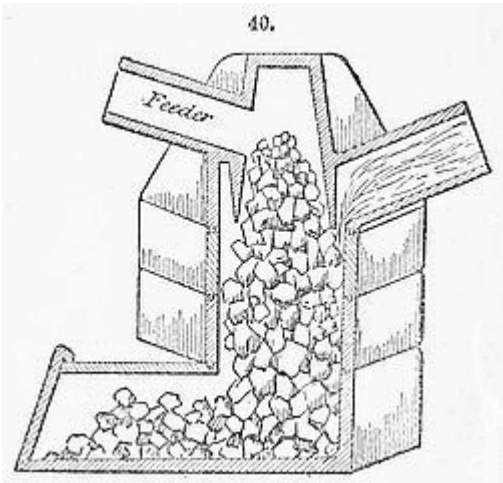
for one day's consumption.

"The Kensington Smoke-consuming Grate" (Brown and Green, Finsbury Pavement, London) is an underfed grate, and has received high commendation from good authorities; it has not the complication of Dr. Arnott's, and is of good appearance, being fixed in a similar manner to any ordinary grate.

"Hollands' Patent Underfed Grate" (Hollands & Co., Stoke Newington) is a still further improvement, and, except for a little complication in construction, may be considered the best in action and results. The advantages of underfed grates are, firstly, an abatement of the smoke nuisance, full utilisation of the fuel, and more powerful radiation from the top of fire, which is always incandescent. There is commonly no provision made for the supply of air for combustion, nor to replace that which is taken from the apartment by the draught in the chimney—the cracks and fissures around doors and windows sufficing for this purpose, is the too commonly general idea; but for perfection in warming upon hygienic principles, there must be a proper supply from external sources; but this will be more fully treated under Ventilation; it will, however, be noticed that some of the ventilating stoves make provision for this in themselves; this particularly applies to Captain Galton's principle.

Close-Fire stoves.—The old form of close-fire warming and ventilating stove is that known as the "Cockle." It consists of a closed circular fire-box with a dome top and a similar shaped outer casing; between the fire-box and the casing is a space of a few inches all round, known as the air-chamber, which by means of a pipe is connected with the outer air. The action is similar to a flue; the air within the

air-chamber, being in contact with the heated surface of the fire-box is warmed, and rises and flows out at the top through an aperture provided at the top (as explained with the Wharncliffe grate), or it is made with a nozzle at top to attach a pipe and carry the warm air wherever required, so making it a hot-air furnace, in which case it would be fixed in a basement or cellar as at the best it is not ornamental, but this primitive form of stove has gone somewhat into disuse.



40. Thames Bank Iron Co.'s Stove.

Where a continual genial warmth is required at little cost in an apartment, the slow-combustion stove, such as that made by the Thames Bank Iron Company, London, (Fig. 40), may be employed. The external air is drawn in by a smoke-pipe channel and impelled through orifices in the stove. The smoke can be made to pass out at any level in the stove that may be found most convenient, but unless there is a high chimney shaft 25 to 30 ft., an underground flue connection is not recommended. The fuel, consisting of coke or cinders broken small, is supplied at the

top, the ashes or cinders being removed through a sliding door at the base; a special soot-door is provided for clearing the flue before lighting the fire.

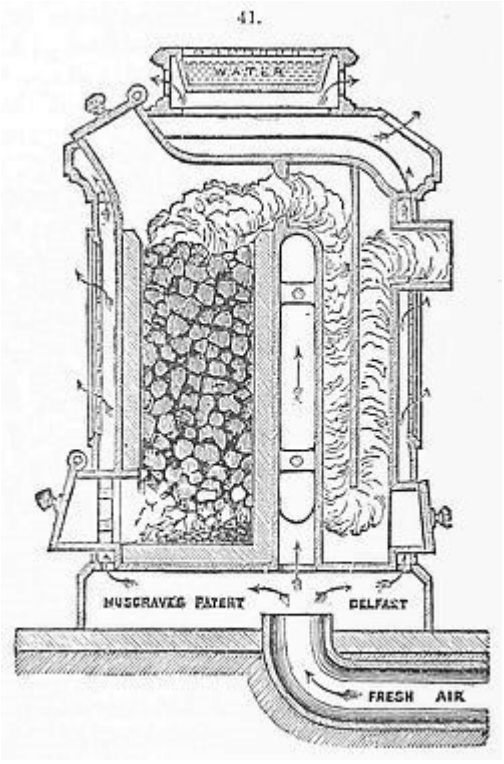
This appears an appropriate moment to mention that additional results can be obtained from close-fire stoves, by carrying the smoke flue down, and just below the floor level, in a properly made channel, and covered by a grating, as with hot-water pipes. It is known that a good proportion of the heat must be carried away by the flue, so that by this means nearly the whole of the heat evolved by combustion can be utilised; but it is necessary to bear in mind that the Building Act prescribes that no hot-air or smoke-pipe shall be nearer than 9 in. from any woodwork or inflammable material, and it is necessary that the main flue be high, as a good draught is needed to withdraw this nearly cold smoke or vapour, and in many instances where the under-floor horizontal flue is of good length, a pilot stove or rarifier is necessary at the foot of the main up-flue to keep up the draught, but in most cases the rarifier is only needed at first lighting. This arrangement is rarely applicable in dwelling-houses.

Improved forms of close-fire stoves are as multitudinous as improvements in open-fire grates; they are made either wholly closed, generally called “slow-combustion stoves,” and are arranged to burn many hours without feeding; or, as convertible open and closed; the latter have the advantage of the cheerful radiating fire when open.

“The Tortoise Slow-combustion Stove” (makers, Portway and Son, Halstead, Essex) is finding a ready sale and considerable favour, as maybe judged by the fact of its being obtainable at nearly any ironmonger’s. This stove, as with the majority of

slow-combustion stoves, consists of an ornamental outer casing (cylindrical, square, or hexagonal), the height being about 2½ times the diameter; this casing is lined with fire-brick, and constitutes the fire-box; there is an ash-box and door below, in which is fitted a ventilator or damper to regulate the draught and speed of combustion. The fuel is supplied through a door provided at the top, and the smoke outlet is also placed near the top. In use, the fire-box is filled with coke and cinders, and the draught is regulated by the ventilator; it will then burn, and heat an apartment for many hours without attention. It is a very useful form of stove for greenhouses (in which case it would be fitted with a vaporising pan), halls, offices, &c., but hardly suited for living-rooms; the fire-brick lining tempers the heat, but if in use where children or dresses would come in contact, a guard must be provided. Slow-combustion stoves are made in a variety of forms, and the effect is very pleasing when externally fitted with tiled panels, &c.

For slow-combustion stoves that are required to burn for a longer than usual period without attention a chamber or hopper is fitted on top to take a further charge of fuel; it is taper-sided and open at the bottom, very much like an inverted pail, but about 2½ ft. high. It will be readily understood that as the coke is consumed, the upper supply gradually sinks down until the whole is consumed; this would utterly fail with a fuel that cakes, such as soft or bituminous coal.



41. Musgrave's Stove.

"Musgrave's Patent Warming and Ventilating Stove," Fig. 41 (Musgrave & Co., Limited, 97 New Bond Street, London), is made upon the slow-combustion principle, to burn from 8 to 24 hours, but is much more highly finished than the last named, and is constructed in so many patterns and sizes as to be suitable for almost every purpose, from small dwellings to the largest buildings. The stove consists of an outer casing, within which is contained the fire-box and an air-chamber. The latter is provided with gills to increase the heating surface (see Gill stoves). The smoke and heat when leaving the top of the fire-box is carried down a flue-way to

the bottom of the stove, and then up to the top again into the smoke-pipe; this flue-way is within the air-chamber, and so utilises the major portion of the heat passed into the flue; the fuel to be used is coke, which is the most suitable fuel for all slow-combustion stoves.

For conservatories or where the air requires moistening these stoves are very neatly and effectually fitted with vaporising pans; and these stoves are also made to act as hot-air furnaces, and in combination with hot-water-pipe heating apparatus.

Roberts' patent terra-cotta stoves operate also by slow combustion and are self-acting, but possess the additional advantage of purifying and radiating the heat by the terra-cotta, which is contained between 2 concentric cylinders of sheet iron united at the base and top, the outer cylinder being perforated to allow of direct radiation of heat from the terra-cotta. The stove consists of 4 separate parts, namely, the stove body, its top or cover, the fire-box, which can be lifted in and out, and the stand, with draw and damper. The fire is lighted at the top and burns downwards, the air sustaining it being drawn upwards through the bottom of the fire-box and thence through the fuel. The stove can be placed in any position on an iron or stone base and connected with the nearest chimney flue by an iron pipe provided with soot-door elbows, care being taken to form a complete connection by abandoning any other open fire-grate in the room and screening it off by an iron or zinc plate. They emit no effluvium, as the terra-cotta gradually and completely absorbs all the caloric in its permeation through the shell before it is communicated to the outer air, which is thus warmed and diffused in a healthy condition over the

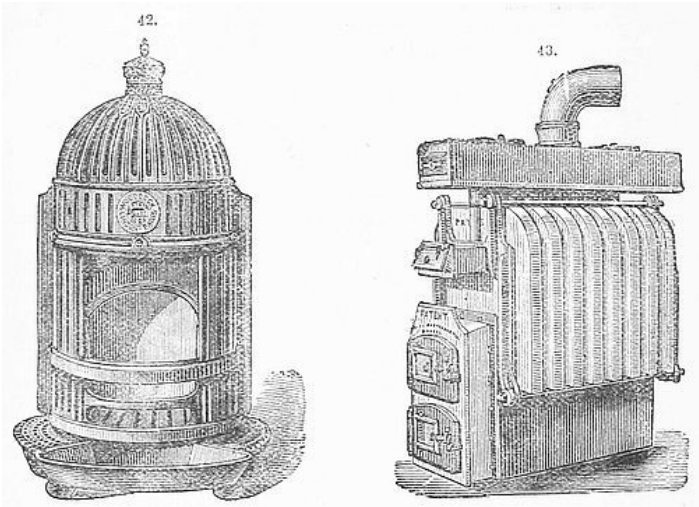
room. The top of the stove is movable, so that the fire-box can be removed to be cleaned and recharged without moving the stove body, and a sand groove is inserted at the top where the cover rests, which is filled with fine dry sand to prevent any escape of smoke.

Close-fire stoves, consisting of a strong iron fire-box, on to the outside of which is cast a series of vertical, parallel plates or ribs, are known as “Gill” stoves, as the plates or ribs referred to somewhat resemble the gills of a fish. These stoves are provided with a door for replenishing the fire, with ash-pan and ventilator below, and the iron base upon which the stove stands is made hollow, and has a series of holes or perforations opening between the gills, and provision is made for connecting the base with the outer air whenever convenient. It must now be explained that the object of the gills is to extend the heat-giving surface of the stove. It is known that iron is a very rapid conductor of heat, and consequently when the iron of the fire-box becomes heated, the heat is as quickly transferred to and felt at the extremities of the gills. It will be readily understood that only a certain amount of heat is given off by the fire, and the greater amount of metal it is transferred to, the lower must be its temperature; this is the chief and real advantage, as instead of a small volume of air being heated to a very high temperature, off a plane surface that would possibly get red hot, there is a larger volume of air at a lower temperature, and this has the further decided advantage that the air does not become unpleasantly dry, and the particles of dust, &c., in the air do not get scorched and burnt, and cause the unpleasantness commonly known as “burning the air.”

A further advantage possessed by these stoves is that they are not so much a source of danger, as the size of the gills is so proportioned to the size of the fire-box, that in ordinary use they cannot become excessively hot, and this is especially desirable where children or ladies' dresses, &c., might come in contact.

These stoves can be obtained at any ironmonger's or stove maker's. A good form is that made by the London Warming and Ventilating Co., 14 Great Winchester Street, London, and is called the "Gurney" stove (Fig. 42). This is circular or cylindrical in form, with a dome top, and the gills, which are perpendicular, extend around the stove. A novel feature with this stove is that it is provided with a water-pan or trough carried round the base of the gills; when this pan is charged, the lower ends of the gills are immersed, and the heat that is conducted there causes the water to slowly evaporate. The advantage of a vaporising pan is this: before being warmed by an ordinary stove, fresh air holds a certain and proper amount of moisture, but as it becomes heated by such a stove the temperature is raised without proportionately increasing the moisture, and this is apt to make it unpleasantly dry, particularly to those suffering from asthma or any bronchial affection. The reverse is the case when the air becomes heated naturally (except when the wind is in the east); the proper proportion of moisture increases as the temperature rises; for instance, the atmosphere at 80° F. would contain about four times as much moisture as when at 32° F. The principle of the Gurney stove is such that the *natural* degree of moisture is always maintained in the heated air. The greater proportion of modern close fire-stoves and furnaces have gills applied in some form or other.

It might be mentioned that 13 Gurney stoves have effectually coped with the problem “How to heat St. Paul’s.”



42. Gurney Stove. 43. Convoluted Stove.

Another good form is “Constantine’s Convoluted Stove” (J. Constantine and Son, 23 Oxford Street, Manchester), Fig. 43. Instead of solid gills, there are a series of perpendicular convolutions which double the heating surface, and the makers’ claim to greater efficiency is no doubt correct. This stove, however, should be classed with hot-air furnaces, as it is not made in small sizes for direct heating; but for warming large buildings, churches, &c., for heating laundry drying-rooms, Turkish baths, &c., it is to be highly recommended.

The German principle, which might advantageously be adopted to a greater extent in England, is to build a fire-brick structure with the furnace at the base and the flue winding from side to

side 3 or 4 times, and terminating at the top into an ordinary brick chimney; this structure projects into the apartment and is covered with porcelain ware, and the appearance often exhibits great taste and skill, as it will be understood that the structure is not rigidly square, but is often very beautiful from an architectural point of view. The good effect experienced is that after 3 or 4 hours' firing, the mass of brickwork becomes thoroughly heated and the fire is permitted to go out; communication with the chimney is stopped by means of a damper, and every confidence can then be placed in the stove giving out abundance of warmth for the remainder of the day, as the brickwork takes hours to become moderately cool, and the whole of the heat it contains must be diffused into the apartment. It will be noticed that a minimum of heat is lost by this arrangement, and the result is very satisfactory from an economical standing; but it has not the cheerful appearance of our open fires, and efficient ventilation is required. This plan can, however, be satisfactorily adopted for halls or cold situations; in the former it has the further advantage in most instances of warming the stairways and landings in the upper part of the house by the ascension of the heated air. Fire-brick stoves are made by Doulton & Co., Lambeth, London, and are finished in their majolica and Doulton ware; it is needless to add, these wares give the stoves a very handsome appearance.

Hot-air Furnace.—The close stove is really a hot-air furnace, but it is restricted to heating the air in the room. Other hot-air furnaces are designed to obtain a supply of fresh air and heat it before passing it into the room. The heated air from a fireplace is available to the apartment for only about 12 per cent. of the

total amount of heat produced; all the rest passes up the chimney. The close stove, on the contrary, utilises 85-90 per cent. of the heat produced, and loses through the smoke-pipe only about as much as the open fireplace saves—10-15 per cent. And herein lies the striking difference between the relative healthiness of the atmosphere heated by a close stove and an open fireplace. The amount of air which hourly passes through a close stove, heated with a brisk fire, is, on an average, equal to only about $^{1}/_{10}$ the capacity of the room warmed, and consequently such stove requires, if unaided, 10 hours to effect a change of the atmosphere in every such apartment. Thus stagnant and heated, the air becomes filled with the impurities of respiration and cutaneous transpiration.

Moisture, too, is an important consideration. The atmosphere, whether within doors or without, can only contain a certain proportion of moisture to each cub. ft., and no more, according to temperature. At 80° F. it is capable of containing 5 times as much as at 32° F. Hence, an atmosphere at 32° F., with its requisite supply of moisture, introduced into a confined space and heated up to 80° F., has its capacity for moisture so increased as to dry and wither everything with which it comes in contact; furniture cracks and warps, seams open in the moulding, wainscoting, and doors; plants die; ophthalmia, catarrh, and bronchitis are common family complaints, and consumption is not infrequent. But this condition of house air is not peculiar to stove-heat. It is equally true of any overheated and confined atmosphere. The chief difference is, that warming the air by means of a close stove is more quickly accomplished and more easily kept up than by any other means. Sometimes,

by the scorching of dust afloat in the atmosphere, an unpleasant odour is evolved which is erroneously supposed to be a special indication of impurity, caused by the burning air. It is an indication of excessive heat of the stove. But the air cannot be said to burn in any true sense of the word, for it continues to possess its due proportion of elementary constituents. Such is the close stove and its dangers, under the most unfavourable circumstances.

The essentials for healthy stove-heat are brick-lined fire-chamber, ventilating or exhaust-flue for foul air, means for supplying moisture, and provision for fresh-air supply. A brick lining is requisite for the double purpose of preventing overheating, and for retaining heat in the stove. For the supply of moisture the means are simple and easy of control, but often inadequate. An efficient foul-air shaft may be fitted to the commonest of close stoves by simply enclosing the smoke-pipe in a jacket—that is, in a pipe of 2 or 3 in. greater diameter. This should be braced round the smoke-pipe, and left open at the end next the stove. At its entry into the chimney, or in its passage through the roof of a car, as the case may be, a perforated collar should separate it from the smoke-pipe. For stoves with a short horizontal smoke-pipe, passing through a fire-board, the latter should always be raised about 3 in. from the floor. A smoke-pipe thus jacketed, or fire-board so raised at the bottom, affords ample provision for the escape of foul air.

Hot-air furnaces are simply enclosed stoves placed outside the apartments to be warmed, and usually in cellars or basements of the buildings in which they are used. The manner of warming is virtually the same as by indirect steam heat—by the passage of air

over the surface of the heated furnace or steam-heated pipes, as the case may be, through flues or pipes provided with registers. The most essential condition of satisfactory warming by a hot-air furnace is a good chimney-draught, which should always be stronger than that of the hot-air pipes through which the warmed air is conveyed into the rooms, and this can be measured by the force with which it passes through the registers. A chimney-draught thus regulated effectively removes all emanations; for, if the chimney-draught exceeds that of the hot-air pipes, all the gaseous emanations from the inside of the furnace, and if it have crevices, or is of cast iron and overheated, all around it on the outside will be drawn into the chimney. Closely connected with this requirement for the chimney-draught is the regulating apparatus for governing the combustion of fuel—the draught of the furnace. This should all be below the grate; there should be no dampers in the smoke-pipe or chimney, and all joints below and about the grate should be air-tight. The fire-pot should be lined with brick and entirely within the surface, but separate from it, so that the fresh air to be warmed cannot come in contact with the fuel-chamber.

An excellent plan for economising a good portion of the waste heat from a kitchen range is to have (previous to the range being fixed, or after, in some instances) a sheet-iron box or chamber made to fit at the back of the oven flues or wherever the most intense heat is felt. This box, which we may call an air-chamber, should be connected with the outer air, and a pipe for the warm air carried from the top of the box to the part where warmth is required; the heat from the range warms the air in the box and it ascends in exactly the same manner and upon the

same principle as a hot-air furnace, but great care must be exercised to see that this box and all connections are made air-tight, or this plan will prove an unusually speedy means of indicating what is being cooked for dinner.

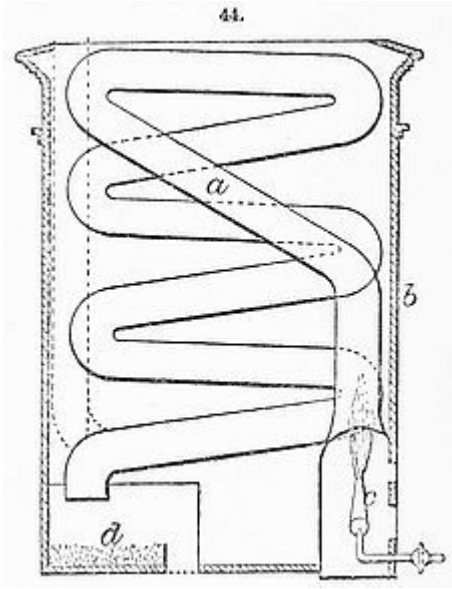
The Americans adopt what is called the “drum” principle of heating by means of a furnace; they not only encase the stove with an air-chamber, but the smoke-pipe is surrounded with a larger pipe encasing it all the way up; the space between the smoke-pipe and the outer pipe is thus an air-chamber and has free connection with the furnace air-chamber, but of course is closed at top; from the chamber surrounding the smoke-pipe, branch pipes are taken to the apartments, terminating in perforated cylindrical “drums,” from which the heated air is emitted.

It should go without saying that the air which passes from furnaces into living-rooms should always be taken from out of doors, and be conveyed in perfectly clean air-tight shafts to and around the base of the furnace. Preferably, the inlet of the shaft, or cold-air box, should be carried down and curved at a level (of its upper surface) with the bottom, and full width of the furnace. Thus applied, the air is equally distributed for warming and ascent through the hot-air pipes to the apartments to be warmed. On the outside the cold-air shaft should be turned up several feet from the surface of the ground, and its mouth protected from dust by an air-strainer. A simple but effectual way is to cover the mouth with wire cloth, and over this to lay a piece of loose cotton wadding. This may be kept in place with a weight made of a few crossings of heavy wire, and it should be changed every few months. And here, too, outside

the house, should be placed the diaphragm for regulating the amount of cold-air supply, and not, as commonly, in the cellar.

As the best means of regulating the temperature and purity of the atmosphere from hot-air furnaces, it is necessary to provide sufficiently large channels for both the inlet of fresh air and its distribution through the hot-air pipes. The area of the smallest part of the inlet (or inlets, for it is sometimes better to have more than one) should be about ⅛ sq. ft. for every lb. of coal estimated to be burnt hourly in cold weather; and to prevent, in a measure, the inconvenience of one hot-air pipe drawing from another, the collective area of the hot-air pipes should not be more than ⅛ greater than the area of the cold-air inlet. These proportions will admit the hot air at a temperature of about 120° F. when at zero outside, and the velocity through the register will not exceed 5 ft. per second.

A large heating surface of the furnace is a well-recognised condition of both economy and efficiency. As a rule, there should be 10 sq. ft. of heating surface to every lb. of coal consumed per hour, when in active combustion; and the grate area should be about $^{1}/_{50}$ of that of the heating surface. For the deficiency of heat, or the failure of some of the hot-air pipes of hot-air furnaces in certain winds and weathers in large houses or specially exposed rooms, the best addendum is an open fire-grate. With this provision in northerly rooms, to be used occasionally, hot-air furnaces may be made to produce all the advantages of steam heat in even the largest dwelling-houses.



44. Boyle's Warm-air Stove.

Boyle's system of warming fresh air is suitable where hot air, water, or steam pipes are not available. The arrangement (Fig. 44) consists of a copper or iron pipe *a* about 1½ in. diam. placed in an inlet tube *b*, preferably of the form of a bracket. This pipe is not vertical, as in the so-called Tobin's shafts, but of zigzag shape, crossing and recrossing the tube from top to bottom, and so causing the incoming air to repeatedly impinge in its passage through the tube. At the bottom of the tube an air-tight chamber, so far as the interior of the tube is concerned, is fixed, in which a Bunsen gas-burner *c* is placed, the flame of which plays up into one of the lower ends of the pipe, the upper portion being about 5 ft. 9 in. from the floor. The other lower end of the pipe either dips into a condensation box *d* in the bottom of the tube or is continued into an existing flue or extraction shaft. If the pipe

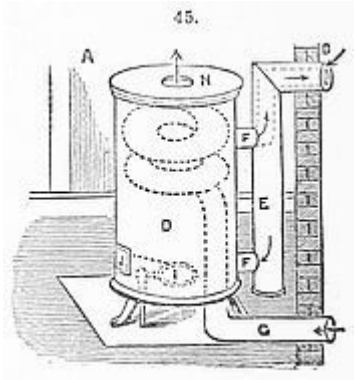
terminates in a box, the vapour is condensed there and carried off through the outside wall by means of a small pipe. At the bottom of the box is placed some loose charcoal, which needs renewing at intervals. This charcoal absorbs any products of combustion which have a tendency to rise. The heat thus passes through the entire length of the pipe, and warms the air as it travels through the tube to the room or hall as required.

Heating by gas is now growing in favour, and under favourable circumstances is to be recommended. There are two general methods adopted; firstly, by gas fires, which are asbestos or metal made incandescent by gas heat; these are made either portable, or by fitting a specially made burner to an existing fireplace, and filling the grate with Lumb asbestos (which is made for the purpose, and when heated has the appearance of glowing coals); and secondly, by gas stoves acting upon a similar principle to a hot-air coal stove. The former are now made in great variety; they chiefly take the form of an ornamental iron frame, in the centre of which is fitted a fire-brick thickly imbedded in front with asbestos fibre; the burner beneath comes immediately under the front of the fire-brick, and when the gas is ignited, the asbestos at once becomes incandescent, making it of cheerful and fire-like appearance, and the fire-brick in a few minutes becomes highly heated, radiating its warmth into the room. This description of stove and also the burner for existing fireplaces can be obtained at any ironmongers or gas-fitters.

In nearly all gas fires and stoves the gas is burnt with an admixture of air (atmospheric gas, 1 of gas and 2 of air), by means of an atmospheric burner;

this is not only a source of economy, but atmospheric gas has the very great advantage of being smokeless; but for this, a gas fire would be an impossibility; it must, however, be borne in mind that although smokeless this gas gives off products of combustion (carbonic acid, watery vapour, &c.), which must be carried away by a flue or other means. The portable stoves are always provided with a nozzle for attaching a smoke-pipe. There is still a doubt as to which is most economical, coal or gas: we cannot do better than quote the words of a well-known gas-stove maker, Chas. Wilson, of Leeds. He says, speaking of heating by gas: “It is not cheaper than coal, taking fuel for fuel and continually used, unless, as in the case of offices where labour has to be employed to light fires, clean grates, &c.; but it is cheaper than coal if occasionally used, as in the case of bedrooms, or sitting-rooms used by visitors, or rooms used by children for music, &c.; for bedrooms it is especially adapted for use for an hour or two at night or in the morning or for giving an unvarying heat all night. It is preferable in the matter of cleanliness, and a true solution of the smoke-abatement problem” (probably a coal-stove manufacturer would speak as much in favour of fire-grates).

It should be seen when purchasing gas fires that they have silent burners, as some make an objectionable hissing noise when in use.



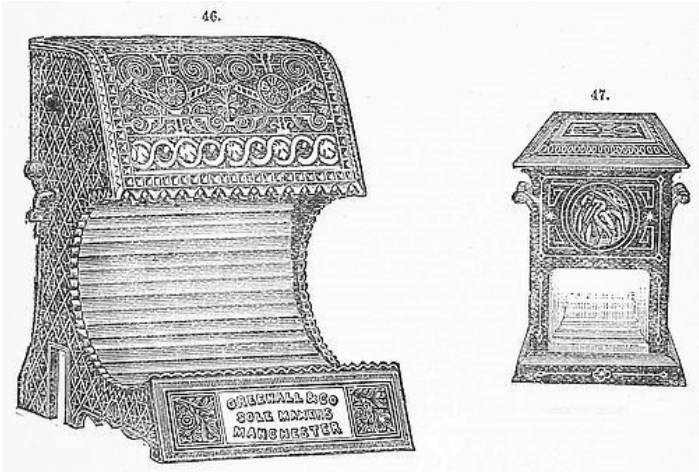
45. Calorigen Stove.

"The Calorigen" Gas Hot-air Stove, Fig. 45 (Farwig & Co., 36 Queen Street, Cheapside, London), consists of an outer sheet-iron casing with a burner at the base inside, and proper accommodation for exit of products of combustion. A coil of good-sized sheet-iron pipe is affixed within the stove; the lower end of the coil is connected with the outer air and the upper end opens into the apartment, thus producing a free inflow of fresh air at any temperature desired, from 60° to 200° F. or higher at will. The chief advantage of a gas stove is the immediate lighting and extinguishing, and needing no attention.

Another modern and very useful application of gas as a heating medium is the "Geyser" or rapid water heater for the supply of hot or boiling water to baths, lavatories, &c., or for business purposes where it is not convenient or desirable to fit up a circulating boiler (see hot-water apparatus). These heaters can be obtained from any ironmonger's or gasfitter's. The principle is somewhat different in the various makes, but it all results in the same thing, which is to bring a small volume of water in contact with a large heating surface. The apparatus is generally cylindrical in form. A cock is at one side for

attaching the cold supply, and the heated water flows out from a spout at the other side; there is also a cock for attaching the gas supply; they are made in various sizes to supply and fill a bath three parts full of water at 100° F. in 5, 10 or 15 minutes, or to boil water at the rate of ½, 1 or 2 gal. per minute. These are extremely useful appliances where gas is available, being ready for use at a moment's notice, and the water can be had at any temperature at will; with a modern and properly constructed "Geyser" the water is quite suitable for drinking purposes.

The Marsh-Greenall Gas Heating Stove, Fig. 46 (makers, Greenall and Company, 120 Portland Street, Manchester), is both regenerative and radiating, the heat developed and utilised per foot of gas by this system being far greater than by the ordinary atmospheric stoves. Ordinary luminous flames are used, these being fed by superheated air. There is no smell and no danger "of lighting back." The great heat obtained by this system is radiated from a polished reflector. The consumption of gas is only 12 ft. per hour. See Gas Heating also, p. 994.



46. Marsh-Greenall Gas Stove. 47. Eureka Oil Stove.

Oil Stoves.—Warming stoves which burn oil fuel are to be commended for many purposes, but are not generally considered suitable for living rooms—bedrooms, for instance—unless the air is continually changed by open doors, &c., as there is a noticeable odour from the burning oil. Rippengille's are considered the best, and are obtainable at almost any oil, lamp, or ironmonger's store, or at the chief retail agents, the Holborn Lamp Co., 118 Holborn, London. Fig. 47 is their "Eureka" cheerful reflector stove, suitable for office or shop use. These stoves are adapted for warming conservatories where a high temperature is not required, as a very small stove will suffice to keep the frost out; they are also suitable for servants' bedrooms and attics where no fireplaces exist. They are made with metal (unbreakable) oil containers, which slide out for lighting, trimming, &c., and they burn the ordinary petroleum oil; it naturally follows that the better and more refined oils give the best results with these

stoves, with less liability of smell.

Flues.—It will not be out of place to give a short treatise upon flues, as the flues in a residence govern the efficiency of the stoves and the comfort of the whole household.

There is a common error in blaming the flue for all faults. It can be asserted that half the smoky chimneys are in no way the fault of the flue at all, and when a smoky chimney does exist, nearly every one flies to the chimney top with some device to govern the wind, and this in very many cases is a total failure.

Flues are now generally constructed of two sizes, 9 in. and 14 in. A 7 in. flue would be sufficient for most warming stoves, but it has to be borne in mind that the accumulation of soot quickly diminishes the size internally, so that they are now never built less than 9 in. internal diameter. In building a residence, the following plan is often adopted when cheapness is not the primary object, that is, to build the usual square brick chimney, and within this to carry up a 9 in. flue of glazed earthenware pipe (drain pipe), and the space outside this pipe filled with concrete: this pipe flue is so easily cleaned and is much less quickly fouled, and improves the draught.

The very general cause of smoky chimneys is that the chimney top is below the level of some adjacent building, tree, or other object that obstructs the free passage of the wind. In this instance the trouble is only experienced when the wind is in certain quarters, and sometimes this can be cured by a wind-guard or cowl (no particular make can be recommended, as their efficiency differs under different circumstances); but the only reliable remedy is to raise the chimney either by pipe or

brickwork to the required height. The manner in which the annoyance is brought about is, that when the wind passes over the chimney top its progress is arrested by the higher object, and it may be said to rebound (the action is rarely quite alike in any two instances), causing either a portion of the gust to pass a short way down the chimney or to momentarily stop the up draught; this will be noticed by the gusts of smoke that come from the stove into the room.

When the smoke slowly oozes into the room, it is caused by sluggish draught, or often by the construction of the grate. If the grate has considerable distance between the fire-bars and the opening into the chimney above, it permits the heavy cold air to accumulate and obstruct the heated up-flow from the fire; this generally is only noticeable when the fire is first lighted or heavily fed. It is exactly the same result as is experienced with the old-fashioned open kitchen ranges, which nearly always require a sheet of metal or “blower” across the opening to prevent their smoking. The above-mentioned grates require a strong draught to work them perfectly; or if a strong draught does not exist, a small piece of sheet-metal should be provided to fit over the open space above the front bars when necessary to establish the fire, as explained with the “Eagle” grate.

Sluggish draughts are from a variety of causes, among which might be named, insufficient height of chimney; chimneys which by any cause may become damp or cold, or lose their heat rapidly; leakages, holes or fissures, and a variety of causes too numerous to mention here. The interior surface of a chimney should be as smooth as possible, and should

be swept at regular and moderately frequent intervals, otherwise the draught will be reduced.

Every fireplace should have a distinct and separate flue; sometimes two fireplaces can be successfully worked into one chimney, but provision must be made for tightly closing off either one when not in use.

Hot Water.—Heating by means of the circulation of hot water has been in vogue many years, but has not found favour for warming living-rooms and apartments, owing chiefly to the want of the air of comfort, and the warmth is not quite so agreeable as that radiated from an open fire; but this mode of heating is especially well adapted for conservatories, cold halls, public buildings, &c., as the heat-giving surface can be extended wherever desired, and so heat the place equally throughout; and upon the low-pressure system there is no danger, as the water cannot heat higher than boiling-point, 212° F., an advantage that the hot-air system does not possess. The principle and cause of hot-water circulation will be found fully described under hot-water apparatus; but in this arrangement there are no draw-off taps, the services being for circulating only. For small purposes the apparatus can be attached to the ordinary bath boiler of the kitchen range; but there is a serious disadvantage in this when the heat is for conservatories or where warmth is particularly required at night, as that is the time when the kitchen fire is not in use. For larger purposes, independent boilers are used, varying in size according to the requirements. Portable boilers with fire-box, &c., complete, can be obtained almost anywhere, and most slow-combustion stoves (the “Tortoise,” for instance) can be fitted with boilers for

this purpose. It will be understood that these boilers do not require cleaning out like kitchen-range boilers, as there is no appreciable deposit, the same water being heated day after day and only losing say a quart per month by evaporation.

The arrangement for a hall with an independent boiler is to have several horizontal pipes suitably fixed one above the other and known as a “coil,” from which the heat is radiated, and this coil is connected by a “flow” and “return” pipe with the boiler: a small cistern of about 2 gallons capacity is connected with, and fixed a little above the level of the highest part of the coil in some convenient place. The apparatus is charged through this cistern, and a small quantity of water is added thereto periodically to make good loss by evaporation and to keep the coil full; these coils are usually covered with an iron grated casing, with a metal, slate, or marble top, which is both a useful and ornamental adjunct to the hall.

For conservatories the coil is not used, the radiating pipes being run along the wall near the ground; a portion of the pipe has a shallow open trough cast upon it, and this is filled with water. As the apparatus becomes heated, evaporation takes place, and this saturates the air, moisture being essential for this purpose.

For public buildings, &c., coils are sometimes used; but more often the pipes are run in grated-topped channels just beneath the floor, the grating being level with the floor-boards; they are taken around or across the building, as is most desirable to obtain an equable heat.

The radiating pipes, whether single or forming

coils, are generally 4 in. diameter, of cast iron (cast iron being a better conductor or dissipator than wrought), and at the highest point m the apparatus a hole is drilled and a small cock is inserted; this cock is opened when charging, to allow of the free escape of the air in the pipes, and it is sometimes of service to discharge any steam that is generated. The pipes are made with a socket at one end, into which the plain end of the next pipe is inserted and packed with yarn, &c.; but a modern and rapid method of joining the pipes is that patented and manufactured by Jones and Attwood, of Stourbridge; this joint consists of two flanges with indiarubber packing between, which makes a perfectly secure joint by tightening the flanges together; in this method the ends of the pipes are of equal size.

As explained, the principle of circulation is exactly the same in this as in a domestic hot-water supply apparatus. The most popular form is that known as the Desideratum. The makers have also introduced a singularly useful tool for cutting all pipes from 2 to 13 in. diameter.

High-pressure Heating, or which might be correctly termed steam heating, consists of piping wholly, the pipe is smaller and of wrought iron unusually strong, and a coil of it placed within the fire-box fulfils the duty of a boiler (no boiler or large container can be used on account of high pressure); from the furnace coil the pipe is carried wherever required, a small quantity of water is put within the apparatus and the air is driven out, after which the apparatus is sealed or closed air and steam tight. When the heat is applied, the water quickly forms steam, which at once finds its way throughout the apparatus and heats it to a much higher temperature than boiling

water; and there is comparatively no danger whatever pressure is exerted, as at the worst the pipe only splits, and no disastrous explosion can occur; but this mode of heating cannot be recommended, as it rarely works for any length of time without requiring attention or repairs.

Bacon's system of heating by water under pressure (J. L. Bacon & Co., 34 Upper Gloucester Place, London, N.W.) is very good, as the pressure is regulated by a valve, and the temperature and pressure never become excessive. This system is worked by small, strong wrought-iron pipes, and the apparatus is wholly filled with water. The great convenience of the small-pipe system recommends it for all purposes, as it can be carried into almost inaccessible places, and can be utilised for warming air, as it passes through inlet ventilators, and for small drying and airing closets, towel dryers, and for numberless small but exceedingly convenient purposes which large cast-iron pipes would be very unsuited for; and the advocates of this system contend that as much heat is radiated from their small pipes as from the ordinary large ones, as the former are heated to a much higher temperature than the latter: in Bacon's system the highest limit is about 300° F.

The subject of a supply of hot water for baths and other purposes will be discussed in the chapter dealing with the Bath-room. See also p. 995.

Steam Heat.—Steam heat may well be compared with stove and furnace heat. Stove heat corresponds to direct radiation by steam, and furnace heat to indirect. The supply of fresh air from the outside to and over the hot-air furnace, and through hot-air flue into the rooms through registers, is virtually the

same as when it is conveyed by means of steam-heated flues in the walls. Exhaust flues, for getting rid of foul air, are equally essential. The stove, as representing direct radiation in the same manner as the steam coil, or plate, in the room, has the advantage over the latter of some exhaust of foul air, however little, even when the smoke-pipe is not jacketed, for the steam heat has none. In comparison with open-stove heat, steam heat is at still greater disadvantage; for open stoves supply all the qualities of complete radiation—the introduction of fresh air and the escape of foul—to a degree wholly unattainable by steam heat, whether direct or indirect, or by hot-air furnaces, which always require special provision for the escape of foul air.

The advantage of stove and furnace heat over steam may be summed up thus:—It is more economical, more uniform, more easy of management, more suitable for small areas to be warmed, and is free from the noises and dangers of steam. Irregularities of the fire in steam heating are a constant source of inconvenience, and sometimes of danger. The going down of the fire during the night-time, or its neglect for a few hours at any time, is followed by condensation of the steam. On the addition of fuel and increase of heat, steam again flows quickly into the pipes where a partial vacuum has formed, and here, on coming in contact with the condensed water, it drives the water violently, and creates such shocks as sometimes occasion explosions; or, at least, produces very disagreeable noises and general uneasiness, and frequently causes cracks and leaks. Hence direct steam heat, which for warming purposes alone is altogether superior to indirect, has been well-nigh abandoned. Indirect steam heat places the leaks out of sight, but they

commonly lead to mischief, and require special and expensive provision for access and repair.

Chemical Heaters.—Many salts in solution are capable of absorbing a considerable amount of heat and slowly giving it off as they resume a crystalline state. That most generally used is soda acetate, but an improvement consists in mixing 1 lb. of soda acetate with 10 lb. of soda hyposulphite, the latter assisting the melting of the mass and retarding crystallisation. The mode of applying this principle is to nearly fill a sheet copper or other metallic vessel, such as a foot-warmer, with the solution, and seal it up. When required for warming purposes, the vessel is placed in boiling or hot water till the contents are quite fluid, after which it may be used as a source of heat for 12-15 hours. Obviously the vessel may be placed in an ornamental structure resembling a stove, or used as a foot-warmer, or a muff-warmer, and in many other ways where fire is inadmissible.

Hints on Fuel, &c.—Suggestions for materials which may be used to eke out a scanty supply of coal cannot fail to be useful. One plan consists in well bedding lumps of chalk under small coal. This gives a long-lasting fire, but is apt to emit an unpleasant odour. Another plan is to make clay fire-balls, using common clay, coal dust and cinders with sand, in about the following proportions:—1 cwt. coal dust, 2 cwt. sand, 1½ cwt. clay, well mixing the ingredients, shaping into fist-like lumps, and drying over night before the fire; to be put on when the surface of the fire is clear.

Some further hints for reviving fires will be found under the Sick-room.

Lighting.—The illumination of a dwelling is a

most important consideration, as regards comfort and health.

Daylight.—Natural lighting is provided for by windows. The window area of a room should be well proportioned. In dwelling-rooms, it may amount to half the area of the external wall containing the windows; in churches, &c., ⅓ will suffice. Too great a window area is objectionable, as it considerably lowers the interior temperature in winter, unless very thick glass and double windows are provided. When windows become steamed or covered with condensed moisture in frosty weather, this can be cured by applying a very thin coat of glycerine on both sides of the glass. When direct daylight cannot be got, great advantage may be derived from using polished metallic reflectors.

Luminous Paints.—Several bodies possess the property of absorbing a certain amount of light and emitting it slowly. The most important of these is calcium sulphide. This property has been utilised by mixing the mineral with paint as a covering for surfaces where the light is required. The illumination, however, is very feeble.

Candles.—Candles will long retain a place in domestic lighting from their safety and convenience for carrying about. At the same time they are an expensive source of light, and not very powerful. It may here be mentioned that there is a right and a wrong way of blowing out a candle. If the candle is held on a level with the blower's mouth, or blown down upon, as usual, as it stands on a shelf or table, the wick will smoulder and smoke till the room is filled with its disagreeable smell, and the wick burned away so that it can be lit next time with difficulty. If the candlestick is held well above the

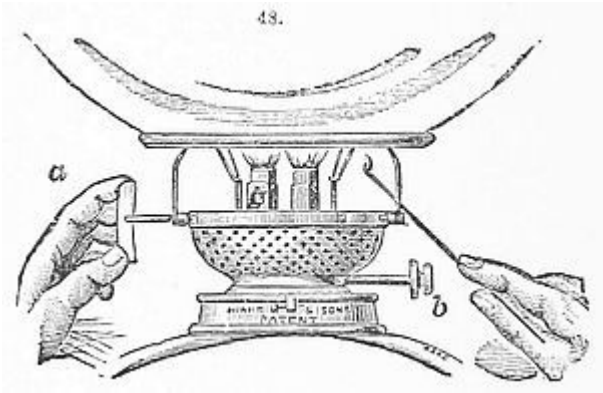
blower's head, and the flame blown out from below, the ignited wick will almost immediately be extinguished, and no trouble will be found in re-lighting the candle. Avoid cheap candles; they burn rapidly to waste and play havoc with clothes and furniture by "dropping." The best form of candlestick yet introduced is the "silver torch," made by Wm. Nunn & Co., 204 St. George Street, London, E. By this the candle is converted into a lamp, with or without a globe as desired; the candle is completely consumed, leaving no ends, and guttering and dropping are quite prevented. Nightlights should always be burned under a glass shade, such as Clarke's.

Oil Lamps.—All lamps intended for burning animal, vegetable, or mineral oils as illuminants should have the following objects in view:—To supply oil regularly to the wick; to apportion the supply of air to the description and quantity of oil to be burnt; to provide simple means for regulating the height of the wick, and consequently, the flame; and finally, to place the burning portion of the lamp in such a position as not to be obscured by the reservoir and other portions. The oldest lamps, as the antique Etruscan, and the cruisie of Scotland, were on the suction principle, and the wick depended for its supply upon its own capillary action. As the level of the oil was constantly varying, so the light varied also, and the first attempts of inventors were directed to maintaining an equal level of oil. The bird-fountain and hydrostatic reservoirs partly attained this end, and the Carcel and Moderator systems were perfect of their class, mechanical or pressure lamps. It is evident that suction lamps depend for their efficacy upon the gravity of the combustible. A spirit lamp, with a good wick, will burn very well, though

the wick be several inches above the liquid. With liquids volatilising at low temperatures, there is always a danger of the formation of explosive mixtures.

In the Silber lamp the burner is a simple aggregation of concentric tubes. The use of these, especially of the innermost, bell-mouthed pipes, becomes very apparent in the lighted lamp. Remove the interior tube, and immediately the flame lengthens and darkens, wavers and smokes. The current of air which is, by this internal conduit, directed into the interior flame surface, is the essential principle of Silber's invention. The wick is contained in a metal case, surrounded by an air-jacket, which passes down the entire length of the lamp, leaving a small aperture at the base, through which the oil flows from the outer reservoir to the wick chamber. Thus, by the interposition of an atmospheric medium, the bulk of the oil is maintained throughout at a low temperature; 2 concentric bell-mouthed tubes pass down the interior of the wick case, and communicate with the air at the base of the lamp, which is perforated for the purpose; 2 cones, perforated, the inner and smaller throughout, the largest only at the base, surround the wick, and heat the air in its passage through the holes to the flame. The effect of these appliances is, firstly, by the insulation of the outer reservoir, to avoid all danger of vaporisation of the oil, till actually in contact with the wick. As it is drawn nearer and nearer the seat of combustion, the hot metal wick-holder heats, and ultimately vaporises the luminant, so that at the opening of the wick tube concentrically with the air conduits—all of which are exceedingly hot—a perfect mixture of vapour and hot air is formed, and burned. An all-important

feature is the shape and position of the chimney, which influences the flame to the extent of quadrupling its brilliancy if properly adjusted. (Field, Cantor Lecture.)



48. Hinks's Safety Lamp.

The many fires and fatal accidents arising from explosions of mineral oil lamps has drawn official attention to the subject of rendering them safe. Sir F. Abel has stated that all channels of communication between the burner and the reservoir of mineral oil lamps should be protected on the principle of the miners' safety lamp; he added that a simple arrangement which effected the desired object "with perfect safety" was to attach to the bottom of the burner a cylinder of wire gauze of the requisite fineness, which prevented the transmission of fire from the lamp flame to the air-space of the reservoir. Acting upon this suggestion, Hinks and Son, 60 Holborn Viaduct, have introduced a wire-gauze cylinder for use with their duplex lamps, which renders them absolutely safe. Another advantage with their lamps is the ease with which they are lit and extinguished, as shown in Fig. 48: for lighting, a turn of the thumb-key *a* gently raises the cone, globe,

and chimney, giving free access to the wicks; to extinguish them, it is only necessary to press the lever *b*.

The Defries safety lamp (Defries Safety Lamp and Oil Co., 43 Holborn Viaduct) is attracting much notice, on account of economy, safety, and illuminating power. The construction of the lamp is such that neither ignition of the vapour, nor outflow of the oil in the event of the lamp being overturned, can occur. Moreover, the oil reservoir, being of metal, is not liable to fracture. It therefore follows that the risks attaching to the employment of mineral oils as illuminating agents in lamps of the ordinary description are non-existent in this lamp. The light emitted is remarkably white, the flame is perfectly steady, and the combustion is effected without the production of the slightest odour or smoke. Results of photometric tests by Prof. Boverton Redwood were more favourable than any he had hitherto obtained with mineral oil lamps of other forms. The illuminating power is, for the size of the burner, in each case very high, while the consumption of oil per candle light per hour is remarkably small. The products of combustion are odourless, even when the normal size of the flame is much reduced by lowering the wick. Any mineral oil, as well as the Defries safety oil, can be used in these lamps. This is quite odourless when spilled or heated, requires a temperature of 308° F. (or 96° F. above the boiling point of water) for its ignition, and does not vaporise below 270° F. Such oil is no more inflammable than colza oil, and is moreover free from the risk of spontaneous combustion. Its price is 1*s.* 6*d.* per gal. The absolute necessity for using, in any and every lamp, the most refined and safest grades of mineral oil cannot be too seriously insisted upon, Cheap low

oils mean personal risk.

Gas.—Though gas is long since established as one of the most successful and general illuminants, it is surprising what ignorance exists as to the simple rules which should govern its use.

This section is not intended for the guidance of the professional gasfitter, yet some of the points to be noticed are really within his province, and are mentioned because the householder should be in possession of such knowledge as will enable him to discover or prevent faulty work.

Coal gas, being much lighter than air, flows with greatest velocity in the upper floors of houses; hence the supply pipe may diminish in size as it rises, say from 1¼ in. at the basement to ¾ in. on the 3rd floor. At a point near the commencement of the supply pipe it should be provided with a "siphon," which is simply a short length of pipe joined at right angles in a perpendicular position and closed at the lower end by a plug screwed in. As all gas-tubes should be fixed with a small rise, this siphon will collect the condensed liquids, which may be drawn off occasionally by unscrewing the plug end. When the lights flicker, it shows there is water in the pipes: the siphon prevents this. The number of gas-burners requisite for lighting a church or other large building may be computed thus. Take the area of the floor in ft. and divide by 40, will give the number of fish-tail burners to be distributed according to circumstances. Example: a church 120 ft. long by 60 ft. wide, contains 7200 ft. area; divided by 40, gives 180 burners required for the same. Burning gas without a ventilator or pipe to carry off the effluvia, is as barbarous as making a fire in a room without a chimney to carry off the smoke. If a pipe of 2 in.

diameter were fixed between the joists, with a funnel elbow over the gaselier, and the other end carried into the chimney, it would be a general ventilator. Of course, an open ornamental rosette covers the mouth of the tube; or an Arnott valve ventilator over the mantelpiece would answer the same purpose. In turning off the gas-lights at night, it is usual, first, to turn off all the lights, except one, and then turn off the meter main cock, and allow the one light to burn itself out, and then turn it off. The evil of this system is this,—by allowing the one light to burn itself out, you exhaust the pipes and make a vacuum, and of course the atmospheric air will rush in. The proper way is to turn off all lights first, and finally the meter, thus leaving the pipes full of gas and ready for re-lighting. These few remarks have been derived from Eldridge's 'Gas-Fitter's Guide,' an eminently useful and practical handbook.

It was formerly the practice to make all gas-burners of metal; the openings, whether slits or holes, from which the gas issued to be burned being small, in order to check the rate of flow. This was an error, for heat and light go together, and the metal, being a good conductor of heat, kept the lower part of the flame cold. The part of burners actually in contact with the flame is now invariably of some non-conducting material, such as steatite; and the effect of this simple improvement is most noteworthy. Bad burners show a great proportion of blue at the lower part of the flame, and the upper or luminous portion is small and irregular in shape, and dull in colour. These effects are due to gas issuing at too great velocity from small holes in burners, as well as to improper material in the latter. The illuminating power of coal gas depends upon the incandescence, at the greatest possible heat, of

infinitesimal particles of carbon which it contains, invisible until heated. In the lower, or blue portion of the flame, the heat is not sufficient to render these particles incandescent; and it is necessary that this effect should be secured at the nearest point to the burner. Unless this is done, the light is not only lessened, but the unconsumed carbon passes off and is deposited as soot on ceilings and furniture. Blackened ceilings are a measure of the badness of the burners. It will now be seen why a material which cools the flame should not be used for a burner, for the hotter the flame, the more perfect is the incandescence of the carbon for which in reality the consumer pays, and the less danger there is of blackened ceilings. But in addition to the better material, the construction of even the cheapest modern burners is very greatly improved; although even a good burner may be subjected to such conditions—e.g. allowing gas to be driven through it at a high velocity, a condition usually accompanied by a hissing or roaring sound—as to give a bad result. The capacity of burners should moreover bear a reasonable proportion to the quality of the gas for which they are required to be used. Thus with rich Scotch gas, burners with very small holes, consuming only about 1½ cub. ft. hourly, are sometimes adopted for economical reasons. Occasionally these burners find their way South, but their use for the ordinary qualities of English gas is the worst possible economy. It is difficult to lay down hard and fast rules for the sizes of burners, the purposes for which gas-light is required being so various. For an ordinary apartment, however, wherein distributed lights are adopted, 5 ft. burners with 14 or 15 candle gas, 4 ft. burners with 16 or 17 candle gas, 3 or 3½ ft. burners with 18 or 20 candle gas, and 2½ ft.

burners with richer gas will be found to give satisfactory results. It may be remarked that these figures apply to burners regulated in some way to the given rates of consumption, and not to those merely reputed to be of the stated sizes. Various means are adopted for checking the flow of gas, not at the point of ignition, but at some prior point of its course; because it has been found that the slower the rate of flow at the commencement of combustion, the better the result obtained.

Clustering of gas-lights is bad. All parts of a room should be as nearly as possible equally lighted, the only noteworthy exception to this rule being in the case of a dining-room, where concentration of light upon the table is not only permissible but is even demanded. Hence in most cases wall brackets give the best effect, and such masses of light as are afforded by pendants of many arms are to be avoided, or are only required in very large rooms where portions of the floor area would otherwise be insufficiently lighted. When it is desired to light a drawing-room with wax candles—than which nothing is more beautiful—they are distributed wherever support can be found for them. As every gas flame may be considered equal to 12 or 15 candles, with all their wicks together, the inadvisability of further concentration is evident. In fact, gas is if anything too brilliant for living-rooms, and if it were always properly distributed, many a dimly-lighted apartment would be perfectly illumined with the same number of burners which, when massed, appear insufficient. Where concentrated ceiling lights are needed for dining-rooms, many-armed pendants are seldom satisfactory, owing to the shadows which most of them cast. In these cases a single powerful argand

light in a suitable reflecting pendant, or a cluster of flat flames similarly provided, will give a better result than the usual branched chandelier, and with a material saving in gas. For it is a curious and valuable property of gas, that large burners can be rendered much more economical in proportion than smaller ones. Thus, if the 4 burners of a branched chandelier give altogether the light of (say) 50 candles, the same illuminating power may be obtained from a greatly reduced quantity of gas when concentrated in a single burner of the most improved kind.

With regard to the smaller flat flames, which are the most general for ordinary lighting, the selection of glass globes is a very important matter. It may be said at once that all the old-fashioned style of glasses, with holes in the bottom about 2½ in. diam., for fitting into the brass galleries of the older pattern pendants and brackets, are objectionable. The reasons for this condemnation are few and simple. It seems never to have occurred to the makers of these things that the gas flames inside the globes are always wider than the openings beneath them, through which the air required for combustion passes; and that, as a rule, the light of the flame is required to be cast downward. Gas flames always flicker in these old-fashioned glasses, because the sharp current of entering air blows them about. And the light cannot come downward because of the metal ring and its arms, and the glass, which is always thicker and generally dingier at this part of the globe. Perfectly plain and clean glass absorbs at least $^{1}/_{10}$ of the light that passes through it; ground glass absorbs ⅓; and the ordinary opal obstructs at least ½, and generally more. Only those globes should be chosen therefore which have a very large

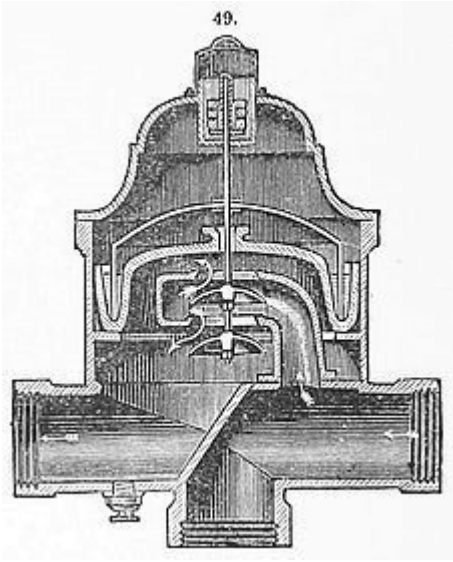
opening at the bottom, at least 4 in. wide, through which the air can pass without disturbing the flame. The glass then fulfils its proper duty, screening the flame from side draughts, and not causing mischief by a perpetual up-current of its own. Good opal or figured globes of this pattern may be used without disadvantage, because the light is reflected down through the bottom opening more brightly than if there were no globe, while the flame is shaded and the light diffused over other parts of the room.

The degree to which the luminosity of gas is utilised depends very largely upon the burner, people too often setting down as the fault of the gas, defects which should really be ascribed to the burner. In 1871, the Commission appointed by the Board of Trade to watch over the London gas supply, and whose prescriptions in these matters are more or less recognised by the whole country, made an examination of a collection of gas-burners from a large number of sources, and including those in general use. The greater portion of these gave only ½, some even only ¼ of the light that the gas was actually capable of affording. Two points very often neglected are: (1) that the size of the burner should be proportionate to the quantity of gas required to be consumed by it, and (2) that the gas should issue at a very low velocity. In good argands, the pressure at the point of ignition is almost nil; and in flat-flame burners, the pressure should be only just sufficient to blow the flame out into the form of a fan. It is also very necessary that the body of the chamber below the point of ignition should be of material with low heat-conducting power, so that the gas may undergo no increase in volume which would occasion a proportionate increase of velocity, and that the heat may not be conducted away from the flame. To

establish this, Evans had 2 argand burners made, differing only in that one had the combustion chamber of brass, and the other of steatite. The latter gave more light than the former in the proportion of 15 to 13 for the same quantity of gas. As another example a No. 8 metal flat-flame burner, consuming 5 cub. ft. of gas per hour, gave a light equal to 11·5 candles, while a steatite burner of corresponding size, with non-conducting combustion chamber, gave 14·6 candles. Another metal burner of a description somewhat generally used, gave about ⅜ of the light that the gas was capable of yielding. Worn-out metal burners generally give the best results, as the velocity of the issuing gas is lower than when the burners are new. A much better result is obtained by burning, say 20 cub. ft. of gas from one burner, than by using 5 burners, each of which consumes 4 cub. ft. This is the reason why the modern argands give so much more light than the older ones, which were drilled with a very large number of holes, and were more suitable for boiling water than for illuminating. If the air which is to support the combustion be heated before it reaches the flame, especially in the case of flat-flame burners, better results are produced, as was pointed out by Prof. Frankland more than 10 years ago, and this principle is now being carried out by some Continental burner makers. Of modern argands there are many excellent varieties, which can evolve 15-30 per cent. more light for the same quantity of gas than the best flat-flame burners. One kind consisting of 3 concentric rings of flame with steatite gas chambers was first used in the public lighting of Waterloo Road in 1879. In another the products of combustion are brought down in a flue fastened round the burner, so as to heat the air which supports the combustion as it

passes in pipes through the flue above mentioned to the flame; while a third kind has an arrangement for admitting separate currents of cold air to keep the chimney cool. There seems little doubt that the argand lamp will play a leading part in the gas lighting of the future. An important point connected with the use of gas is that the heat generated by combustion, may be made to do the work of ventilation, as in the fish-gill ventilator invented by the late Goldsworthy Gurney. In this strips of calico are nailed, by the two upper corners, across an opening in the wall, in such a way that each strip laps over the strip next below it. This contrivance, opening and closing like the gills of a fish, is self-acting, as the heated air passes away through the porous material, and cold air is admitted without draught.

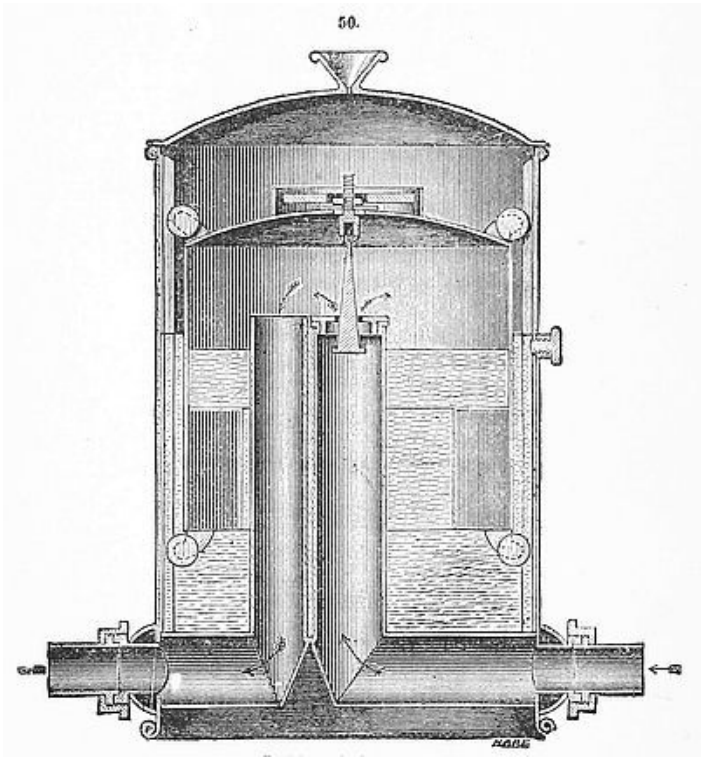
Gas is often accused of heating the rooms; but if persons, when burning candles would increase the number of the candles so as to equal the light of the gas-flame, the heat given out would be found to be less when burning gas than when burning lamps or candles.



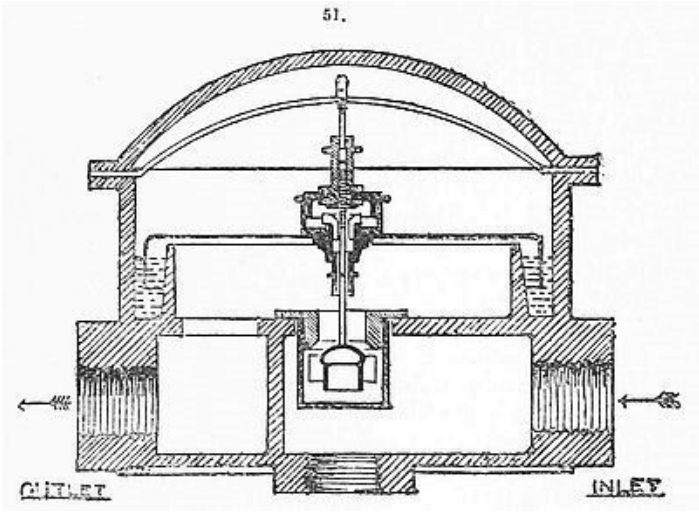
49. Stott's Governor.

It is very beneficial to regulate the pressure at which gas reaches the burners, and many complaints of impurity of the air of a room, caused by gas, arise from this want of regulation of pressure. It can be attained by the use of a governor, placed either at the meter or in proximity to the light itself. These are of many forms. Those adapted for placing near the meter are Stott's, Fig. 49 (174 Fleet Street, E.C.), Parkinson's, Fig. 50 (Cottage Lane Works, City Road), Strode's, Fig. 51 (67 St. Paul's Churchyard), Hargreaves and Bardsley's (Hobson Street, Oldham), Hulett's, Fig. 52 (55 High Holborn), Peebles' (Tay Works, Edinburgh), and Smith's (130 Fleet Street). Self-regulating burners are the "Christianson," made by Sugg (Grand Hotel Buildings, Charing Cross), and those made by Bolding—Heran's patent—(South Molton Street, Oxford Street), Milne, Sons, and Macfie (2 King Edward Street, E.C.), Parkinson (Fig. 53), Peebles, and Kinnear (91 Finsbury Pavement). A

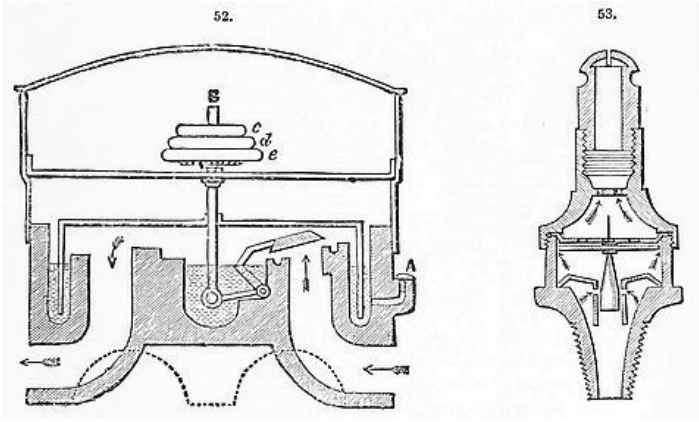
little steel blade, costing only a penny, is made by W. H. Howorth, Cleckheaton, Yorkshire, for use on 2-holed burners, which has the effect of silencing a roaring flame and increasing the luminosity. Another contrivance having some of the effects of a regulator, augmenting the light and consuming the smoke (therefore lessening the contamination of the air), is the Spencer Corona, Fig. 54 (3 Hyde Street, New Oxford Street), fitting closely on the top of ordinary gas globes.



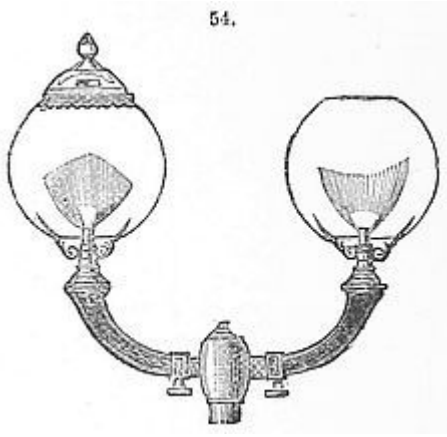
50. Parkinson's Governor.



51. Strode's Governor.



52. Hulett's Governor. 53. Parkinson's Burner.



54. Spencer Corona.

The most practical methods which have been devised for combining the purity of air in a room with artificial light produced from ordinary coal gas, may be classed under four heads:—

(1) The sun burner, in which the products of combustion are removed rapidly from contact with the air of the room.

(2) The globe light, in which the fresh air is supplied and the products of combustion are removed to the outside without any contact with the air of the room.

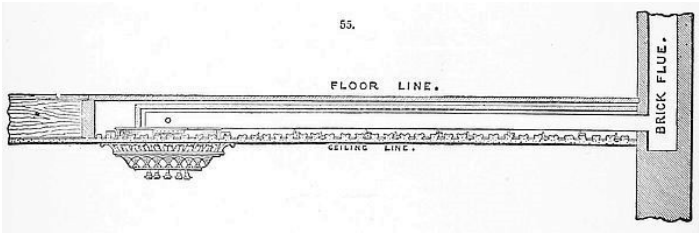
(3) The regenerative gas light.

(4) The incandescent gas light.

Their several merits are thus discussed in one of the Health Exhibition Handbooks.

The sun burner is practically a powerful ventilator, which, by means of the great heat generated, draws a large volume of air away with the fumes of the gas; it thus relieves the air of the room of the impurities caused by combustion, and at the same time removes

impurities generated from other causes. This burner is indeed a sufficiently powerful ventilator to continue acting even in the face of the counteracting draught of an open fireplace; and is consequently much used for crowded rooms. For this dual purpose, it requires to have its fumes carried up through a straight vertical tube direct to the open air. This burner is made by Strode & Co., 67 St. Paul's Churchyard, and shown in Fig. 55.

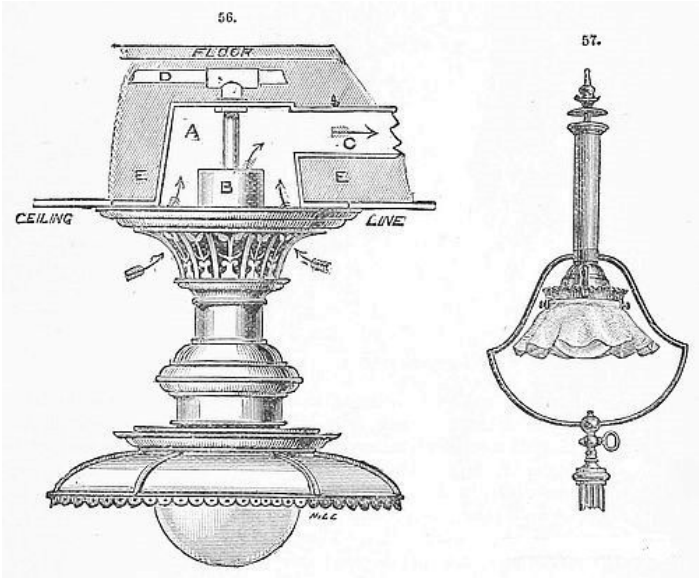


55. The Sun Burner.

The globe light has been designed to prevent the products of combustion from mingling at all with the air of a room, but it does not provide for the ventilation of the room at the same time. The principle of the best form is that it should be burned in a glass globe separated from the air of the room; that is to say, the air required for supporting combustion is brought into the globe from the outer air, and the products of combustion are carried away into the outer air without mixing with the air of the room. This light, like the sunlight, is limited in its application. It can be placed near an outside wall, or in a room directly under a roof. If fed with fresh air from the room itself, and if a fire-proof flue be constructed in the ceiling leading into a vertical flue, this light can be put in any part of a room; but the draught from the open fire would be very likely to

draw the products of combustion back into the room. This is also made by Strode & Co.

The Grimston regenerative burner looks like an inverted argand burner. The gas is brought down a central tube, and the products of combustion are carried away through a tube which lies round it, and the air required to feed the burner is brought through passages in this latter tube which are heated by the products of combustion in their course. The light is enclosed in a half globe, and the products may be carried away into the outer air, so that the light need not injure the air of the room in which it is burned. A very remarkable feature about these regenerative arrangements is that the temperature of the outflowing products of combustion at the top of the tube is so low that the hand can be held over the top of the tube without any unpleasant sensation of heat; and the combustion appears to be so perfect that even if the products are not removed from the room, there is much less unpleasantness than with ordinary gas-burners. Other very important regenerative burners are that bearing the name of F. Siemens, the Fourness (S. Gratrix, jun., and Bro., Alport Town, Manchester), and the well-known Wenham (Wenham Co., 12 Rathbone Place, W., and Milne, Sons, and Macfie, 2 King Edward Street, E.C.), two forms of which are shown in Figs. 56 and 57. Sugg's "London Argand" and "Cromartie" burners are sufficiently familiar to need no description, and are made in a great variety of designs. The "Osborne" pattern is shown in Fig. 58.

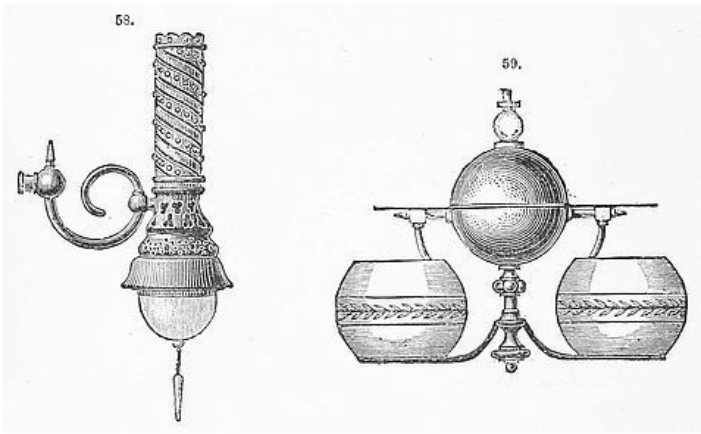


56. Wenham Pendant Light. 57. Wenham Standard Light.

Incandescent gas lamps, even if burned in contact with the air of a room, present certain hygienic advantages. In the first place, the air required for combustion is brought into the room from the outside, in the proportion of six volumes of air to one of gas, and therefore the oxygen in the air of the room is not consumed for combustion. In the second place, the gas is consumed in a very perfect manner, so that the injury to the air of a room produced by the combustion is reduced to a minimum. These lights can be placed wherever ordinary gas-lights can, and it is probable that from the hygienic and photometric value of this class of light it is destined at no distant date to replace ordinary gas-burners. The principle of construction is as follows. In the flame of a Bunsen burner is placed a hood of cotton webbing, previously steeped in a solution containing

oxides of zirconium, lanthanum, &c. The average consumption in each burner is 2 ft. gas per hour at $^{9}/_{10}$ in. pressure, with an illuminating power of 17 candles.

The Albo-carbon light, Fig. 59, (74 James Street, Westminster), consists in superheating ordinary gas and carburetting it by admixture of the vapour generated from the albo-carbon material, which is stored in a reservoir that can be attached to any existing fittings. By its means, the light is very much intensified, steadied, and purified, at very small cost for albo-carbon with a reduced consumption of gas.



58. Sugg's "Osborne" Burner. 59. Albo-carbon Light.

When gas has been laid on to a house, and the main connected with the meter or even before the latter has been done, it is extremely important to have all the gas-pipes tested, in order to ascertain whether any leakage exists. A very good method is as follows:—All the brackets and pendants, with one exception, are first stopped up with plugs or screwed caps, and the meter is turned off or disconnected.

Upon the one outlet not stopped up a force-pump is attached, into the interstices of which have been poured a few drops of sulphuric ether. The force-pump is then connected with a gauge, and is worked until a high pressure has been registered upon it, in order that should the pipes have any latent weaknesses, the pressure exerted will develop and discover them. When the gauge indicates a certain figure, the pumping is stopped, and if the mercury is noticed to fall, it is evident that there are palpable leaks, which are at once searched for. The escaped ether will guide the operator to the whereabouts of these leaks, and the defaulting pipes are at once replaced by others. The pumping is then continued, and the same routine recommences. If the mercury still descends in the gauge glass, and the sense of smell cannot detect where the leak exists, the joints and portions of the pipes are lathered over with soap, whereupon the weak places will be found indicated by bubbles. These parts where the bubbles escape are then marked, heated by means of a portable spirit lamp made for the purpose, and covered over with a durable cement. After a short time, the pump is once more set in action, and if the pipes are tight, and the column of mercury in the gauge maintains itself at the same figure, the soundness of the pipes is assured.

An excellent portable gas-making apparatus is made by H. L. Müller, 22 Mary Ann Street, Birmingham. See also p. 998.

Matches.—An American writer, speaking of the defacement of paint by the inadvertent or heedless scratching of matches, says that he has observed that when one mark has been made others follow rapidly. To effectually prevent this, rub the spot with flannel

saturated with any liquid vaseline. “After that, people may try to strike their matches there as much as they like, they will neither get a light nor injure the paint,” and, most singular, the petroleum causes the existing mark to soon disappear, at least when it occurs on dark paint. Matches should always be kept in metallic boxes, and out of the way of children and mice.

Countless accidents, as every one knows, arise from the use of matches. To obtain light without employing them, and so without the danger of setting things on fire, an ingenious contrivance is now used by the watchmen of Paris in all magazines where explosive or inflammable materials are kept. Any one may easily make trial of it. Take an oblong vial of the whitest and clearest glass, and put into it a piece of phosphorus about the size of a pea. Pour some olive oil heated to the boiling point upon the phosphorus; fill the vial about one-third full, and then cork it tightly. To use this novel light, remove the cork, allow the air to enter the vial, and then re-cork it. The empty space in the vial will become luminous, and the light obtained will be equal to that of a lamp. When the light grows dim, its power can be increased by taking out the cork and allowing a fresh supply of air to enter the vial. In winter it is sometimes necessary to heat the vial between the hands in order to increase the fluidity of the oil. The apparatus thus made may be used for six months. (*Chicago Times.*)

Electric Lighting.—This must not be undertaken without due knowledge or the assistance of skilled workmen. The subject is altogether too large for discussion here with any chance of making it clear and simple. The reader should refer to the works of

Hospitalier and others who have made it a study. Allusion may here be made, however, to an essentially domestic system recently introduced by Hospitalier. His object is to provide 10 volt and 1½ ampère lamps operating 3 or 4 hours daily. The result aimed at is that the pile shall daily furnish a quantity of electric energy equal to that expended, and keep the accumulators continually charged. The accumulators form a reservoir, and compensate for the differences between the daily production (which is sensibly continuous) and the irregular production according to needs. This demands a continuous pile of slow discharge, in which the products consumed can be easily renewed, while repairs and supervision are minimised. The choice is a potash bichromate battery.

In a single liquid potash bichromate pile, the elements to be renewed are the zinc and the liquid which contains at once the excitant (sulphuric acid) and the depolariser (potash or soda bichromate). In order to obtain an easy renewal of the zinc, Hospitalier employs the metal in the form of a rod 18 in. in length that dips for about 3 in. only into the liquid, and that is placed in a perforated porous vessel which supports it and prevents all contact with the carbon. A certain mobility is secured to it by means of flexible attachments, so that as it wears away it descends into the liquid. Its lower extremity dips into a mass of mercury, and this keeps it amalgamated. When one rod is used up, another may be substituted for it in a few seconds. The remaining portion of the old zinc is thrown into the porous vessel. The mercury suffices to set up a perfect electric communication with the new rod that has just been introduced. The zincs are thus entirely utilised. The flow secures the continuous renewal of

the exciting and depolarising liquid. The precaution to be taken is to cause the liquid to enter at the upper part, and to remove it from the lower. This prevents the elements from getting choked up, and so they may remain mounted several months, operating day and night, without any attention having to be paid to them.

The positive pole consists of three or four carbon plates which surround the porous vessel that contains the zinc, and which are connected with each other by a strip of copper and screw clamps. The connection of a zinc with the following carbon is made by means of flexible wires, in order to permit the zinc to descend into the liquid as it wears away, as has already been seen.

The four elements are mounted one above another. The liquid enters them from an earthenware reservoir of 5-6 gal. capacity, through a rubber tube. The discharge is regulated by means of a pinch-cock.

Practice has shown that it is useless to make the solution of bichromate. It is only necessary to throw some crystals into the upper reservoir and to pour into the latter some water, acidulated with a tenth of its volume of sulphuric acid. A sufficient quantity of the salt dissolves every time to assure depolarisation. The same liquid may serve 10-12 times before renewal.

There are no precise directions to be given as to the velocity of the discharge, since this must vary according to the needs of consumption. A good average is 1-1½ gal. per day. When the liquid is nearly exhausted, it is well to cause it to circulate a little more quickly. The regulation of the velocity of the flow by the Mohr pinch-cock is one of the

simplest operations. After traversing the four pile elements in succession, the liquid enters glass bottles of 2 gal. capacity provided beneath with a pipe to which is affixed a rubber tube.

It is only necessary to take a full bottle, place it over the reservoir, and put the pipe into the reservoir, in order to empty it in a few minutes.

An inspection of the piles is advisable every two days. Were a larger reservoir employed and the velocity of flow moderated, the interval might be still longer.

The four elements in tension alternately charge two series of accumulators each containing three elements. This arrangement allows the use of two kinds of lamps, 6 volt ones in the cellar and small rooms, and 10 volt ones in the dining-room and office.

The cellar lamp is so arranged that it is lighted by opening the door, and extinguished by closing it. Aside from the lamps just mentioned, another is arranged for lighting a dark ante-room, and which lights up for three minutes, only, whenever a button near the door is pressed.

The use of accumulators and flowing piles presents the following advantages: (1) Convenience, the apparatus being always ready to furnish light upon turning a tap; (2) Ease of keeping in repair and of supervision, the flow and the dimensions being capable of regulation so that the consumer need look after the piles only at irregular intervals. (3) Better utilisation of the products as a result of the use of a pencil of zinc instead of wide plates. The surface attacked is reduced to the dimensions that are strictly necessary for the production of a current, and

local action is thus diminished. On the other hand, the active liquor is not thrown away until completely exhausted. (4) Quality of the light. This remains steady during the entire time of the lighting, without any manipulation of the pile or any special appliance.

A few hints may be culled from Preece's lecture on Domestic Electric Lighting, read before the Society of Arts last session.

Makers of lamps seem to consider that there is great credit in securing long life. Unfortunately, glow lamps deteriorate sadly with age. The carbon wastes imperceptibly away, and we are scarcely conscious of the fact that, after 200 or 300 hours, the lamp gives only half the light it did at first. The fact is lamps last too long. The price of a lamp should be such that we could afford to give them a short and merry life. Long life is therefore an objection.

Lamps fail in giving their light occasionally from having an imperfect vacuum. This is very easily detected by feeling the globe. If the vacuum is bad it gets quite hot. Occasionally, but very rarely, lamps explode with a loud report when the current is first put on. This is, perhaps, due to a slight leakage of air making an explosive mixture with the residual gas.

At the present moment, both the nomenclature and the efficiency of glow lamps are in a very unsatisfactory state, and we are buying pigs in a poke at a very high price.

Considerable difference of opinion exists as to the character of the globe enveloping the carbon filament. Some like them clear, some like them ground; others envelope them in shades, or make the globe of a beautiful opal glass. It is very

objectionable to have the optic nerve irritated by a brilliant glowing filament; but it is equally absurd to produce a good thing and then strangle it. Grounding and shading mean loss of light. Lamps can be placed so high that they need not affect the eye, and if they do, the light can be so reflected as to be useful elsewhere. The art of lighting a room is to flood it with light without the delicate eye being offended with the direct rays from the source of light.

Switches to turn the lamps on and off are a source of great trouble in a house. As a rule, they are cheap and nasty. When fixed away from the lamps, they introduce into the circuit additional resistance, and therefore waste energy, but they are distinctly serviceable when they are fixed outside the door of a room, so that you can light it before you enter it.

In many cases the lamp is its own switch, but it is objectionable to handle a lamp, and attempts have been made to utilise the weight of the lamp itself when suspended from the ceiling to maintain contact, and to break that contact when the weight is released.

Cuts-out or safety-valves are essential to the security of a house. Short circuiting ought not to occur, but it does, and generally when showing off. It may occur when cleaning. The cut-out is so cheap and so effective that there is no excuse for its neglect. They should be fixed on every circuit.

No one must imagine that electric lighting is absolutely safe from fire. It certainly possesses elements of danger, but elements that are perfectly under control. It is very simple to secure safety if the rules and regulations to avoid fire risks be carefully followed. The simplest rule is to use nothing but the best insulated wire, and to employ none but

experienced men to put it up. All accidents that have occurred have arisen from careless wiring and ignorant handling.

The design of the circuits of a house, the dimensions of conductors, the quality of the materials used, the provision against fire risks, the testing of the work done, the adaptability of means to an end, should come within the province of the professional adviser, and not be left to the successful competing contractor, however eminent the firm may be.

Estimates for furnishing electric light installations, ranging from about 3*l.* upwards, can be had from Messrs. Woodhouse and Rawson United, Limited, 88 Queen Victoria Street, London, E.C., and of Messrs. Appleton, Burbey, and Williamson, of 91 Queen Victoria Street, London, E.C. See also p. 1001.

Furniture and Decoration.—Obviously half the benefit to be derived from good sanitary arrangement of the house itself will be lost if the internal fittings are not arranged with similar regard to healthy conditions. Good drainage and ventilation are thrown away if every corner is to be a receptacle for accumulated dirt and every carpet and curtain a resting-place for dust. Yet that is just the condition of ninety-nine houses out of every hundred. Existing systems of furnishing and decorating are faulty to a degree in this respect, and have called down the strictures of many sanitary reformers. Foremost among them is Edis, who has made this branch of sanitary science a special study. His suggestions for improvements in furnishing and decorating our homes are worthy the attention of every housewife. The following remarks are mainly culled from his

paper in one of the Health Exhibition handbooks, and deserves to be more generally known.

Kitchen Walls.—Commencing at the bottom of the house, Edis advises lining the whole of the scullery walls, and, as far as possible, those of the kitchen also, with glazed tiles, so that there be no absorption and retention of the smells, which must necessarily accrue with the ordinary work of this portion of the house. For a large house, he strongly advocates finishing all the walls in a London basement, so far as the working portion of it, together with the passages, are concerned, with glazed tiles; they are cleanly, absolutely non-absorbent, reflect and give light, are easily washed, and tend to make the house sweet and healthy. The pantries and larders should be so arranged that they have continual ingress of fresh air, and should in all cases be lined with glazed tiles or bricks, so that the smells arising from the contents should not be allowed to be absorbed in the distempered walls, and to render them stuffy and unhealthy. The shelves should be of slate, or better still, of polished marble, so as to be absolutely non-absorbent and easily cleaned.

In every basement a comfortable room for servants should be provided: some small sitting-room fitted up with book-shelves and cupboards, and, if possible, facing the street, so that the workers of the house may have some sort of spare room, in which they may be at rest from their ordinary duties; for, if we want good servants, we must treat them as ordinary beings like ourselves.

Floors.—It is particularly desirable to counteract as far as possible the deleterious influences which are brought about by the absorption of offensive odours in the common deal floors of the various rooms, by

having all the joints carefully stopped in, and the whole surface painted over with three or four coats, so that the pores of the wood may be effectually closed, and the crevices, through which dirt and filth of all kinds can enter, and lodge in the spaces between floor and ceiling, practically sealed up. Or the floors may be stained and varnished all over, for varnish of the cheapest kind, whether made with resin in place of hard gums, or petroleum in place of turps, is not only healthy in its application, but cleanly and economical, as it can be readily cleaned of all impurities by a wet cloth, and lasts longer than a mere painted surface, if done properly at the onset, and every coat left to dry and become thoroughly hard before a second coat is put on. Good varnish will dry and be free from all stickiness in one or two days, if the general atmosphere is free from damp. (Edis.)

Boarded floors are at present much more fashionable than carpeted. Whether they are stained or not is a secondary consideration. In hospital wards it is, no doubt, desirable that the boards should be as closely laid as possible, and well waxed, to obviate the necessity of scrubbing, and the possibility of any organic matter sinking into the floor. But in private houses, so long as the carpets are loose and can be taken up, and the boards either scrubbed, dry rubbed, or waxed, we have all that health demands. Were it practised by some Continental nation, and not by ourselves, we should be horrified at the custom of keeping carpets nailed down for a year or more to collect all the dirt that falls throughout that time. Of course, a stained floor looks better than plain deal boards, and oak parquet looks better than either. But in a bedroom the appearance is of secondary importance, and staining, however it is

put on, does not last long in a room where there are children or schoolboys. A strip of carpet by the side of the bed, and a square of matting or linoleum before the washing-stand, is sufficient for health. All carpets, of whatever kind, wear better if the boards are perfectly even, and if they are laid down over "carpet lining," brown paper, or coarse canvas; but this plan is not feasible unless the carpet is fastened down, and a much better plan than nailing is to have loops on the carpet and nails in grooves on the floor, when it can so easily be unhooked, that there is no excuse for not taking it up frequently. Very often carpets and heavy furniture are left untouched because of the difficulty of getting a man in to help where a man-servant is not kept. Of the different sorts of carpeting, those that cost most to start with are certainly not the dearest in the end. Compare, for instance, a good Brussels with a tapestry of about half the first cost, and probably not a sixth part of the durability. The only rooms where tapestry carpets are admissible are where there is little or no traffic, and where the mistress desires much appearance for little money. Inferior floor coverings of whatever kind are dear. A small pattern cuts to greater advantage, usually looks better, and always shows dirt less than a large one,—looks better because the floor is not the part of the room where we wish all eyes to be at first directed; and, therefore, though a light ground often wears better than a dark, we cannot venture to recommend it. Kidderminster is now fashionable; it wears well and can be turned. Small patterns in Kidderminster, as in all double wool fabrics, wear best, because the threads decussate more frequently. Felt carpets wear much better if the colour runs through; if it is only stamped on the top, white patches appear long

before the carpet is in holes, which, however, are not long in coming with even a moderate amount of wear. The cheapest carpets have cotton or jute woven in them, and very quickly fade. As to matting, it, too, is of many kinds. The coconut matting, with a coloured pattern or border, looks well on dark wood stairs, and wears better than any other, but it is too rough for most sitting-rooms, even if we do not experience its rapid fraying of skirts and wearing out of thin house shoes that walk over it. India matting of good quality wears a long time, especially if it is kept damp. It is made of grass fibre, and if it gets too dry it quickly splits. In hot weather it must be washed over with water once or twice a week and left wet, and the fibre will absorb enough moisture to keep it fairly tough. Oilcloth, kamptulicon, linoleum, and similar floor coverings, are made of canvas with layers of oil paint. It must be kept for some time after it is made, to harden the paint; if this is not done it splits, and soon wears out. The quality can be judged by the weight, and the heaviest is generally the best. It can be scrubbed with soap and water, and then polished with a dry cloth and a little oil; as little water as possible should be used, or it runs underneath, and causes the cloth to rot. In the country it is a good plan to wash oilcloth with a little skim milk, thus cleaning and polishing it at the same time. (E. A. B., in the *Queen*.)

Furniture.—It must be evident to common-sense people, that all furniture which collects and holds dust and dirt, which cannot be easily detected and cleaned; that all window valances and heavy stuff curtains with heavy fringes, which cannot be constantly shaken; and that all floor coverings which are fastened down, so that it is impossible to clear away the dust, that gradually, but surely, finds its

way under them, and prevents the coverings themselves from being constantly shaken, are objectionable and unhealthy. Such people will therefore avoid all wall coverings which offer resting-places for dirt—such as the high-relief flock patterns, which, however good artistically, are certainly to be avoided on sanitary grounds; will not cover the whole of the floor surfaces with thick carpets, which absorb and retain dust and disease germs, and which cannot be easily removed and cleaned, or shaken, at least once a month; will do away with all heavy window-curtains and valances, which, in small rooms, add so materially to their stuffiness and unhealthiness; and will, as far as practicable, avoid filling their rooms with heavy lumbering furniture, which cannot easily be moved for cleaning purposes, and under and above which dust and other impurities may collect and remain. (Edis.)

Second-hand furniture is often preferable to new. The warps and started joints are plainly visible if bad wood has been some time in use; no more warping will take place, and the price, in comparison with that of new, is often much less than the amount of wear and tear would indicate. There are circumstances that give to old furniture a distinct excellence, quite apart from the existence of a fashion for buying it. It was made by hand; generally the same man worked on each piece throughout, acquiring a special interest in every detail, and thinking no trouble too great to make it more perfect. (E. A. B.)

In choosing chairs and tables for the drawing-room, the more varied they are in size and shape the better. Let the wood be all fairly similar, but the

materials may be as widely different as possible, and a judicious blending of several colours is the one thing aimed at by those who have good taste. Let me warn my readers against cheap cretonnes; they wear atrociously, and only look well for the first few months. Plush and Utrecht velvet last for ever, but, as they are rather expensive, less costly material can be used for the sofa and a few of the chairs. Do not get one of those dreadful curved sofas that only admit of being sat on, for the primary object of a sofa is to allow of your reclining at full length when fatigued or ill. In a good-sized drawing-room a centre ottoman is allowable, but never in a small room, as it would take up too much space; it is a good plan to have the ottoman made to come to pieces, it will then form several small couches in the event of a large “at home” or dance being given.

With regard to dining-room furniture, get a suite of some light wood—ash or oak—and leather seats to the chairs, or American leather. Sideboards of the present day are very handsome and rather elaborate. You can sometimes pick up very good second-hand dining-room suites, upholstered in the best style, for half their original price. If you intend to have a mirror over your dining-room mantelpiece, see that it is framed in wood similar to your chairs and table, and eschew gilt mirrors in any form, as they are the very acme of bad taste and vulgarity. In choosing the dining-room curtains, bear in mind the colour of the wall paper, or they may clash most inharmoniously. The cheapest way of getting these curtains would be to buy some tapestry stuff by the yard, and make them up at home. Everything in a dining-room should match, see therefore that the curtain pole, bell handles, and coal scuttle are all of the same wood as the rest of the furniture.

If the drawing-room is on the first floor, with a small landing outside, cover the latter entirely with carpet, do not simply continue the stair carpet across it, it will look as well again covered. Should it be a good sized landing, put a square carpet down and stain the edges of the floor. By way of keeping out draughts, and making the hall and staircase look less bare than is usually the case, get some curtains and hang them outside the dining-room and drawing-room doors. Indian dhurries are useful, as they are so cheap, but the objection to them is that there are none made between 6 ft. 6 in. and 11 ft. in length.

There are no special rules to be laid down about furnishing a morning room or boudoir: the remarks made on drawing-rooms would apply to a great extent; the furniture should be suitably small, and only very cosy and comfortable chairs and couches allowed, and no great expense should be incurred. If the lady of the house cannot afford to have more than one bedroom handsomely furnished, it should be the one occupied by herself. Many advocate most strongly a “half tester” bedstead, as in the event of sickness, the hangings and curtains keep away draughts and shade the eyes from any strong light. Brass and black bedsteads look best, with some pretty coloured dimity hangings, and of course a spring mattress. Be particular about the stuffing of the pillows, and if you decide on feathers, have them of the very best, as the inferior ones are apt to have a slight smell, besides being hard and uncomfortable to sleep on. Choose a suite of some light wood, consisting of a wardrobe with a plate-glass door, a washstand with tiled back, and a toilet table with a fixed glass and with plenty of small drawers, the latter being invaluable for keeping light easily crushed articles, such as feathers, flowers, &c., which

otherwise are apt to litter about the room in cardboard boxes. For the windows, Syrian curtains are the cheapest, and have the extra advantages of being fashionable and pretty, but coloured dimity to match the bed look the nicest, though of course they would never do in London. Buy (second-hand) a comfortable, old-fashioned armchair, covering it with some serviceable material; and a small table, the height of the bed. It is a good thing to have a small cupboard under lock and key, to hold medicine bottles, &c. You can get very artistic-looking oak ones, quite small, with a shelf above for books, and they form a handsome ornament to the walls.

The spare room or rooms need never necessarily have the "half tester" bedsteads, and so you are saved the expense of buying a quantity of bedhangings and what follows in their train—a heavy washing or cleaning bill. In the event of your not wanting to spend much money on the furnishing of your spare bedroom, remember that at sales very often good things can be picked up at a low price. If you will have a charming bedroom suite at a low rate, be on the look-out for some common deal furniture—never mind its being second-hand and the paint dirty, so long as the wood is whole. Perhaps a friend has an old toilet table or a chest of drawers that she wants to get rid of, or you come across a cheap lot at a broker's; do not be dismayed at the paint being gaudy, perhaps, or dirty, for this is the secret—have them all painted some uniform neutral colour (grey, picked out with dark mouldings, looks well), and then varnished, and you will be delighted with the result. In conclusion, a good substitute for a wardrobe may be made in this way. If there is a small recess in the room (there very often is one by

the chimney), put across it a deal board, stained or painted, and varnished, about 6 ft. from the ground, with an ornamental moulding depending from the front edge, and hang curtains in front, putting up underneath as many dress pegs as the width of the recess will allow. (C. H. D., in the *Queen*.)

Ceilings.—If the cornices of the rooms be deeply recessed and filled with heavy plaster ornaments, they must of necessity hold dust and other impurities, which are increased by the action of damp air causing decomposition, and by mixing with the air in the room, when stirred or blown away from their resting places by draught from opened door or window, must render it impure and unhealthy. In addition to this, they are more or less choked up by every coat of so-called distemper decoration, and this again, by absorbing damp and obnoxious exhalations, adds materially to the sense of stuffiness and foulness which can be appreciably felt on first opening up the room after it has been closed for some hours. It is better, if possible, to paint all ceilings and cornices than to distemper them, so as to render them as non-absorbent as possible; by painting, the plaster-work is covered with a non-absorbent coating, on which if desired a coat of distemper may afterwards be added.

Walls.—As a rule it is desirable as far as possible not to disturb the general flatness of wall surfaces, and to avoid all patterns which obtrude themselves too prominently upon the eye, or cause the space, whether covered with paper or painted decoration, to be broken into groups of ornament, or into distinct lines cutting it transversely or horizontally. The wall surface may be divided either by a chair or frieze rail and be treated in different shades of colour with

good effect; or the upper portion may be covered with good artistic painting, which will add to the beauty and picturesqueness of the room. Where the upper space is covered with paper or distemper, the pattern or colouring should offer no startling contrasts, and the lower portion may be painted and varnished, so as to be readily cleaned. The colour of the wall surfaces of the different rooms must naturally depend upon the purposes for which the rooms are used, as the apparent warmth and pleasurable appearance of the room is materially enhanced or detracted from by the treatment of the wall-colouring; and while it is necessary to treat the surface of one room as a background for pictures, it may be desired to have another brighter and more decorative; but wherever possible, in passages, halls and staircases, it is desirable to varnish as much of the wall surface as possible, so as to render it non-absorbent and readily cleaned.

In the selection of paper or other hangings, and in the arrangement of all ornament in wall or panel decoration, it becomes a matter of importance to select none which shall have distinct and strongly marked patterns, in which the ornament stands out and repeats itself in endless multiplication and monotony. All staring patterns should be avoided. Almost all papers may now be considered practically free from arsenic; the largest printers of machine-printed papers now use little or no arsenical colours; the principal manufacturers of block-printed papers allow on colours with a known trace of arsenic to enter their factories; and, as the colours of this class of paper-hangings are more thoroughly bound with size than those which are machine-made, they are to be recommended for house decoration in preference to the cheaper kinds, as being to a certain extent

more lasting.

Paper-hangings must enter largely into the decoration of all the wall surfaces of our houses; but, on sanitary grounds, all flock papers, however beautiful in design, are especially to be avoided, for, from the very nature of their design and treatment, they are detrimental to the healthy condition of the room. The patterns stand out in relief, and offer innumerable spaces for dust and dirt, while the generally fluffy nature of the material, practically powdered wool, renders it more absorbent and therefore more unhealthy; and the surface holds dust and dirt to a much larger degree than the ordinary printed papers, thus tending to a stuffy and unwholesome feeling, which is essentially at variance with all laws of health and comfort.

Stamped papers, in which the pattern is raised in relief, offer the same objections in a minor degree, as the surface is smooth and can be readily cleansed; and in the case of the imitation leather papers, the surface is varnished, and can be readily gone over with a damp cloth without injury. These papers can be well used for the dados of rooms or frieze decoration, and as such are exceedingly effective, although, of course, from the very nature of the manufacture, much more expensive than plain painting and varnishing. A good deal of illness often arises from the bad nature of the size and paste with which the ordinary wall-papers are hung, and great care should be taken that no such inferior, and practically stinking materials are allowed.

Cupboards.—In most houses it is common to have the store places for clothes and other household goods, practically self-contained in every room, and therefore we put therein furniture sufficient for our

requirements; but we all know how soon our drawers and wardrobes get overcrowded, and the nuisance and annoyance it often is to have to take out coat after coat, or dress after dress, until we reach the particular one we want, which may be stowed away at the bottom of the drawers or chest, and it surely must appeal to ordinary common sense, to utilise in every way, with constructional fittings as far as possible, all spaces which, as a rule, are practically useless. If the cupboards are taken up to the ceiling line, that is to say an extra tier added to the ordinary wardrobe fitting, increased storeroom would be provided for clothing not immediately required. There would be less crowding up of the existing cupboards and drawers, and the ills of the flat exposed tops of the ordinary fittings, to which Edis before referred, would be done away with. Why not, in the window recesses of every bedroom, provide fixed ottoman boxes which can be used as seats, as well as store places, and if covered with stuffed tops, may thus not only be made useful, but comfortable; while in the sitting-rooms they might be used for store places for papers and magazines until bound up, and thus help to do away with the littering of our rooms, or the storing away of all such things in inaccessible places, where they are seldom dusted, and only help to breed dirt and disease.

Windows.—If instead of the usual heavy and ugly valances, which so many people still insist upon placing over their windows, as a top-finish to the curtains, we were to provide framed recesses constructed with the architraves, or mouldings, which run round the window-openings, with slightly arched heads, leaving room for a slight iron rod to be fixed behind and out of sight, with space for the proper and easy running of the curtain, we should

have not only a much more artistic, but certainly a much more healthy and less expensive arrangement; and these arched heads would form part of the constructive finishing, at no more cost than the framed and panelled window linings and architraves, and if carried up to the ceiling, with the cornice returned round, would leave no spaces for the accumulation of dirt and dust, such as are now provided by the projecting boxed linings and the heavy valances, fringes, and poles, which the modern upholsterer provides.

Bedrooms.—The wall surfaces of bedrooms should be hung with some small and simple decorative paper of one general tone, but with no particularly emphasised design, so that we are annoyed at night with flights of birds, or symmetrical patterns of conventional primroses, daisies, or fruits, which might in any way suggest a countless and never-ending procession along the walls. Any pattern or design which shows prominently any set pattern, or spots which suggest a sum of multiplication, or which, in the half-light of night or early morning, might be likely to fix themselves upon the tired brain, suggesting all kinds of weird forms, are especially to be avoided. The design should be of such a description that, saving as regards colour, it should offer no specially marked pattern.

The general wall surfaces should be varnished if possible, so that they may be easily cleaned down and be made practically non-absorbent.

The general woodwork of the doors, windows, and skirtings should be painted in some plain colour to harmonise or contrast with the wall decoration, and the whole varnished; woodwork finished in this way can be easily washed or cleaned, and the extra

expense of varnishing will be saved in a few years. The bedstead should be of brass or iron, the furniture of light wood, varnished or polished; and, now that good painted tiles can be obtained at small expense, they may be used in washing-stands with good effect, or the wall above may be lined entirely with them to a height of 2 or 3 ft.

As regards the general floor surfaces, let them be entirely painted, or stained and varnished, so as to present non-absorbent and easily cleaned surfaces, or better still, finished with parquet flooring, which is almost entirely non-absorbing, and which can be cleaned by a damp cloth every day; with rugs or simple homespun carpets laid down beside the bed, and elsewhere, where required, so as to be easily taken up and shaken every day without trouble. There is one objection to square carpets in a bedroom, and that is, if you are lightly shod, or, as is often the case, barefoot, the polished floor is very unpleasantly cold; and also, as it is not every one who can indulge in the luxury of a bedroom fire, a wholly carpeted floor tends to keep out draughts and make the room generally warmer.

If you do away with all resting-places for dirt and dust on the tops of wardrobes and hanging closets, and behind and under chests of drawers and other heavy furniture, there will naturally be much less labour required in cleaning and purifying the rooms. Heavy curtains should be avoided, indeed it is difficult to see why curtains are needed at all in bedrooms, if the window-blinds be of some dark-toned stuff sufficient to hide light, and to keep out the glare of the morning sun.

Nurseries.—In all the upper rooms of a house, which may be used as nurseries, Edis would, where

practicable, construct semi-octagonal projecting bays, so as to provide for the greatest possible light and sunshine; and if this cannot be arranged, the windows should be as widely splayed inside as possible, and no light or sunshine shut out by heavy curtains or venetian blinds; and here, too, as in the best rooms of the house, should be thick plate, instead of the miserably thin glass, which is considered sufficient in the upper portions of so many houses; the thick glass gives truer light, is less penetrated by sound, and helps to retain the warmth of the room after the fires have gone out, and the house is left to cool in the long night hours.

The walls of the nurseries should be hung with some bright and cheerful pattern paper, varnished for health's sake, while the upper portion should be distempered; the upper space or frieze should be divided from the general wall surface by a small deal painted picture rail, but the ceilings and frieze should be cleaned off and re-distempered every autumn, as nothing tends so much to sweeten the rooms as this annual cleaning off and re-doing of the ceilings, which naturally are more impregnated with the impurities of the shut-up rooms than any other portion of them. Paint or varnished papers are always more healthy than distemper, as they can be readily washed, and do not absorb and hold dirt and other impurities.

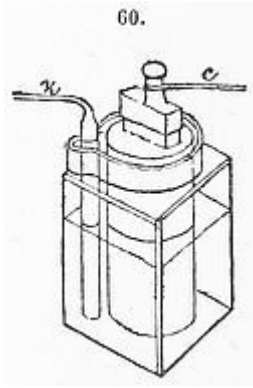
The walls of the night nurseries should be hung with a soft, general toned paper, varnished, so as to be sponged every week, or distempered all over, so as to be re-done at small cost at frequent intervals, for it is essential in the ordinary low-pitched upper rooms of town houses, generally devoted to nurseries, to wash out as often as possible, the

peculiar stuffy bedroom atmosphere, which must be absorbed in the walls and ceilings of all low rooms. The tone of colouring or pattern on the walls should above all not be spotty or glaring, with strongly defined forms presenting nightmare effects to drive away sleep, or disturb our little ones in the hours of feverish unrest or sickness. But in the rooms they live in there is no reason why the "writing on the walls" should not be the earliest teaching of all that is beautiful in nature, art, or science, and by good illustrations of fairy lore and natural forms incline the thoughts of our children to all that is graceful and beautiful in nature or imaginative faculties.

Bells and Calls.—No house can now be considered complete without it is fitted with call-tubes or bells, especially the latter. Call-tubes are more general in places of business, but they might often replace bells in a house with advantage to all concerned. The wires for bells are carried in tubes and boxes concealed by the finishing of the walls and skirting. These tubes are often of tinned iron or zinc, but they ought to be either of brass or strong galvanised iron. Zinc cannot be depended on: in some places it will moulder away; if not soldered, it opens, and the wires work into the joinings of the tube, which stops their movement. The old-fashioned system of bells is being largely supplanted by electric bells.

Electric Bells.—An ordinary electric bell is merely a vibrating contact breaker carrying a small hammer on its spring, which hammer strikes a bell placed within its reach as long as the vibration of the spring continues. The necessary apparatus comprises a battery to supply the force, wires to conduct it, circuit-closers to apply it, and bells to give it

expression.



60. Battery.

The Leclanché battery (Fig. 60) is the best for all electric bell systems, its great recommendation being that, once charged, it retains its power without attention for several years. Two jars are employed in its construction: the outer one is of glass, contains a zinc rod, and is charged with a solution of ammonium chloride (sal-ammoniac). The inner jar is of porous earthenware, contains a carbon plate, and is filled up with a mixture of manganese peroxide and broken gas carbon. When the carbon plate and the zinc rod are connected, a steady current of electricity is set up, the chemical reaction which takes place being as follows:—The zinc becomes oxidised by the oxygen from the manganese peroxide, and is subsequently converted into zinc chloride by the action of the sal-ammoniac. After the battery has been in continuous use for some hours, the manganese becomes exhausted of oxygen, and the force of the electrical current is greatly diminished; but if the battery be allowed to rest for a short time the manganese obtains a fresh supply of oxygen from the atmosphere, and is again fit for use. After about 18 months' work, the glass cell will

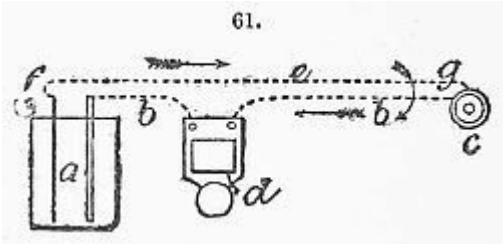
probably require recharging with sal-ammoniac, and the zinc rod may also need renewing; but should the porous cell get out of order, it is better to get a new one entirely, than to attempt to recharge it.

On short circuits, 2 cells may suffice, increasing up to 4 or 6 as required. It is false economy to use a battery too weak to do its work properly. The battery should be placed where it will not be subject to changes of temperature, e.g. in an underground cellar.

The circuit wire used in England for indoor situations is “No. 20” copper wire, covered with guttapercha and cotton. In America, “No. 18, first-class, braided, cotton-covered, office wire” is recommended, though smaller and cheaper kinds are often used. The wire should be laid with great regard to keeping it from damp, and ensuring its perfect insulation. Out of doors, for carrying long distances overhead, ordinary galvanised iron wire is well adapted, the gauge running from “No. 4” to “No. 14,” according to conditions. Proper insulators on poles must be provided, avoiding all contact with foreign bodies; or a rubber-covered wire encased in lead may be run underground.

The circuit-closer, or means of instantaneously completing and interrupting the circuit, is generally a simple press-button. This consists of a little cylindrical box, provided in the centre with an ivory button, which is either (1) attached to a brass spring that is brought into contact with a brass plate at the back of the box on pressing the button, or (2) is capable of pressing together 2 springs in the box. A wire from the battery is attached to the spring of the press-button, and another from the bell is secured to the brass plate. Platinum points should be provided

on the spring and plate where the contact takes place. While the button is at rest, or out, the electric circuit is broken; but on being pressed in, it completes the circuit, and the bell rings.



61. Bell.

The relative arrangement and connection of the several parts is shown in Fig. 61. *a*, Leclanché cell; *b*, wire; *c*, press-button; *d*, bell. When the distance traversed is great, say ½ mile, the return wire *e* may be dispensed with, and replaced by what is known as the "earth circuit," established by attaching the terminals at *f* and *g* to copper plates sunk in the ground.

The bells used are generally vibrating ones, and those intended for internal house use need not have a higher resistance than 2 or 3 ohms. At other times, single-stroke and continuous-ringer bells have to be provided, the latter being arranged to continue ringing until specially stopped. The bell may or may not be fitted with an annunciator system; the latter is almost a necessity when many bells have to ring to the same place, as then 1 bell only is requisite. A single-stroke bell is simply a gong fixed to a board or frame, an electro-magnet, and an armature with a hammer at the end, arranged to strike the gong when the armature is attracted by the magnet. A vibrating bell has its armature fixed to a spring which presses against a contact-screw; the wire forming the circuit,

entering at one binding-screw, goes to the magnet, which in turn is connected with the armature; thence the circuit continues through the contact-screw to the other binding-screw, and out. When set in motion by electricity, the magnet attracts the armature, and the hammer strikes the bell; but in its forward motion, the spring leaves the contact-screw, and thus the circuit is broken; the hammer then falls back, closing the circuit again, and so the action is continued *ad libitum*, and a rapid vibratory motion is produced, which makes a ringing by the action of the successive blows of the hammer on the gong.

The following useful hints on electric bell systems are condensed from Lockwood's handy little volume on telephones.

With regard to the battery, he advises to keep the sal-ammoniac solution strong, yet not to put so much in that it cannot dissolve. Be extremely careful to have all battery connections clean, bright, and mechanically tight, and to have no leak or short circuit. The batteries should last a year without further attention, and the glass jars never ought to be filled more than ¾ full.

(*a*) 1 Bell and 1 Press-button.—The simplest system is 1 bell operated by 1 press-button. The arrangement of this is the same whether the line be long or short. Set up the bell in the required place, with the gong down or up as may be chosen; fix press-button where wanted, taking all advantages offered by the plan of the house; e.g. a wall behind which is a closet is an excellent place to attach electrical fixtures, because then it is easy to run all the wires in the closets, and out of sight. Set up the battery in a convenient place, and, if possible, in an air-tight box. Calculate how much wire will be

requisite, and measure it off, giving a liberal supply; joints in inside work are very objectionable, and only admissible where absolutely necessary. Cut off insulation from ends of wire where contact is to be made to a screw. Only 3 wires are necessary, i.e. (1) from 1 spring of the press-button to 1 pole of the battery, say the carbon, (2) from the other spring of the button to 1 binding-screw of the bell, (3) from the other pole of the battery to the other binding-screw of the bell. In stripping wires, leave no ragged threads hanging; they get caught in the binding-screw, and interfere with the connection of the parts. After stripping the wire sufficiently, make the ends not only clean but bright. Never run 2 wires under 1 staple. A button-switch should be placed in the battery-circuit, and close to the battery, so that, to avoid leakage and accidental short circuiting when the bells are not used for some time, it may be opened.

(*b*) 1 Bell and 2 Press-buttons.—The next system is an arrangement of 2 press-buttons in different places to ring the same bell. Having fixed the bell and battery, and decided upon the position of the 2 buttons, run the wires as follows:—1 long covered wire is run from 1 pole of the battery to 1 of the springs of the most distant press-button, and where this long wire approaches nearest to the other press-button it is stripped for about 1 in. and scraped clean; another wire, also stripped at its end, is wound carefully around the bared place, and the joint is covered with kerite tape; the other end of the piece of wire thus branched on is carried over and fastened to the spring of the second press-button. This constitutes a battery wire branching to 1 spring of each press-button. Then run a second wire from 1 of the bell binding-screws to the other spring of the

most distant press-button, branching it in the same manner as the battery-wire to the other spring of the second button; connect the other pole of the battery to the second binding-screw of the bell, and the arrangement is complete—a continuous battery-circuit through the bell when either of the buttons is pressed. Before covering the joints with tape, it is well to solder them, using rosin as a flux.

(*c*) 2 Bells and 1 Press-button.—When it is required to have 2 bells in different places, to ring from 1 press-button at the same time, after erecting the bells, button, and battery, run a wire from the carbon pole of the battery and branch it in the manner described to 1 binding-screw of each bell; run a second wire from the zinc pole of the battery to 1 spring of the button, and a third wire from the other spring, branching it to the remaining binding-screw of both bells. It will not answer to connect 2 or more vibrating bells in circuit one after another, as the 2 circuit-breakers will not work in unison; they must always be branched, i.e. a portion of the main wire must be stripped, and another piece spliced to it, so as to make 2 ends.

(*d*) There are other methods, one of which is, if more than 1 bell is designed to ring steadily when the button is pressed, to let only 1 of the series be a vibrating bell, and the other single-strokes; these, if properly set up and adjusted, will continuously ring, because they are controlled by the rapid make and break of the 1 vibrator.

(*e*) Annunciator system.—To connect an indicating annunciator of any number of drops with a common bell, to be operated by press-buttons in different parts of a house, is a handy arrangement, as one drop may be operated from the front door, another

from the drawing-room, a third from the dining-room, and so on. The annunciator is fastened up with the bell near it. All the electro-magnets in the annunciator are connected by 1 wire with 1 binding-screw of the bell, and the other binding-screw of the bell is connected with the zinc of the battery. It is a good plan to run a wire through the building from top to bottom, at one end connecting it with the carbon pole of the battery. It ought to be covered with a different coloured cotton from any other, so as to be readily identified as the wire from the carbon. Supposing there are 6 press-buttons, 1 in each room, run a wire from 1 of the springs of each of the press-buttons to the main wire from the carbon pole, and at the point of meeting strip the covering from both the main wire and the ends of the branch wires from the press-buttons, and fasten each branch wire to the main wire, virtually bringing the carbon pole of the battery into every press-button. Next, lead a second wire from the other spring of each press-button to the annunciator screw-post belonging to the special drop desired. This will complete the circuit when any of the press-buttons is pushed; for, as each annunciator magnet is connected on 1 side to its own press-button, and on the other side to the common bell, it follows that when any button is pressed, the line of the current is from the carbon pole of the battery, through the points of the press-button, back to the annunciator, thence through the bell to the zinc pole of the battery; and that, therefore, the right annunciator must drop and the bell must ring. In handsome houses, run the wires under the floor as much as possible, and adopt such colours for wire covering as may be harmonious with the paper and paintings. Also test each wire separately, as soon as the connection is made.

(*f*) Double system.—A system of bells in which the signalling is done both ways, that is, in addition to the annunciator and bell located at one point, to be signalled by pressing the button in each room, a bell is likewise placed in each room, or in a certain room, whereon a return signal may be received—transmitted from a press-button near the annunciator. This is a double system, and involves additional wires. One battery may furnish all the current. Run the main carbon wire through the house, as before, in such a manner as to admit of branch wires being easily attached to it. Run a branch wire from it to the spring of one of the press-buttons, a second wire from the other spring of the same button to the screw-post of the bell in room No. 2, and from the other screw-post of the said bell to the zinc pole of the battery. This completes one circuit. The other is then arranged as follows:—The main carbon, besides being led, as already described, to the spring of the press-button in room No. 1, is continued to one of the binding-screws of the bell in the same room; the other terminal of that bell is carried to one spring of the press-button in room No. 2; the complementary spring of that press-button is then connected by a special and separate wire with the zinc of the battery, and the second circuit is then also completed.

An alternative method is to run branches from the main carbon wire to all the press-buttons, and from the main zinc wire to all the bells, connecting by separate wires the remaining bell terminals with the remaining press-button springs. In the latter plan, more wires are necessary. Although the connections of but one bell either way have been described, every addition must be carried out on the same principle.

When 2 points at some distance from one another, e.g. the house and a stable 100 yd. distant, are to be connected, it is easy to run 1 wire, and use an earth return. If gas or water pipes are in use at both points, no difficulty will be found in accomplishing this. A strap-key will in this case be found advantageous as a substitute for a press-button. The connecting wire at each end is fastened to the stem of the key; the back contact or bridge of the key, against which when at rest the key presses, is connected at each end with one terminal of the bell, the other terminal of each bell being connected by wire with the ground. A sufficient amount of battery is placed at each point, and 1 pole of each battery is connected with the earth, the other pole being attached to the front contact of the strap-key. If impossible to get a ground, the second terminal of both bell and battery at each end must be connected by a return wire.

(*g*) Bell and Telephone.—It is a very easy matter to add telephones to bell-signalling appliances, when constructed as here described. The only additions necessary are a branch or return circuit for the telephones, and a switch operated by hand, whereby the main wire is switched from the bell return wire to the telephone return wire. A very simple plan for a bell-call and telephone line from one room to another, can be made as follows: Apparatus required —2 bells, 2 telephones, 2 3-point switches, 2 strap-keys with back and front contacts, and 1 battery. Run 1 wire from the stem of the key in room No. 1 to the stem of the key in room No. 2. This is the main wire. Fix the bell and 3-point switch below it in each room. Connect the back contact of each key by wire to the lever of the 3-point switch, attach 1 of the points of the switch to 1 of the bell terminals, and the other bell terminal to a return wire. The return

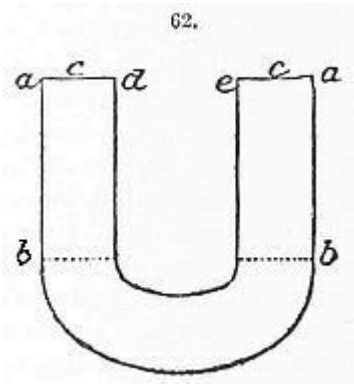
wire will now connect the second bell terminal in one room with the second bell in the other room. The other point of the switch in each room is now connected by a wire with 1 binding-screw of a telephone, and the other telephone screw is attached by another wire to the bell return. Connecting 1 pole of the battery also to the return wire, and the other pole to each of the front contacts of the keys, the system is complete. When at rest, each switch is turned on to the bell. To ring the bell in the other room, the key is pressed. The battery circuit is then from battery, front contact of the pressed key, stem of key, main wire, stem of distant key, switch, bell, and through return wire to the other pole of the battery. After bell signals are interchanged, the 3-point switches are transferred to the telephone joint, and conversation can be maintained. (Lockwood.)

Making an Electric Bell.—The following description applies to 3 sizes—viz. for a 2 in. bell, hereafter called No. 1; 2¾ in., or No. 2; 4 in., or No. 3, which sizes are sufficient for most amateurs' purposes, and, if properly made, a No. 3 Leclanché cell will ring the largest 2 through over 100 yd. No. 24 (B. W. G.) wire.

The Backboard and Cover.—This may be of any hard wood, by preference teak, oak, or mahogany, and if polished, so much the better; the size required will be—

No. 1,	5½ in.	long,	3¾ in.	wide,	½ in.	thick.
No. 2,	7 in.	”	3¾ in.	”	¾ in.	”
No. 3,	8½ in.	”	5 in.	”	¾ in.	”

The cover must be deep enough to cover all the work, and reach to within about ¼ in. of the top and sides of back, and allow ⅜ in. to ¾ in. between the edge of bell and cover; the making of this had better be deferred until the bell is nearly complete.



62. Electro-Magnet.

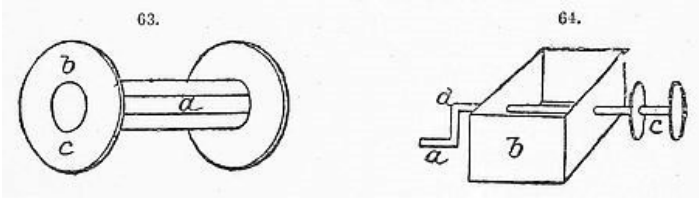
The Electro-Magnet.—This should be of good round iron, and bent into a horse-shoe shape (Fig. 62). The part *a b* must be quite straight, and not damaged by the forging; the bend should be as flat as possible, so as to make the magnet as short as may be (to save space). When made, the magnet is put into a clear fire, and when red hot, taken out and laid in the ashes to slowly cool; care must be taken not to burn it. Lastly, 2 small holes are drilled in the centre of the ends at *c*, about $^{1}/_{16}$ in. deep; drive a piece of brass wire tightly into the holes, and allow the wire to project sufficiently to allow a piece of thin paper between the iron and the table when the iron is standing upon it; this is to prevent the armature adhering to the magnet from residuary magnetism, which always exists more or less. The measurements are—

No. 1	size iron	¼ in.,	*d* to *e*	⅝ in.,	*a* to *b*	1¼ in.
No. 2	”	5/16 in.,	”	¾ in.,	”	1⅜ in.
No. 3	”	7/16 in.,	”	¾ in.,	”	1½ in.

The Bobbins or Coils.—These are made by bending thin sheet copper round the part *a b* of the magnet; the edges at *a* (Fig. 63) must not quite meet. The thickness of this copper must be such that 4 pieces just equal in thickness the edge of a new threepenny-piece (this is rather an original gauge, but then all can get at the thickness this way). The hole in the brass end *b* must be just large enough to push on firmly over the copper when on the iron; they must then be set true, and soldered on. The brass for the ends may be about as thick as a sixpence; a 1/16 in. hole must be drilled at *c*, close to the copper. The other measurements are as follows:—

No. 1,	diameter	⅜ in.,	length over all	1⅛ in.
No. 2,	”	¾ in.,	”	1¼ in.
No. 3,	”	1 in.,	”	1⅜ in.

The brass ends should be neatly turned true and lacquered.



63. Bobbin. 64. Winding Bobbin.

To fill the Bobbins with Wire.—For this purpose, No 28 wire should be used, which is better if varnished or paraffined. The bobbins should be neatly covered with paper over the copper tube and inside of ends, to prevent any possibility of the wire touching the bobbin itself; the bobbin is best filled by chucking it on a mandrel in the lathe, or a primitive winding apparatus may be made by boring a hole through the sides of a small box, fit a wire crank and wooden axle to this, and push the bobbin on the projecting end—thus (Fig. 64): *a*, crank; *b*, box; *c*, bobbin; *d*, axle. The box may be loaded to keep it steady; on any account do not attempt to wind the wire on by hand—the bobbin must revolve. Leave about 1½ in. of wire projecting outside the hole *d*, in end of bobbin, and wind the wire on carefully and quite evenly, the number of layers being respectively 6, 8, and 10; the last layer must finish at the same end as the first began, and is best fastened off by a silk or thread binding, leaving about a 3 in. piece projecting. Both bobbins must be wound in the same direction, turning the crank from you, and commencing at the end nearest the box. The bobbins must now be firmly pushed on the part *a b* of the magnet, and the two pieces of wire projecting through the hole *c* soldered together.

To put the Bell together.—First screw on the bell. This should be supported underneath by a piece of ¼ in. iron tube, long enough to keep the edge of the bell ⅜ to ⅝ in. above the backboard. Cut off the hammer-rod, so that when the head is on it will come nearly as low as the bell screw, and in a line with it. Make a hole in the backboard, and drive the armature post in tightly—it must be driven in so far that when the magnet is laid upon the backboard, the centre of the magnet iron and the armature are

the same height. Place the magnet so that when the armature is pressed against it, the hammer-head all but touches the bell; screw it into its place by a wooden bridge across the screw passing between the bobbins. By afterwards easing this screw, any little adjustment can be made. The armature spring should tend to throw the hammer-head about ⅝ in. from the bell. The contact-post should be so placed that when the armature touches the magnet, there is a slight space between the platinum point on the screw and the platinum on the spring. In putting in the posts, a piece of copper wire must be driven in with them to attach the wire to. One post can be moved round a little either way to alter the tension of the spring; the screw in the other post can be turned in or out, to just allow the proper break to take place. By screwing it in and out, the ear will soon judge where the bell rings best. (Volk.)

Those desiring further information on batteries, telephones, and all electrical matters, are referred to the Third Series of 'Workshop Receipts,' where diffuse instructions are given.

Thieves and Fire.—It would be difficult to name two subjects demanding more attention and forethought from the housewife than the means to be adopted for protecting her household from the incursions of thieves and the horrors of fire. Some years ago, the well-known inventor of Chubb's locks published a little book on these topics, from which we have taken the liberty of condensing a few paragraphs which are full of import to the safety of the dwelling and its inmates.

First with regard to thieves. Chubb remarks that most of the house-robberies so common in all large

towns are effected through the common street-door latches in ordinary use being opened by false keys. It is a notorious fact that thousands are made year after year, but which do not afford the least security, as they are all so made that any one key will open the whole. Burglars are sometimes assisted by dishonest servants, but are more often unaided in this way. Frequently some coal-cellar window is left conveniently unbarred, although all other windows and doors are barred and bolted; or perhaps all the windows have safety-fasteners but one, which, of course, will be the one used by the burglars. Beggars or hawkers are often in the pay of thieves, endeavouring to get information—that may not be used perhaps for a long time; and such visitors should never be allowed inside one's house, though their visits are too often encouraged by the weakness of the domestics.

The remedies best adapted to prevent robbery in these various ways are:—(1) Be careful to have trustworthy servants, or all other precautions are unavailing. (2) Have plate-glass to all windows in the house, for this cannot be broken, as common sheet-glass can, without noise. (3) As shutters are really no protection at all, and frequently are not fastened at night, let all windows and openings that can be reached easily from the ground have strong bars built into the stone or brickwork, not more than 5 in. apart, where this can be done without disfigurement; and let the windows on every upper floor have either Hopkinson's or Dawes's patent window fasteners, which cannot be opened from the outside, and are simple and strong in construction and cheap in price. (4) Keep a dog, however small, *inside* the house; this is a wonderful safeguard, and extremely disliked by burglars. (5) Have any number of bells on shutters,

electric wires, or other gimcracks that you please, and place no reliance on any of them. (6) Never allow a stranger to wait inside the door. (7) Leave as little property as possible, certainly no silver plate or jewellery, lying about, so that if a thief should overcome all obstacles to entrance, he may not find much ready to hand.

Precautions against fire are of still greater importance. A few of the commonest causes of fire are guarded against by observing the following simple rules:—(1) Keep all matches in metal boxes, and out of the reach of children; wax matches are particularly dangerous, and should be kept out of the way of rats and mice. (2) Be careful in making fires with shavings and other light kindling. (3) Do not deposit coal or wood ashes in a wooden vessel, and be sure burning cinders are extinguished before they are deposited. (4) Never put firewood upon the stove to dry, and never put ashes or a light under a staircase. (5) Fill fluid or spirit lamps only by daylight, and never near a fire or light. (6) Do not leave a candle burning on a bureau or a chest. (7) Always be cautious in extinguishing matches and other lighters before throwing them away. (8) Never throw a cigar-stump upon the floor or spitbox containing sawdust or trash without being certain that it contains no fire. (9) After blowing out a candle never put it away on a shelf, or anywhere else, until sure that the snuff has gone entirely out. (10) A lighted candle ought not to be stuck up against a frame-wall, or placed upon any portion of the woodwork in a stable, manufactory, shop, or any other place. (11) Never enter a barn or stable at night with an uncovered light. (12) Never take an open light to examine a gas-meter. (13) Do not put gas or other lights near curtains. (14) Never take a

light into a closet. (15) Do not read in bed, either by candle or lamp light. (16) The principal register of a furnace should always be fastened open. (17) Stove-pipes should be at least 4 in. from woodwork, and well guarded by tin or zinc. (18) Rags ought never to be stuffed into stove-pipe holes. (19) Openings in chimney-flues for stove-pipes which are not used ought always to be securely protected by metallic coverings. (20) Never close up a place of business in the evening without looking well to the extinguishing of lights, and the proper security of the fires. (21) When retiring to bed at night always see that there is no danger from your fires.

A few other unsuspected causes of fire may be mentioned. A common habit with some people, when ironing, is to rub the hot iron clean with a piece of stuff, paper, or “anything” at hand, and then throw the same aside without further thought. The small piece of stuff, usually more or less scorched, may lie smouldering for hours unsuspected in some corner, especially if shut up in a cupboard or drawer. The danger here alluded to applies equally to the careless throwing aside of anything likely to smoulder, such as cloths caught up at random for holding hot baking tins, kitchener handles, &c. No room ought ever to be left unoccupied without a guard being placed on the fire. Most of us have had experience of sudden small explosions of the coals, and holes being burnt in the hearthrug, even when there is some one at hand to stamp out the fire at once; and we can imagine what the consequences would be if the hearthrug had been left to smoulder. In the case of steam-pipes, after wood has remained a long time in contact with steam, hot-water, or hot-air pipes, the surface becomes carbonised. During the warm season, the charcoal absorbs moisture. When again heated, the

moisture is driven off, leaving a vacuum, into which the fresh air current circulating around the pipes rapidly penetrates, and imparts its oxygen to the charcoal, causing a gradual heating and eventually combustion. The rusting of the pipes contributes also to this result, inasmuch as the rust formed during the hot season may be reduced by the heat of the pipes to a condition in which it will absorb oxygen to the point of red heat.

With respect to the detection of fires there is very little to say; but every one should acquaint themselves with the best means of getting from the house in case of fire cutting off the usual exit. At such a critical moment, when, perhaps aroused from a sound sleep, one finds oneself in a house on fire, presence of mind is the first thing required, yet a few simple suggestions that will start to the memory may be of value. If, on the first discovery of the fire, it is found to be confined to one room, and to have made but little progress, it is of the utmost importance to shut, and keep shut, all doors and windows. If the fire appears at all serious, and there are fire-engines at a reasonable distance, it is best to await their arrival, as many buildings have been lost from opening the doors and attempting to extinguish fires with inadequate means. If no engines are within reach, and you have not a hand-pump or an extincteur, the next best thing is to collect as many buckets outside the room on fire as can be obtained, keeping the door shut while more water is being collected. A rough-and-ready protection from breathing smoke may be had by thoroughly wetting a towel and fastening it firmly round the face over the mouth and nostrils. But if the flames have too great a hold to allow of escape by the staircase or roof, and the window of the room is the only means

of egress, the situation becomes serious, unless its possibility has been foreseen and guarded against.

Only as *the last* resource should a person run the risk of jumping to the ground; either endeavour by tying the bedclothes together to make some sort of rope, fastening one end to a heavy piece of furniture, and going down the rope hand-over-hand—a rather difficult thing to do without practice—or, if within reach of one, wait as long as possible for the arrival of a fire-escape or ladder. Some people always keep a stout knotted rope in their room, and have an iron hook fixed inside the window, to which it may be attached. Merryweather and Sons, 63 Long Acre, London, make domestic fire-escapes which admit of even women and children lowering themselves from windows. As to means of escape available from the outside for high houses, there are many obvious plans which might be adopted, but among these there are two which appear to be specially easy of attainment, and within the reach of all concerned, at a moderate cost. The first is to fix on buildings external ladders of wrought iron or some other material able to resist the effects of fire at its commencement, and extending from the roof to within 40 ft. of the ground; the other, to provide on every story continuous balconies of wrought iron or any other material proof against immediate destruction by heat; and if the balconies on the several stories were made to communicate with each other by means of external stairs, great additional safety would be attained.

The Royal Society for the Protection of Life from Fire has published the following directions for saving life at fires. See also p. 1002.

For Bystanders.—1. Immediately on the fire being

discovered give an alarm to the nearest fire-escape station, not delaying an instant; do not wait to see if it is wanted. Life is more precious than property, and events have too often proved how fatal even a moment's hesitation is in sending for the fire-escape. It is the fire-escape man's duty to proceed to the place of alarm immediately.

2. In the absence of a fire-escape, or pending its arrival, ladders and ropes should be sought for. Two constables or other qualified persons should ascend to the roof through the adjoining houses. The most efficient assistance can sometimes be rendered by an entrance to the upper part of the house on fire, either by the attic windows, the loft-door, or by removing the tiles; or sometimes the aid of one end of a rope (knotted) might be afforded from the adjoining window, which, being passed by the person in danger round some article in the room, he could lower himself or others into the street, and the other end of the rope being controlled of course by those rendering the aid from the adjoining house. A short ladder can often be made available at the second or perhaps the third, floor of houses built with a balcony or portico, by the constable or other person first ascending to the balcony, and then placing the ladder thereon, reach the rooms above.

3. In a narrow street or court assistance may be given from the windows of the opposite house, particularly by a ladder placed across the street from window to window.

4. When no other means present themselves the bystanders had better collect bedding at hand, in case the inmates throw themselves from the windows. A blanket or carpet held stretched out by several persons will serve the purpose. The

Metropolitan Fire Escape Brigade carry jumping-sheets with them for use upon emergency.

5. Do not give vent to the fire by breaking into the house unnecessarily from without, or, if an inmate, by opening doors or windows. Make a point of shutting every door after you as you go through the house.

For Inmates.—1. Every householder should make each person in his house acquainted with the best means of escape, whether the fire breaks out at the top or the bottom. Provide fire-guards for use in every room where there is a fire, and let it be a rule of the household not to rake out a fire before retiring for the night, but to leave the guard on. In securing the street-door and lower windows for the night, avoid complicated fastenings or impediments to immediate outlets in case of fire. Descriptions and drawings of fire-escapes for keeping in dwelling-houses may be seen upon application at the offices of the Royal Society for the Protection of Life from Fire.

2. Inmates at the first alarm should endeavour calmly to reflect what means of escape there are in the house. If in bed at the time, wrap themselves in a blanket or bed-side carpet; open neither windows nor doors more than necessary; shut every door after them (this is most important to observe).

3. In the midst of smoke it is comparatively clear towards the ground; consequently progress through smoke can be made on the hands and knees. A silk handkerchief, worsted stockings, or other flannel substance, wetted and drawn over the face, permits free breathing, and excludes to a great extent the smoke from the lungs. A wet sponge is alike efficacious.

4. In the event of being unable to escape either by the street-door or roof, the persons in danger should immediately make their way to a front-room window, taking care to close the door after them; and those who have the charge of the household should ascertain that every individual is there assembled.

5. Persons thus circumstanced are entreated not to precipitate themselves from the window while there remains the least probability of assistance; and even in the last extremity a plain rope is invaluable, or recourse may be had to joining sheets or blankets together, fastening one end round a bedpost or other furniture. This will enable one person to lower all the others separately, and the last may let himself down with comparatively little risk. Select a window over the doorway rather than over the area.

6. Do not give vent to the fire by breaking into the house unnecessarily from without, or, if an inmate, by opening doors or windows. Make a point of shutting every door after you as you go through the house. For this purpose, doors enclosing the staircase are very useful.

Accidents to Persons.—1. Upon discovering yourself on fire reflect that your greatest danger arises from draught to the flames, and from their rising upwards. Throw yourself on the ground, and roll over on the flame, if possible, on the rug or loose drugget, which drag under you; the table-cover, a man's coat, anything of the kind at hand, will serve your purpose. Scream for assistance, ring the bell, but do not run out of the room or remain in an upright position.

2. Persons especially exposed to a risk of their dresses taking fire should adopt the precaution of

having all linen and cotton fabrics washed in a weak solution of chloride of zinc, alum, or tungstate of soda.

3. As a means for the prevention of accidents, especially where there are women and children, the provision of a fire-guard is urgently recommended. These are now made at such a reasonable price that it is incumbent upon even the poorest to obtain them.

It may be added that Merryweather's system of periodical visitation by a staff of fire inspectors is now extensively adopted by the nobility and gentry.

For the various methods of rendering wood, clothes, &c., fire-proof, the reader is referred to 'Workshop Receipts,' Second Series, pp. 289-300.

SUPPLEMENTARY LITERATURE.

Ernest Turner: 'Hints to Househunters and Householders.' London, 1884. 2*s.* 6*d.*

Eardley F. Bailey Denton: 'Handbook of House Sanitation, for the use of all persons seeking a healthy home.' London, 1882. 8*s.* 6*d.*

H. Percy Boulnois: 'Practical Hints on taking a House.' London, 1885. 1*s.* 6*d.*

C. J. Richardson: 'The Englishman's House; a practical guide for selecting or building a house, with full estimates of cost, quantities, &c.' London, 1882. 7*s.* 6*d.*

Ernest Spon: 'The Modern Practice of Sinking and Boring Wells, with geological considerations and examples.' London, 1885. 10*s.* 6*d.*

Charles Hood; 'A Practical Treatise on Warming Buildings by Hot Water, Steam, and Hot Air; &c.'

London, 1885. 12*s.* 6*d.*

William Richards: 'The Gas Consumer's Handy Book.' London, 1877. 6*d.*

E. Hospitalier: 'Domestic Electricity for Amateurs.' London, 1885. 9*s.*

Clarence Cook: 'The House Beautiful; Essays on Beds and Tables, Stools and Candlesticks.' New York, 1881. 1*l.*

Lewis Foreman Day: 'Everyday Art; Short Essays on the Arts not Fine.' London, 1882. 7*s.* 6*d.*

M. E. James: 'How to Decorate our Ceilings, Walls, and Floors.' London, 1883. 4*s.*

Rhoda and Agnes Garrett: 'Suggestions for House Decoration in Painting, Woodwork, and Furniture.' London, 1876. 2*s.* 6*d.*

THE LARDER

Much attention has been given in recent years to the art of conserving foods. The subject really divides itself into 3 distinct branches, viz.: (*a*) Keeping foods *fresh* for a limited time, (*b*) *storing* them without changing their character, and (*c*) submitting them to a *curing* process which will preserve them for an unlimited time.

(*a*) *Keeping foods fresh for a limited time.*

Some very useful remarks on this point were published by Miss Ascham in the *Exchange and Mart* a short time since, and will bear repetition.

A housewife's duty is to prevent waste. She must therefore know what is likely to go to waste and why, or perhaps she will do just what is wanted to spoil things which would have kept a little longer if they had been left alone. Most things in the larder are perishable, but not all alike.

Meat will keep three weeks in dry, frosty weather, and more than a week in cold dry weather, but not one week in damp, and hardly a day in very hot weather. If it has been frozen, it must lie in a rather warm place 3-4 hours before it is cooked. Meat should be taken down from the hooks every day, well looked over and wiped dry, and the hooks scalded and dried before the meat is put up again. Do not flour it. In very hot weather it is sometimes necessary to rub salt over the outside of a joint which is not to be cooked that day; but putting into a pan of treacle is much better, only it requires care, so as not to leave bits of fat, &c., in the pan when you take out the meat, and plenty of cold water to wash off what sticks to the joint when it comes out. It must, however, be carefully looked over when it comes from the butcher, and any doubtful bits pared off and burnt. If meat shows signs of "turning," it must at once be put into a very hot oven for ½ hour, so as to be partly cooked. If it has really spoilt, nothing will save it, because the inside of the joint is then bad; but if it is browned, not just scorched, in time, the inside will be found perfectly nice. Of course, in a doubtful case, it may all be sliced up and fried; but then, as a joint, it is spoilt.

The dripping from a half-spoilt joint is useless for food, and the bone will certainly spoil soup. Some cooks will plunge the meat into boiling water to save it, but this additional wetting is much more likely to hasten the catastrophe. In hot weather every bone must be baked, whether it is to make stock that day or not. Soup is just as good from baked bones as from raw ones. Every bone that has been boiled must be placed in a sharp heat and quite dried, and "scraps" which would help to make stock must be burnt if the cook has no time or room to make it. For one little bone is enough to spoil all the milk and cream, and will cause all perishable things in the larder to be just ready to decay.

The microscope helps us to understand the amazing rapidity with which germs multiply and diffuse themselves, but no one is yet able to say where their venom stops; probably they do harm to the entire house at the least. If bones are thoroughly dried, they will do no harm. All fat and suet should be cooked as soon as possible after it comes into the house; it should be wiped, sliced thin, and boiled for 2-3 hours, then strained, and the skin, which seems like leather, burnt in the middle of a hot fire. As soon as the fat is hard, it should be removed from the gravy, soup, or stock, wiped dry, and folded in thin paper. In very hot weather, sometimes it will not cake. Then a plate must be spared for it. The superfluous fat from a joint reduced to mince should be treated in the same way.

Fish must be cooked as soon as possible after it is caught. If, however, there is more than can be eaten in one day, the superfluous part should be boiled for 5 minutes, even if it is to be fried afterwards—it can be dried: but nearly all fish is very nice stewed like

eels, with the same sauce; parboiled fish is as good this way as if it were quite fresh.

It is said that Condy's fluid will perfectly cleanse meat or fish just beginning to taint on the outside; but prevention is much better than cure. Never allow any meat or fish to lie if you can hang it up.

Game and poultry should be drawn, but not plucked or skinned, dried inside, and hung head upward.

Milk is the most troublesome article in the larder, and really wants a little safe to itself. It "takes up" the slightest suspicion of taint, and becomes most objectionable without turning sour. City people, at any rate, should boil the milk as soon as it comes in, from April to December. Then it should be strained into a clean flat pan, which must be scalded and rinsed with, first, a little soda, and then clean water, every time it is used. It is a help to mistress and maid to have two pans—one brown, one white—to use on alternate days, so as to ensure time for purification. Country milk a little sour may be used for a pudding, or to make scones (½ pint to 1 lb. of oatmeal or brown meal, into which you have mixed ¼ oz. soda carbonate); but the milk which has been rattled about from 2 A.M. to 8 or 9 generally seems good for nothing when stale. In case of serious illness in hot weather, or when a young child's nourishment is in question, ice is necessary. In default of "professional" apparatus, tie up as much ice as half a yard of flannel will hold, pass a stout lath through the string, and lay it across a metal tub; oval is more convenient than round. The ice will hang down and drip in the middle of the tub, and jugs of milk, bottles of soda water, or anything else will stand at the ends. Cover the tub, stick and all, with a thick board, and that

with a damp, almost wet cloth. The milk may be boiled first, but must, of course, be cold before it is put with the ice. A damp cloth, without ice, keeps things much cooler than they are when uncovered.

Cheese, uncut, only needs to be kept dry. After it is cut, it should be wrapped in a buttered paper scraped almost dry. Butter may be rendered less troublesome in summer by being covered with a huge flower-pot large enough to enclose the plate and rest in a tray in which there is some cold water. Leaving butter in water spoils it. Bread should be covered closely from the air. The pans want wiping once or twice a week, and then heating very hot; the bread must not be put in again until the pan is cold, nor warm bread ever covered up. Baker's bread often acquires a most disagreeable smell and taste if these precautions are neglected.

All vegetables, when cut, may be kept fresh by putting the stalks into water. Servants generally insist on immersing them, which favours decomposition. Parsley in particular can seldom be guarded from a watery grave. Carrots, turnips, and the like, if placed in layers in a box of sand, will keep for many weeks, if not months. Clean new-laid eggs will keep quite fresh for months if buried in dried salt well closed. Boiled potatoes ought to be laid out on a plate, and are then as good for frying or mashing as if they were freshly cooked. Servants have an unaccountable fancy for throwing them away, or, if desired to fry them, chopping and mashing them first, which entirely spoils them. If left heaped up, they will often spoil in one night, and must be burnt. No vegetables should be put into soup until the day that it is to be used. If any soup, complete, is left, it must be sharply boiled the next

morning, and put into a fresh, clean pan. The grey earthenware jars made for salt are most valuable for such purposes and for keeping viands hot or stewing things. Chopped spinach can be warmed in one of them, and, as it takes time to prepare, may be boiled, &c., the day before, and thus served in perfection at the early dinner or luncheon. Cabbage, French beans, and vegetable marrows are better dressed as salad if they have cooled, and in hot weather are almost as treacherous for keeping as shell-fish.

Fruit, like vegetables, will keep very fresh if you can manage to put the stalk into water, only it must not be in a close or dark place. When apples, oranges, pears, lemons, &c., are to be stored, they must not touch each other, and must be protected from heat, cold, and damp as much as possible; sunshine is not desirable. It would be easy, if an amateur carpenter was at hand, to make a frame of laths, like a Venetian blind, which would contain a very large quantity of such fruit, and take up hardly any room. Flour and meal, sago, macaroni, semolina, and all like substances, are sometimes attacked by mites. They are so small as to be invisible singly, but a peculiar fine powder is to be seen at the top of the farina, and is not motionless. There is also a smell something like honey or fermentation. They never appear in a dry storeroom, though they are sometimes brought from the grocer's. The only thing to be done is to burn the infected store, and heat the jar almost red hot before using it again. (*Exchange and Mart.*)

Every one is familiar with the beneficial influence of ice in preserving foods in hot weather. It is the active medium in the various kinds of refrigerating safes now in use. But the first matter is to secure a

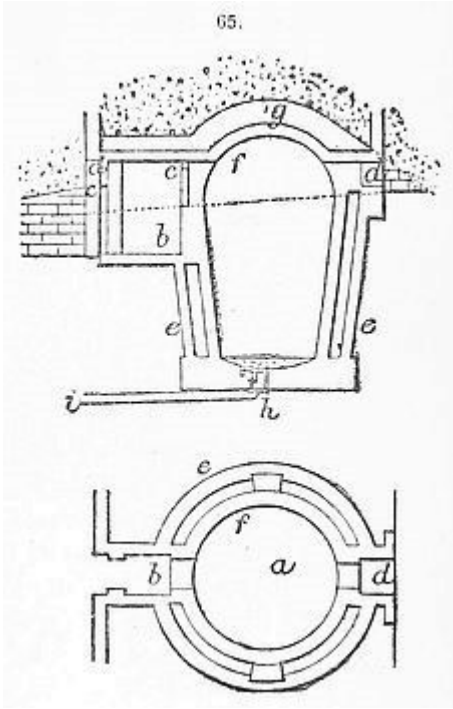
supply of ice for summer use, unless it is to be bought of the ice merchant at enhanced prices. Various contrivances may be adopted with success, as enumerated below:—

(1) Build round a brick well, with a small grating for drain at bottom for the escape of water from melted ice. Cover the bottom with a thick layer of good wheat straw. Pack the ice in layers of ice and straw. Fix a wooden cover to the well.

(2) Fire-brick, from its feeble conducting power, is the best material to line an ice-house with. The house is generally made circular, and larger at the top than at the bottom, where a drain should be provided to run off any water that may accumulate. As small a surface of ice as possible should be exposed to the atmosphere, therefore each piece of ice should be dipped in water before stowing away, which, by the subsequent freezing of the pieces into one mass, will remain unmelted for a long time.

(3) Make a frame-house the requisite size, with its floor at least the thickness of the bottom scantling from the ground, thus leaving space for drainage and a roof to shed off the water. The boards of the wall should be closely joined to exclude air. Then build up the blocks of ice, cut in the coldest weather, as solid as possible, leaving 6 in. all round between them and the board walls; fill up all interstices between the blocks with broken ice, and in a very cold day or night pour water over the whole, so that it may freeze into a solid block; shut it up till wanted, only leaving a few small holes for ventilation under the roof, which should be 6 in. above the top of the ice. It is not dry heat or sunshine that is the worst enemy of ice, but water and damp air. If all the drainage is carried promptly

off below, and the damp vapour generated by the ice is allowed to escape above, the column of cold air between the sides of the close ice-house and the cube of ice will protect it much better than it is protected in underground ice-houses, which can neither be drained nor ventilated; sawdust also will get damp, in which case it is much worse than nothing.



65. Ice-house.

(4) An improved sort of ice-house, recommended by Bailey, gardener at Nuneham Park, Oxford, is shown in plan and section in Fig. 65, where the dotted line indicates the ground level. The well or receptacle for the ice *a* is 10 ft. 6 in. wide at the base, and 3 ft. wider near the top; the walls are hollow, the outer portion being built of dry rough

stone, and the inner wall and dome *f* of brick. The outer wall *e* might be replaced by a puddling of clay, carried up as the work proceeds. Over the top is a mound of clay and soil *g*, planted with shrubs to keep the surface cool in summer. The drain *i* carries off the water formed by the melted ice, and is provided with a trap *h* to prevent the ingress of air through the drain. There is a porch or lobby *b* provided with outer and inner doors *c*; and apertures at *d*, to get rid of the condensed moisture, which, if not removed, would waste the ice. These ventilating doors should be opened every night, and closed again early in the morning. The most important conditions to be secured are dryness of the soil and enclosed atmosphere, compactness in the body of ice, which should be broken fine and closely rammed, and exclusion as far as possible of air. (*Gard. Mag. Bot.*)

(5) A very cheap way of storing ice has been described by Pearson of Kinlet. The ice-stack is made on sloping ground close to the pond whence the ice is derived. The ice is beaten small, well rammed, and gradually worked up into a cone or mound 15 ft. high, with a base of 27 ft., and protected by a compact covering of fern 3 ft. thick. A dry situation and sloping surface are essential with this plan, and a small ditch should surround the heap, to carry rapidly away any water that may come from melted ice or other sources. (*Gard. Jl.*)

(6) The following is an economical method of making small ice-houses indoors:—Dig a hole in a cool cellar, and make it of a size corresponding to the quantity of ice to be kept. At the bottom of this hole dig another of smaller diameter, the edge of which goes down with a gentle slope. This kind of small pit, the depth of which should be greater in

proportion as the soil is less absorbent, must be filled with pebbles and sand. The whole circumference of the large hole is to be fitted up with planks, kept up along the sides with hoops, to prevent the earth from falling in. Then the bottom and all the circumference of this sort of reservoir must be lined with rye straw, placed upright with the ear downwards, and kept up along the planks by a sufficient number of wooden hoops. The ice is to be heaped up in this ice-house, which must be covered over with a great quantity of hay and packing cloth, on which should be placed a wooden cover and some light straw. (*Les Mondes.*)

(*b*) *Storing Foods without change.*—This embraces the keeping of fruits, roots, eggs, &c.

To have a fruit room in a garden does not always argue that the fruit stored in it will be well preserved. Such a store-house is of the first importance; but, unless care is observed, and some special attention given to the different kinds of fruit it may contain, much loss is likely to be the consequence. As to the structure itself, it is sufficient to say here that it should be perfectly dry, and so constructed as to maintain an equable temperature at all times. An ice house, if dry, makes a good fruit room—without the ice, of course—for a fruit room, once the fruit is placed in it, does not require much ventilation, unless it can be given without altering the temperature. Heats and cools, alternately producing condensation and evaporation, soon produce decay and rottenness, and should be guarded against as much as possible; the fruit should always feel dry to the touch. Possibly, the very best position that an apple or pear, for example, could be placed in, to preserve it, would be to suspend it by the footstalk in the air, and free from contact with

any other object. Onions done up in strings in the old-fashioned way invariably keep much better than those laid on shelves or on a floor, and it is the same with fruit. Fruit rooms which are above ground should be double-walled, and ceiled; but when sunk or partially sunk in the ground this is not so important, if damp is otherwise excluded. Hardy fruits and grapes are often kept long and well in a fruit room that is more like a cellar (only dry) than anything else.

The shelves and tables for holding the fruit should be sparred, and before the fruit is stored they should be covered with a layer of clean wheat straw, but so thinly that one can see through between the spars of the shelves, which will allow a free circulation of air amongst the fruit. When the room is empty during the summer-time, it should be thoroughly ventilated, washed and dried, and made sweet and clean, and, when the fruit is stored, shut up and kept in darkness.

A writer in the *Field* expresses himself thus:—The easiest and best method of keeping fruit, and one practised for years, is simply to take ordinary wine cases, halves and quarters, as different sizes are handy, line the bottoms well with short sweet hay, and take them on a hand-barrow to the orchard. There the fruit should be laid carefully in them, taken at once to the fruit room, and placed on close-bottomed shelves. Under such circumstances it will keep until April, and even until June in sand. The greatest care is used in the picking and handling of the fruit. It may be thought that, when in single layers, fruit is more easily examined, and decaying fruit cleared away; but from many years' experience in storing fruit in barrels and boxes, only a small

quantity is lost by decay or wilting. Nor is such vigilance required in the way of periodical gleanings as some would believe. The very act of searching for such is inimical to the good keeping of the rest, as we cannot see the side farthest from us; consequently the fruits have to be handled, and the oftener this is done the sooner will the bloom—the best safeguard to keeping—get rubbed off. In boxes this is avoided. Simply commence using from the top, and go on until the bottom is reached; and not only does the fruit come out clear and clean-skinned, but as sound and firm as when put away. (J. K.)

Apples and Pears.—(*a*) When the fruit room cannot hold all the crop, it should only be used for the best sample, which should be gathered without bruising, and spread out on the shelves in a single layer, and barely touching each other. In plentiful seasons the different varieties are often piled up in hillocks, on the shelves and floors, to the destruction of large quantities of the fruit; for it is not possible to keep fruit long in that condition, and it soon becomes rotten and useless. In most establishments the wants of the kitchen and dessert can be judged very nearly; and such being the case, it is far better to dispose of the fruit which cannot be used at home, and keep and care for a supply of the better dessert and kitchen fruit only. In many establishments it is the custom, in plentiful seasons, to store all the crop in a house that was never intended to accommodate it, and throughout the autumn and winter preservation consists principally in picking out the rotten fruit periodically, and wheeling it to the pigsty or the rubbish heap. It would be better to have given it away for nothing at the beginning. Such waste is simply disgraceful; but it is what happens in many large private gardens. Apples and pears soon decay

and rot if they are carelessly stored, but it is surprising how long even the so-called worst-keeping varieties can be preserved with a little care. Apples of the Codling and Lord Suffield class, and pears like the Jargonelle and Hessel, or "hogel," as it is called in the north, are not supposed to keep many days; but they will keep nevertheless for a considerable time if they are not piled up in heaps like potatoes. Codling apples, indeed, will keep till they become insipid and flavourless without showing signs of decay. In some cases it is necessary to keep the fruit in store till it can be disposed of advantageously; and when that is so, and it cannot be accommodated in the fruit room proper, it should be stored in a dry loft or shed, and covered over with dry straw to protect from the vicissitudes of the weather. Common fruit laid up in heaps in this way soon ripens and turns yellow, but does not keep.

(*b*) Where there is no room for storing apples in the usual way, they may be treated as follows: All the later keeping sorts, after being picked and laid out thinly in a room, may be stored in a pit, the same as potatoes. Mark out the pit 3 ft. wide and 9 in. in depth; put a layer of clean straw in the bottom. Commence at one end with the latest keeping sorts, and make them into a ridge about 2 ft. high in the centre; put a layer of straw between the sorts to keep them from getting mixed; then take the next sort, and so continue with the latest until the whole is finished. A covering of dry turves or straw must then be put over the whole, and this must be covered with soil, the same as is generally done with potato pits. Blenheims keep in this way in very fine condition till the middle of January, and later keeping sorts according to their times of ripening. When pitting the fruit, great care must be taken to pick out all that

are bruised or damaged. Faults of this kind will be readily seen after 9-12 days from the time when the fruits are gathered. Bruised apples soon rot, and cause others to do the same; but, if carefully stored, scarcely one will be found decayed when taken from the pits, if taken out about the time they are generally ripe. (W. C.)

Artichokes.—Boil as many artichokes as you intend to keep, only just enough to be able to pull off all the leaves and choke: lay the bottoms on a tin plate, and put them in the oven. When thoroughly dry, and quite hard, put them in a paper bag, and hang them in a dry place. Before using they must be soaked in warm water for 3-4 hours, changing the water very often. Let the last water be boiling hot, the bottoms will then be very tender, and eat as well as fresh ones.

Asparagus.—Boil fresh-gathered, well-scraped asparagus for 5 minutes in salted water. Strain off the water, dip them in cold water and drain on a cloth; put them in tins with the points all one way. Have an ironmonger ready to solder on the lids immediately; when the solder is cold put the tins in a cauldron of water and boil for 1½ hour. Keep them with the points of the asparagus upwards. It is better to mark the top of the tin to prevent their being reversed.

Cherries.—These can only be successfully preserved on the tree, and then only when the trees are grown against walls or as espaliers. On standards it is almost impossible to keep them from the birds, except by much trouble and expense. Early cherries can be preserved a month or more after they are ripe by covering the trees with mats, and keeping them quite dark. The trees do not suffer so much by this

practice as one would imagine, although the leaves fall off prematurely, owing no doubt to the wood being pretty well matured before the fruit is ripe; but it is not advisable to cover the same trees every year in succession. Morello cherries of course keep best when grown on a north wall, and it is hardly necessary to mat them; but they must be netted to keep off vermin.

Currants.—Take when ripe, separate from the stem, put in glass jars, set them in a kettle of cold water, then put them over the fire, and boil 15-20 minutes; cork tight, and set away where the frost will not get to them.

Eggs.—(*a*) Most of the recipes given for preserving eggs direct that the egg should be coated with something to stop up the pores. Many seem equally efficacious if the covering is complete, with one exception—fat, which becomes rancid, and imparts its own flavour through the pores of the shell. Gum, the white of an egg, collodion, or gelatine have all been used with success, but paraffin wax has often failed. Anything that the eggs are packed in gives its own flavour to their contents; therefore bran, chaff, and straw are to be avoided as being likely to become musty. It is far better to set the eggs on end, the larger ends upwards, in a wire or wooden rack, and to allow free passage of air between. The eggs need not then be turned, for the yolks are tethered to each end by a membranous cord, and if they settle, it is always to one side, which would here be impossible, nor to either extremity. One writer has used and approved the following method: To 1 teaspoonful salicylic acid add about 1 pint boiling water. Let it cool, dip the eggs in one by one, dry them, and store them on racks in an airy cupboard.

Again some people dip each egg into boiling water, and so make an impervious lining of its own white; but this requires more care to prevent cracking, and does not preserve the eggs for so long a time as the recipes given above. Eggs are also packed in boxes in lime, and turned frequently. The advantage of this plan is the small space that a number of eggs occupy; its great disadvantage is that the lime acts upon the shell and thins it down to exceeding brittleness. Much better is it to make a tub of lime water, by pouring cold water over ordinary unslaked lime, and when it has settled and is clear, pour off the water into a deep vessel. Put the eggs in this and cover it over. The air is here effectually kept away from the eggs, and the difficulty of wire racks is avoided. For cooking purposes lime packing is all that can be desired, though for the breakfast table some much prefer the salicylic acid. Whatever plan is chosen the eggs should be put by at once, not after they are a week or two old.

(*b*) When you collect your eggs in a morning, sort them into sizes, and put 10-12 into a net; have ready a large saucepan of water at the full boil. Take the net with the eggs and hold it in exactly 2 seconds; this kills the germ of the egg and closes the pores of the shell. It is necessary, as the eggs always differ much in size, to take one of each size, immerse them separately, and time them exactly, as the white must on no account be in the least degree set. When they are finished, pack all away in tin boxes until required for use.

(*c*) Get a brick of salt, pound it fine and dry it, then place the eggs freshly gathered, and not cracked, with the pointed ends downwards in the salt, and pack them firmly in a box or jar; then keep

them in a dry place. Most of them will be quite fit for the table when kept not more than 3 months; after that they still poach well, and are good for culinary purposes. The same salt used for several years is better than new. One great convenience of this plan is that on opening a box, or 4 lb. biscuit tin containing about 60, you are not compelled to use them all quickly, for each egg is isolated in salt and remains fresh till wanted. The weight of testimony on all sides is much in favour of salt over all other plans.

(*d*) To 1 gal. water put 1 lb. quicklime; pour the water, when boiling, on the lime, and let it stand till the next day. Procure a large brown earthenware pan, well glazed inside, and large enough to hold about 100 eggs; put them in carefully, that they do not get in the least cracked, pour in the lime water, cover over the vessel with a slate, and put it in the cellar, but do not let it touch the floor. A little salt in the lime keeps the water from freezing. Eggs thus treated will keep good for many months.

Figs.—These should not be gathered from the tree until they are ripe and tender in the skin, after which they will keep in the fruit room for a few days without growing mouldy, but no longer; on ice, however, they will keep for 2-3 weeks.

Filberts.—Get some stone jars, such as are used for pickles, about 2 ft. in height and 1 ft. in diameter; fill them with filberts, and then cork them down very tightly with a bung. Bury them about 1 ft. in the earth, or place them in a damp wine-cellar.

French Beans.—(*a*) Cut the beans up as usual, boil for 10 minutes in water without salt, put into a colander. Fill tins with them almost to the top, leaving only a little room for enough boiling water to

cover them; then solder the tins down, after which boil them for an hour; take the tins out, and keep them in a dry place.

(*b*) Gather the beans when young, and in dry weather. Have ready a brown earthenware pan or crock holding about ½ basket, and when the beans have been gathered string and cut them as if for immediate use; cover the bottom of the crock well with salt—the coarse kind used for pickling pork—add a layer of French beans, well cover them with salt, then add layers of beans and of salt alternately until the crock is full; tie it down with thick brown paper, keep it in a cool cellar where it is not too dry, and by Christmas the beans will be ready for use. It is not necessary to have sufficient beans at one time to fill the crock, provided care is taken to cover the last layer with plenty of salt. To prepare them for use during the winter, take out of the crock as many as are wanted for immediate use, put them in a pan, and pour enough hot (but not boiling) water over them to cover them (the salt will then fall to the bottom), lift out the beans, and put them into fresh hot water 3 or 4 times, allowing them to remain in each water ¾-1 hour, then boil them in the ordinary way. A pinch of soda carbonate in the water they are boiled in gives them the bright green colour they have when fresh gathered. Towards the end of the winter they require ¼-½ hour's extra boiling, as the salt is apt to make them hard. Keep the crock tied down between the times of using the beans. By attention to these rules they will remain good till the following May or June.

Gooseberries and Currants.—Bushes of both these in the open quarter may be matted up when the fruit is ripe, and it will keep, under ordinarily favourable

conditions, till November; but by far the best plan is to grow the trees against a north wall, where they may be kept till late in the season with little trouble.

Grapes.—(*a*) Many people are deterred from adopting the very useful plan of keeping late grapes in bottles of water, from the idea that some elaborately fitted up or air-tight compartment is necessary; but this is by no means the case, as, with a little contrivance, a good grape room may be extemporised in any compartment enclosed with 4 brick walls. The principal point is to get a steady temperature, that would not be liable to sudden fluctuations: and for this reason a room with a northern aspect is desirable, or, what is better still, an apartment that does not communicate directly with the outside air. The advantage of having the grapes thus securely bottled, when severe frosts and sunshine render it impossible to maintain the houses in which they were grown at anything like an equable temperature after the beginning of the year, can only be fully realised by those who have had to keep them on the vines until late in spring, besides the benefit which the vines derive by being released of their crop and pruned, cleaned, &c., at the most favourable period.

(*b*) Cut them with about 6 in. of wood below the bunch, and 2 in. or 3 in. of wood above. Place the bunches in bottles filled with water and a bit of charcoal in each. The grapes must hang quite free, without touching the bottles. A slip of wood placed between the stalk and the bottle ensures this. Grapes keep in this way for many months. They must be stored in a dry place.

Green Peas.—(*a*) The Russian method is to shell the peas, put them into a saucepan of boiling water,

let them remain but a short time, and put them to drain in a colander; when thoroughly drained, spread them out on a cloth on the kitchen table to dry; next put them in the oven (which must be cool) in flat tin dishes just for a few minutes to harden; keep them in paper bags hung up in the kitchen or other warm, dry place. When wanted for use, soak in soft water 1 hour, then place them in a saucepan of cold water with a small piece of butter, and boil them until they are fit to serve.

(*b*) The peas must be quite fully grown, but not old. They must be gathered on a fine day and be perfectly dry. After shelling, put them into wide-mouthed bottles. These, too, must be quite dry; any dampness would cause the peas to turn mouldy. When in the bottles, shake them a little to make them lie as close as possible, cork the bottles, and tie moistened bladder tightly over them to exclude the air. Set the bottles side by side in a large fish-kettle, with hay at the bottom and round the sides, as well as around each bottle. Pour in cold water up to the necks of the bottles, put the pan on the fire, and after the water boils let it continue boiling for 2 hours; then take the pan off, and leave the bottles standing in it until the water is perfectly cold. When cold, take them out, wipe them dry, apply melted rosin over the tops, and put them away to keep in a cool, dry place.

Honey.—Honey, if required to be kept in the comb, should be left undisturbed in the supers, and cut out as required; that which is sealed over will keep a long time without alteration. One very good way of preserving honey, when it is white comb and perfectly free from bee-bread, as that of all good bee-keepers should be, is to melt the whole by placing it

in an earthen vessel, and standing it in a saucepan of boiling water. When the wax has melted and risen to the top, tie the jar down tightly with bladders, and the whole will keep, if undisturbed, for many months without alteration or loss of flavour.

Lemons.—(*a*) Wrap each in common tissue paper, and lay them out on a shelf so that they do not touch each other. The shelf should be in a dry, dark cupboard, free from draughts. (*b*) Lemons will keep good for months by simply putting them in a jug of butter-milk, changing the butter-milk about every 3 weeks. When the lemons are required for use, they should be well dried with a cloth. (*c*) They will keep some time in a jar with fresh dry earth mould covering each separately. (*d*) Put them in a basin of water, which latter should be changed twice or thrice weekly, taking care not to bruise the lemons.

Lemon Juice.—To preserve this, squeeze a number of fine lemons, taking care that they are all quite fresh. Strain the juice through muslin, and pour it into bottles with just enough of the best olive oil to cover the surface. Cork well, and keep in a dry place. Or it may be done with sugar, allowing ½ lb. powdered sugar to ½ pint lemon juice. They must be stirred together with a silver spoon until the sugar is quite dissolved. Pour it into small bottles, corking them well, and tying bladder tightly over the corks.

Melons.—Some varieties of the melon keep much better than others, and are all the more valuable on that account. It is a pity that raisers of new varieties do not give a little more attention to this point. By selecting from those kinds which are coconut-shaped and firm of rind, particularly at the end, we should no doubt have melons of excellent keeping qualities, as well as of good flavour. As it is, at present none of

the recent new sorts is superior to, if as good, as those which were cultivated 20-30 years ago. All the varieties should be cut when just ripe, and kept in a cool, dry room.

(*b*) *Eingemacht melonen*, the German way of preparing which is the following: Remove the outer part and the seeds of the melon; cut it into convenient pieces, and lay it for 24 hours in some good white wine vinegar, with a few pieces of cinnamon and of ginger, and the thin rind of 1 or 2 lemons. Then make a sweet syrup with lump sugar and some of the vinegar; boil and skim it, and when cold lay the pieces of melon in it; after 2 days take them out, boil up the syrup, and replace them in it when it is cold. Repeat this operation once more, taking care to boil down the liquor to a very thick syrup; then put by the preserve in jars in the usual way. (The G. C.)

(*c*) Put them in a strong brine of salt and water in a wide-mouthed jar; cover them with cabbage leaves, cap the jar with paper, and set it in the chimney corner till the leaves become yellowish, when the melons must be put in fresh salt and water with fresh cabbage leaves, covered close, and put on a very slow fire to warm gently but not to boil; then take them out, clean the pan, and put them in fresh cold water to stand 2 days, changing the water thrice daily (to take the saltness off); prick them with a fork, and cut all the large ones into convenient pieces, removing all the seeds; lay them in more cold water, while you make a syrup thus: boil 1 lb. loaf sugar in 1 full gill water, taking off the scum, and add afterwards 1 oz. bruised brown ginger to each lb., and the very thin rind of a lemon. When the syrup is thick, set it by till cold; then put in the

pieces of fruit. Take the fruit out again, and boil up the syrup 3 times a week for 3 weeks, and never put the fruit in again till cold. At the end of 3 weeks tie papers over the jars, and put them by. (C. E.)

Mushrooms.—(*a*) Pick and cut off the stalks, wipe them clean, from the large ones remove the brown part, peel off the skin, and lay them on paper in a cool oven. When dry put them into paper bags, and keep them in a dry place. When required for use, simmer them in gravy, and they will swell to their original size.

(*b*) Allow to each qt. of mushrooms 3 oz. butter, pepper and salt to taste, and the juice of 1 lemon. Peel the mushrooms, and put them into cold water, with a little lemon juice; take them out and dry them very carefully in a cloth. Put the butter into a stewpan capable of holding the mushrooms. When melted, add the mushrooms, lemon juice, pepper, and salt. Let them remain over a slow fire until their liquor is boiled away, and they have become quite dry. Be careful not to allow them to stick to the bottom of the pan. When done, put them into pots, and pour over the top clarified butter. If required for immediate use, they will keep good a few days without being covered over. To re-warm them, put the mushrooms into a stewpan, strain the butter from them, and they will be ready for use.

Peaches and Nectarines.—These, like the plums, vary in their keeping qualities; and certainly to be a good keeper is not the least merit a peach or nectarine can possess, for, owing to the crop frequently coming in suddenly during a spell of warm weather, the gardener is forced to gather large quantities of fruit, and keep it the best way he can. Every one does not possess an ice-house, otherwise

most varieties keep on for ice 4-6 weeks; but they must be used as soon as taken out, and almost before they have cooled. In the fruit room, placed on a cool airy shelf, the Royal George peach, Belle-garde, Grosse Mignonne, Borrington, and Late Admiral will keep a fortnight or longer, according to the weather; and the Malta is said to keep even longer. But much depends, of course, how the fruit is gathered. Nectarines are better keepers than peaches, and the Victoria is one of the best. Most of the kinds will keep a fortnight at least without deteriorating in flavour if they are pulled at the right time, which is just before they are quite ripe to the base.

Pineapples.—By far the best keepers of these are the smooth Cayenne, Charlotte Rothschild, and Queen. The first two will keep 6 weeks after they are ripe if the plants are moved into a cool structure and kept dry at the root, but if they are cut off the plant they do not keep so long. Queens keep 4-5 weeks on the plants under the same conditions. Some recommend the fruit, whether cut or on the plants, to be removed before it gets quite ripe; but when good flavour is an object this practice is not advisable, as the fruit will keep nearly as well if it is allowed to get quite ripe before taking it out of the pinery.

Plums and Apricots.—Both plums and apricots are difficult to keep long, though some varieties keep much better than others, particularly of plums. Apricots perish on the tree if they are not gathered in time, generally rotting on the ripe side, particularly if the weather be wet, or if the fruit has been injured by wasps or other vermin. The only plan is to gather the fruit before it is quite ripe on the shady side, and lay it on a sieve in the fruit room, or in a cool cellar. In this way it will keep for a week perfectly perhaps,

but scarcely longer.

Plums keep tolerably well, and some sorts, like that excellent variety, Coe's Golden Drop, keep an astonishingly long period under certain favourable conditions. The best-preserved samples we ever saw of this variety were suspended to footstalks on lines stretched across a dry room; and if we remember rightly, they have been kept in that condition for 2 months. Some wrap the fruit in dry paper, and, if we are not mistaken, Reeves has somewhere stated that he has eaten them in good condition 12 months after they were gathered when preserved in that way. Considering what an excellent dessert variety Coe's Golden Drop is, it is a wonder it has not long ago became the subject of special culture, under glass if necessary, just like the peach and nectarine—it is well worth a house to itself. Another excellent keeping plum of the same breed as Coe's Golden Drop is the Ickworth Impératrice, which hangs on the tree till it shrivels, and keeps for a long while in the fruit room. Knight, who raised it, states in the Transactions of the Horticultural Society that he has kept fruit of it, wrapped in blotting-paper and kept in a dry room, till the end of March. Blue Impératrice is also said to be a good keeper; and the old damson, so useful for tarts and preserving, is not one of the worst, as it will keep for several weeks if the fruit is spread out thinly on the shelves as soon as gathered. None of the plums keep well after they have been basketed and stored, even for a short time. They get bruised, and, no matter how carefully they are kept afterwards, they soon rot. Everything depends on gathering them before they get dead ripe, and storing properly at once.

Roots.—The action of frost is not thoroughly

understood by farmers generally. This is shown by the way clamps are covered with manure on the top and half-way down the sides. The singular fact, however, is, that the top of a clamp is never injured —that is, unless the frost is so severe and prolonged that the whole mass is frozen—if the clamp be fairly covered with straw and earth at starting. The severity of an attack of frost begins and continues from the outer soil at the base of a clamp or brick store, as a barn or other building. Whether this is because a gentle fermentation of the roots or potatoes goes on, the warmth thus caused rising to the top, or whether it is because the lowest temperature is nearest the immediate surface of the earth, has not been decided; but the result invariably is that, if a body of roots or potatoes be partly injured, the rotten ones will be found at the bottom. If the clamp be broadside to the north or east wind, the rotten ones will be found in the form of a triangle on the side where the wind has blown, the base of the triangle being at the bottom; if, however, the clamp had been situated with the end to the wind, the rotten roots will be found at that end in the form of an inverted M, that is, there will be a decayed triangle on each side. The length and depth to which this decay would extend along the clamp would of course depend on the severity and length of the frost.

The required precaution is therefore shown. In the case of clamps after several days of severe frost, with a prospect of its continuing, long manure, straw, hedge-trimming, or whatever may be at hand, should be packed 1 ft. or more thick, and 1 yd. or so wide on the surface soil at the base of the clamp, at the side on which the blast is impinging. It is the same with a brick building. If a bed or heap of potatoes or mangold be stored in a barn, either all over a bay or

in one or more corners, and the same be well covered with straw, there will be no fear of the top or outer side of the heap being frozen. But the part of the heaps which are near to the wall will be found to have been frozen in the form of a triangle, as mentioned. The fact is the frost rises, so to express it, from the foundation of the brickwork being communicated with from the surface soil outside. This shows the importance of packing a body of long manure or a quantity of straw on the surface soil outside the brickwork.

Rowan Berries.—(*a*) Fill a large earthenware jar with strong salt and water. Put in the berries; tie it down. They will keep in this way till Christmas, (*b*) Gum them well all over so as to make them adhere to their stalks, and sealing-wax the ends where cut from the tree, and keep them in a tin box till required for use.

Tomatoes.—(*a*) Cut up a number of tomatoes, and let them simmer gently in a stewpan over a slow fire until reduced to a pulp. From this squeeze all the juice by pressing it through a fine hair sieve; boil it until it thickens, and then pour it into small bottles. Stand these in a large fish-kettle or boiler, filling it with cold water, and putting some hay between the bottles and against the sides of the boiler, to prevent them from touching it or each other. Set the boiler on the fire, and let all boil for ¼ hour after the water comes to the boil. Let the bottles get cold in the water after taking the boiler off the fire. Then cork and seal them, and keep them in a dry place. Take care that none of the water gets into the bottles while boiling.

(*b*) If these are not to be packed for travelling, stone jars are better for their preservation than tins.

Gather the tomatoes when perfectly ripe, and discard all that have blemishes. Pack them lightly till the jar is full, then entirely cover with strong vinegar and water in equal parts; add a few whole cloves and a sprinkling of sugar. Cover with a piece of flannel, letting it sink into the vinegar, then tie over with thick paper or bladder.

Truffles.—To keep truffles till required for use choose the blackest, let them be fresh gathered; when thoroughly washed and brushed, peel them carefully with a sharp knife, and reject all that are not perfectly sound; put them into bottles as close as they will lie, cork them tightly, and boil them for an hour in the bain-marie.

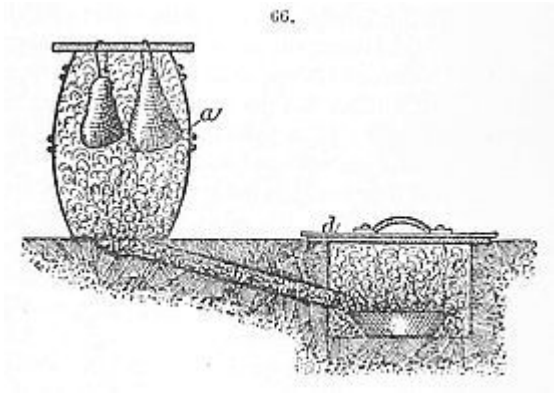
Vegetable Marrows.—(*a*) To preserve these for winter use, choose such as are fully ripe—turned yellow. When cut, arrange them in a dry place, resting on the flower end, with the stalk end upwards. They will then keep good the whole winter. (*b*) Cut them when fully grown, lay them on the pantry floor, and turn them twice a week, or put 2 pieces of tape or listing round them, and suspend them from a ceiling. The marrow improves in flavour, becoming quite nutty; they will keep in this way far into spring.

Walnuts.—(*a*) Walnuts intended for keeping should be suffered to fall of themselves from the trees, and be afterwards laid in a dry, open, and airy place, till they become thoroughly dried. Then pack them in jars, boxes, or casks, in alternate layers with fine clear sand, which has previously been well dried in the sun, in an oven, or before the fire; set them in a dry place, but not where it is too hot, and they will keep good till the latter end of April. Before they are sent to table wipe the sand off, and if they have

become shrivelled steep them in milk and water for 6-8 hours; this will make them plump and fine, as well as cause them to peel easily. (*b*) Place them, fresh gathered and unwashed, in earthen jars, tied down with stiff glazed brown paper, and keep them on the floor of the wine-cellar. They are perfectly good until the new ones come in again, (*c*) Put the new walnuts in earthen jars with salt; cover them close, and leave them in a damp cellar. When you want to use them, wash them in cold water. At Christmas they will peel and eat like fresh fruit.

(*c*) *Curing foods for lengthened preservation.*

This branch of the subject may be conveniently divided into several sections, according to the means employed for rendering the foods less susceptible to change under the influence of the air. The most important agents are smoke and salt in the case of flesh, sugar for fruits, and vinegar for vegetables.



66. Smoking Apparatus.

Smoking.—Professor W. R. Brooks, in *Rural New Yorker*, gives the following simple but very effective smoking arrangement for all kinds of meats, especially hams, shoulders, and bacon. The smoking

is effected in a very thorough manner and in a short time, about six hours sufficing for breakfast ham. The arrangement can be made by any one without the least trouble, and it is sure to “work” every time. The sketch almost explains itself. The device consists of the barrel *a* (Fig. 66) of any suitable size. An ordinary flour or apple barrel will smoke four or five moderate sized hams or shoulders. Both heads are removed and a movable cover is provided for the top. This may be of boards, or an old oil-cloth or tight blanket will answer. A short trench is dug, in which is laid a length of old stove pipe *b*. A larger excavation *c* is then made, in which a pan of burning corn cobs or chips can be placed. This is covered by a tightly fitting plank *d*. One end of the stove pipe communicates with this excavation; over the other end the barrel is placed, the earth banked up around the bottom of the barrel and over the stove pipe, to keep all tight, as plainly shown in Fig. 66. The meat may be suspended from a stick laid across the top of the barrel, and then all covered tight with an oil-cloth or blanket. On placing a pan of smoking cobs or chips in the place provided, the smoke passes through the stove pipe into the barrel, filling it with a dense, cool smoke. Should the support of the hams, &c., break, the latter cannot be hurt by coming in contact with the fire or ashes, as sometimes happens in the regular smoke-house.

The ordinary smoking-chimney is described by Robinson as follows:—“It should be placed in some outhouse or shed, or even in a yard, so that no annoyance may be caused to the inmates of the dwelling, by even the smallest escape of smoke. It should be built of brick, and carried up to the height of 8 ft. at least from a brick or stone floor, 1 yd. wide

and 2 ft. deep inside measure, and at the height of 3 ft. from the floor there should be a door frame reaching to the top of the chimney, or nearly so, on which a door, well jointed and fitted, must be hung. A small door of 1½ ft. square, of sheet iron, must also be made on the floor, through which the embers from the fire may be raked, and fuel or sawdust added from time to time, as the process of smoking goes on. A false floor, of sheet iron, perforated all over with holes, ¾ in. in diameter and 4 in. apart, must be placed (not fixed) inside the brickwork, on a level with the bottom of the wooden door-frame, viz. 3 ft. from the floor; this will serve to scatter the smoke equally in its ascent—be a preventive to danger from flame, if any should arise—and receive any small fish that may fall off the frames on which they are suspended. Four strong iron rods, with movable hooks on them, must be inserted in the brickwork near the top of the chimney, from which may be suspended sides of bacon, hams, heavy salmon, &c. &c. An outlet for the smoke must be made at or near the top, and a wooden pipe, 4 in. square, with a slide or valve in it (to confine or dismiss the smoke at pleasure), will completely rid the premises of any unpleasant odour. On each side of the chimney inside, and above the false floor, a framework of inch-square scantling must be fixed, with bars of wood of the same size nailed across to rest the rods and frames on; the bars must be fixed 11 in. above each other, and be continued until they come to the iron rods.

"The wooden rods or spits on which herrings are to be hung should be perfectly round, 3 ft. in length, ½-¾ in. in diameter, and pointed a little at one end that they may more easily be run through the gills of the fish. They may be of deal or any other tough

wood, and 16 herrings will smoke conveniently on each rod.

“Frames for sprats and other small fish must be made thus:—The rims or outsides may be of deal, ¾ in. thick, and 2 in. wide: the whole frame must be 3 ft. high, and 2 ft. 9 in. wide, that it may fit into the chimney without trouble; and on each end of the top bar must be screwed a small plate of thin iron, projecting beyond the side of the frame 1 in., which will serve to hang the frames upon with the bars that are fixed up the sides of the chimney. Then take small deal rods ½ in. square, and with a bradawl or sprig-bit insert 32 sprigs, at equal distances from each other, in each rod, which, of course, will be 2 ft. 9 in. long; and if the sprigs be driven through on each side, it will be seen that each rod will carry at this rate 64 fish. These must be nailed on to the outside frame at the distance of 4½ in. from each other, and consequently each frame, when completed, will have 8 bars holding 64 fish each, or 512 on each frame. Wrought-iron sprigs may be used, which (being more than an inch long, and driven up to the head) will project ½ in. on the other side, and thus serve to hang small fish on; but this is left to the choice of the party making the frames; and if they are driven in with the points directed upwards, it will be easy to loosen the fish, when smoked, from the nails by turning the frames upside down, and shaking them over a sheet laid on the floor.

“A horse or frame of wood of 2 in. square scantling, with ribs 1 in. square nailed across the sides, and 11 in. apart, will be requisite to hang the herring rods on, along with the frames, when they are drawn from the chimney; and for the purpose of

cooling the fish, it should be placed in a draught of air. Mackerel, or any other fish that will not suit the frames so well, may easily be suspended from the herring rods by small wire hooks made to run on them.

"The draught of smoke in the chimney may be increased or diminished at any time by opening more widely the iron door at the bottom; and if you want to inspect the articles while they are smoking, you may smother the smoke entirely for a few minutes by scattering sufficient sawdust over the embers: only take care that the sawdust is perfectly dry before attempting to use it.

"In putting the rods and frames into the chimney, be careful that the fish do not touch each other, but rather place them so that a free current of smoke may ascend between them; for instance, 3 in. apart. As to fuel, the fire may be lighted with shavings and chips of deal; but oak sawdust should be used generally, mixed sometimes with beech, birch, and other woods. I decidedly prefer the small branches of the oak, such as charcoal is made from, after it has been peeled for the tanners' bark: for these emit a much milder smoke than the sawdust of adult wood. They should be procured in the proper season, and stored in a dry room or shed. Never use old oak or other slabs (which are often little more than sap), nor old barrels, not knowing what their contents have been. As a general rule I would direct that, when delicate articles are to be smoked, you should make use of the milder woods, and dust mixed with oak; but for hams, bloaters, &c., the stronger flavour is the best. The embers must never be disturbed while any goods are smoking, as dust would ascend and spoil their appearance." ('Art of Curing.')

Salting. Bacon.—(1) Lay a middle of pork (a side with the hand and ham removed), with the ribs in, in a trough with salt for 12-14 hours; wipe dry, wash out the trough, and replace the side; boil for 10 minutes 1 gal. soft water, 2 lb. each common and bay salt, 2 oz. saltpetre, 2 lb. sugar, and a handful of chopped bay leaves; skim, pour on cold, rub in twice daily, and turn often for a fortnight; wipe dry, hang in the air for 24 hours, and smoke at least 3 weeks.

(2) Spiced. Remove all bones from a middle or side and soak for 12 hours in renewed pans of water to extract all blood; pickle for 16 days in 1 gal. water, 1 lb. each salt and sugar, and ¼ lb. sal prunelle; wipe dry, and strew one side with powdered sage, bay leaves and white pepper; roll tightly and tie at every 3 inches; smoke for 14 days.

Bath Chaps.—Select cheeks from pigs not exceeding 8 score; split, and remove all offal; for each stone of meat mix 1 lb. each of coarse sugar and bay or rock salt and 1 oz. each of pepper and saltpetre; rub well daily for a week; turn in the pickle for another fortnight; wipe dry, coat with warmed coarse oatmeal, and hang dry for a week; smoke for a month, preferably with oak and turf.

Beef, Collared.—Take 14-16 lb. of the flank of a well-fed beast; cut square or oblong and take off the inner skin; make a brine of bay salt and water to float an egg, and let the meat lie covered in it for one week; take out, dry well, and rub all over with finely powdered saltpetre; let remain for a week longer in the former pickle, then wipe it completely dry, and beat 1 oz. powdered white pepper, 1½ oz. grated nutmeg, 1 oz. mace, 1 oz. cloves, and four shallots, shredded fine, into a paste (in a mortar); spread evenly and completely over the inner side of the

meat; roll up the beef as closely as possible, tie tightly round with tape, and hang up to smoke for a fortnight.

Beef, Corned.—The following is a very old and excellent recipe for corning beef, called “Pocock pickle”; 4 gal. fresh water, 1½ lb. coarse brown sugar, 2 oz. saltpetre, 7 lb. common salt; put all into a boiler, take off the scum as it rises, and when well boiled let it remain to get cold. Have sufficient to cover the meat, lay a cloth over it, and keep the meat pressed down by means of bricks or any weight. The same pickle may be used again by re-boiling and adding a small quantity of each ingredient fresh.

Beef Hams.—Take the leg of a prime young heifer, rub well with common salt, and let lie a day and night to extract the blood; wipe dry, and put under a press to flatten; cut in the shape of a common ham. For every 12 lb. of beef, allow 1 lb. each coarse sugar, common salt, and bay salt, and 1 oz. saltpetre; rub this mixture in well, in all parts, for a month, turning the meat every day, at least; take out of pickle, rub dry, and give a good coat of coarse oatmeal and bran mixed, which will adhere by friction with the hand; smoke as hams, not less than a month.

Beef, Potted.—2 lb. lean beef, 6 oz. butter, 1 teaspoonful each pepper, salt, and mace. Free the beef from all skin and gristle, and put it into an earthenware jar with 1 gill water; cover, and place it in a deep stewpan full of boiling water, and simmer slowly for 5 hours. Take out the beef, mince it very finely, and pound it in a mortar with the above-named seasoning; when smooth, add the butter. Press the mixture into small pots, pour clarified butter over the top when cool, tie down, and keep in

a cool place.

Beef, Spiced.-½ lb. common salt, 1 oz. saltpetre, 2 oz. bay salt, 3 oz. moist sugar, ¼ oz. whole pepper, ¼ oz. long pepper, 2 blades mace, ¼ oz. whole allspice, 2 bay leaves, 5 or 6 sprigs of thyme, ditto marjoram, 2 stalks basil, 4 or 5 of white savoury. The whole to be boiled in 3 pints water for ½ hour, the saltpetre and bay salt to be pounded. The beef to be rubbed all over with a little salt previous to its being put in the pickle, when that is cold; 14-15 days to remain in pickle, turned often. This quantity of pickle is for a piece or hand of beef of 8 lb.

Bloaters, Potted.—Put 8 or 10 large bloaters (soft-roed ones are best) into a dish or tin, and cook them in an oven about 15-20 minutes; then, if thoroughly cooked, remove all the bones and skin, and put the fish into a mortar with a piece of butter (about 2 oz.), some cayenne pepper, a very little mixed spice, and salt if necessary. Pound all together till the paste may be spread, then put into pots and cover the top of each pot of the paste with mutton suet melted or good salt butter.

Boar's Head.—Take head of large bacon pig; open, and remove gullet, tongue, eyes, small bones, brain, &c., and cleanse out thoroughly with salt and water; wipe dry, rub with salt, and drain for 24 hours; boil together for ¼ hour 1 gal. water, 2 lb. each treacle and bay salt, 3 oz. sal prunelle, 2 oz. each juniper berries and pepper, 1 oz. shallots, and ½ oz. chopped garlic; skim, and pour cold over the head and tongue lying in deep stoneware vessel; turn on alternate days for a month; at end of first 2 weeks remove the tongue, boil up the pickle with 1 lb. more salt, and pour on again cold; on removing from pickle, wipe dry, and score lines 2 in. apart in the skin running

from nose to base of head; cut off any superfluous fat, and rub all over with dried oatmeal, skin the tongue and place it in the mouth, holding it with a skewer; close the sides with twine and smoke for 3 weeks in brown paper, using 3 parts birch and beech chips, 2 parts oak sawdust, and 1 part grass or fern; store in malt coomb and bake for table.

Brawn.—The head, feet, tongue, and ears of a pig, having been salted, are boiled with the outside skin of a loin, also salted for a few days. Boil very gently for a long time, till the bones will easily slip out. Take great care that every one is carefully picked out. Keep the skin of the loin whole, but cut the rest into pieces about 2 in. square. Line the brawn mould with the skin, then roll each piece lightly in mixed spice and powdered herbs, flavoured to taste. Pack them tightly in the brawn tin, put on the top, and press it with a heavy weight 24 hours. It is then ready for turning out. Keep it in the following pickle: Take a sufficient quantity of water (more than will be enough to cover your brawn); add to every gallon of water 2 handfuls whole malt, and salt enough to give it a strong relish. Let the mixture boil for 1 hour; then strain it into a clean vessel. When quite cold, pour it off into another vessel, keeping back the white sediment; then put in your brawn. A little vinegar maybe added, if liked. Fresh pickle should be made about once in 8 days, if the brawn is to be kept long. A common brawn tin is a cylinder of tin without top or bottom, but with 2 round pieces of tin which fit loosely inside it. The tin is about 5 in. diameter and 1 ft. in height. A heavy weight must fit inside it. Slack's fruit or meat press answers admirably.

Char, Potted.—The following is an old family

recipe: When in high season choose a dozen fine fish; clean and scale them; wash them twice, drying with a fresh cloth each time. Rub into them 1 oz. Jamaica pepper, 1 oz. saltpetre, 1 oz. common salt, all in the finest powder; lay the fish on a board, raised at one side, and let them drain for 12 hours. Then carefully wipe off the spice and salt, and season again with 48 cloves, 14 blades mace, 2 large nutmegs, ¼ oz. pepper, and 1 oz. common salt, all finely powdered. As each fish is seasoned, lay it carefully into the pan, which should be just large enough to hold the 12 fish; lay butter over them, cover with one white and several brown papers, tie down close, and bake 4-5 hours in a moderately quick oven. When a little cooled, drain the liquor from the fish, and lay them round a potting or char pan, backs upwards, as close as they will lie without breaking, and finish packing them in the centre. Smooth the surface with the bowl of a large spoon, that there be no cavities to absorb the butter, which must not be put on till the next day; then let it be ½ in. thick. The gravy, in small proportions, is an excellent addition to soups or made dishes.

Hamburgh Beef.—Take a piece of meat from the bed, or other fleshy part; scatter common salt under and over it, and let lie 24 hours to void the blood; then put into a pickle made with 1 gal. water that has been boiled, 1 lb. common salt, 1½ lb. coarse sugar, 2 oz. saltpetre, ½ pint vinegar; simmer until all are melted, and pour the liquor over the meat placed in a deep narrow pan, so that it may be covered completely; it will be ready for smoking in 3 weeks; well dry with a cloth, and rub pea meal all over it until you have got a coat on it; if well smoked, it will come out bright yellow, and will keep any length of time. (Robinson.)

Hams.—(1) Four days after being killed, rub them all over with common rough salt, particularly about the hip-bone and knuckle joints. Having brushed off the salt (which should remain on for a day and night), and dried the hams with a coarse cloth, rub thoroughly and equally into each, 1 oz. finely powdered saltpetre, and let it lie for 24 hours, then take 1 oz. saltpetre, ½ lb. common salt, ¼ lb. bay salt, 1 lb. coarse sugar. Make them hot in a pan—but be careful not to melt them—and rub them well in, while hot, all over the fleshy and rind sides, and finish with ½ lb. more of common salt. Let them lie thus until a brine appears, and then with plenty of bay leaves, strewed both under and over, turn them every day, and rub and baste them well with the brine for the space of 3 weeks; then take them out of pickle and immerse them in cold spring water for 24 hours; let them drip; wipe them well with a cloth; rub hog's blood, that has coagulated, all over them, and put them to smoke for a week, well smothered. (Robinson.)

(2) Three days after killing rub well with 1 oz. saltpetre, ½ lb. bay salt, 1 lb. treacle, and a handful each of bay leaves, marjoram, and thyme, chopped fine; keep on rubbing and basting for a week, turning over each day; next strew salt on an inch thick, and let remain till the salt and brine are well mixed; boil the pickle, and pour it hot (not scalding) over the meat; let lie for 14 days; smoke, without wiping, for a week in gentle heat for the first 6 hours and afterwards cool.

(3) Take a leg of pork about 20 lb. and rub all over with 3 oz. saltpetre; let lie 14 hours; then boil 2 qt. stale beer or porter, 2 lb. salt, 2 lb. coarse sugar, 1 lb. pounded bay salt, skim well, and pour hot over

the meat; let lie a month, rubbing and turning every alternate day; take out, rub dry, and roll for ½ hour in malt-dust or oatmeal; when well covered, smoke for 3 weeks; and immediately wash over with a hot paste of quicklime and water; leave for a week, and hang in cool dry place.

(4) Take a leg of pork 16-18 lb.; rub in 1 oz. sal prunelle and leave for 24 hours; boil 12 oz. bay salt, 10 oz. common salt, 1½ oz. saltpetre, 2 lb. treacle, 2 qt. vinegar, 3 heads garlic, and a handful of chopped sage; skim, pour hot over the meat, and well rub in daily for 10 days; let lie 10 days with frequent turning; dry, and smoke for 3 weeks.

Herrings.—The fish are spread on a floor, and sprinkled with salt; when sufficiently salted, they are thrown into large vats, and washed. Each fish is then threaded through the gills, on long thin spits holding 25 each. These are hung upon trestles in the smoking-room, where fires of oak-boughs are kept smouldering. For “bloaters,” to be consumed in England, the smoking lasts about 24 hours; “red-herrings” for export are salted more, and are smoked for 3 or 4 to 40 days, usually about 14 days. “Kippers” are taken while fresh, and split up. They are then washed, and thrown into vats with plenty of salt for a few minutes; finally they are spread out on tenter-hooks, on racks, and hung up for 8 hours’ smoking.

Herring Paste.—1 doz. herrings put in a pan, cover with hot water; when pretty soft, pull them to pieces, take out all the bones (use only white part of fish and soft roes), pound in a mortar, with ½ lb. butter, cayenne to taste, ¼ pint anchovy sauce; when well pounded, put into small pots with lard over. Will keep good for months, and will be found delicious.

Hungarian Beef.—Take about 10 lb. of fine fat short rib or sirloin of beef that has been killed 4 or 5 days; rub thoroughly with ½ lb. coarse sugar or treacle until none can be seen; after lying 2 days take 2 oz. juniper berries, ½ lb. bay salt, 2 oz. saltpetre, 1 oz. sal prunelle, 1 lb. common salt, all finely beaten to powder, and some bay leaves and thyme chopped small; rub in for an hour, and let lie for 3 weeks in an earthen pan, rubbing well every day with the brine; take out, wipe well, and plunge into cold water for 12 hours; rub perfectly dry, and colour with bullocks' blood; hang up in gentle smoke for 3 days, after which smoke until nearly black.

Mackerel.—Take the mackerel as soon as caught (for they quickly become dark and lose flavour), and with a light knife split open the back from head to tail; take out the guts, roes, livers, and gills, and be particular you do not burst the gall; wipe each fish well inside and out, and put into the following pickle:—1 gal. cold pure water, 1 oz. saltpetre, 2 lb. common salt, 1 lb. coarse sugar; if the fish be large and thick, let them lie in this state 6 hours; then take out and put two stretch laths across the back of each, extending them as much as possible; wash through the pickle once, and hang to dry for 2 hours; after which place in a hot smoke for 1 hour, and afterwards in a cool one for 20 hours, or until they become of a dark chestnut colour. When cold, pack them one on the other in bundles of 6, and keep them rather in a dry than in a damp room.

Mutton Hams.—Select a short, thick, round leg of wether mutton about 14 lb. weight; rub thoroughly for 20-30 minutes with coarse sugar, and let lie 12 hours, turning 3 times; plunge into the following pickle, with what sugar you have on the dish;-½ lb.

bay salt, 1 lb. common salt, 1 oz. saltpetre, 2 oz. juniper berries, 1 handful each of thyme and bay leaves, 2 qt. soft water; simmer together one hour, and use lukewarm; let remain in this pickle 3 weeks; take out, but do not wipe; then smoke, but insist on its being turned frequently, sometimes shank upwards, and *vice versâ*, for a fortnight, in a strong regular fume; when cold, put into a calico bag, and hang up in the kitchen until you want to dress it; then bury it in the bag in a dry garden soil for 20 hours or so; and take care, when it is boiled, to put plenty of bay leaves, thyme, and marjoram into the pot along with it. (Robinson.)

Norfolk Chine.—Select the chine of a 10-score pig; remove rind and superfluous fat, and rub and turn daily for a week in 1 lb. each salt and treacle, and 1 oz. each bay and laurel leaves; then boil 3 qt. water with 1 lb. salt, 1 oz. each crushed juniper berries and shredded bay and laurel leaves, and a handful each of thyme and marjoram; skim, and pour cold over the meat so that it mingles with the first pickle; turn for 3 weeks, wipe dry, and coat with bran and then pea flour; smoke for 14 days with equal proportions dried fern, oak lops, and birch or beech chips; bake and eat cold.

Oysters.—A method of preserving oysters is adopted by the Chinese. The fish are taken from the shells, plunged into boiling water for an instant, and then exposed to the sun till all the moisture is removed. They remain fresh for a long time, and retain their full flavour. Only the fattest can be so treated. Oysters are also largely “canned,” much in the same way as salmon.

Pickled Pork.—Cut into convenient sized pieces and remove principal bones; rub well with saltpetre

and then with a mixture of 2 parts bay salt and 1 part common salt; pack in a clean vessel with plenty of salt around the sides and covering the top.

Porker's Head.—Choose a dairy-fed porker of 7 score; open the head, and remove gullet, tongue, eyes, &c.; wash 5 minutes in salt and water; rub well all over with coarse sugar and sliced onions; let remain in a deep dish 48 hours; boil ½ oz. powdered bay leaves, ¾ oz. saltpetre, 1 lb. bay salt or rock salt, 2 oz. ground allspice, 1 qt. water; skim well, and when cold, pour it over the head in a deep straight-sided earthen vessel; let lie 3 weeks, turning and basting with the pickle every other day; wipe dry, place the tongue in (having meantime cured it as neats' tongue) and stuff all cavities with onions fried in olive oil or sweet lard, and powdered dried sage; bind the cheeks close together with tape, and smoke 3 weeks with 2 parts beech chips, 2 parts fern, 1 part peat, 1 part oak sawdust; keep in same packing as hams, tongues, &c., for 2 months; bake and eat cold.

Salmon.—The fish are beheaded and cleaned, and cut by a series of knives into the right lengths to fill 1 lb. cans. When these have been filled to within ¼ in. of the top, the covers are put on and soldered. In an air-tight condition, the full cans are passed to the boilers, vats measuring 5 ft. × 4 ft. × 4 ft., where they are steamed for 1 hour. They are then taken out and cooled. A small hole in the centre of each lid, hitherto remaining soldered up, is opened by applying a hot iron, and the air and cooking-gases are allowed to escape. The cans are then instantaneously made air-tight again, and are boiled for two hours in a bath of salted water, the salt being added to raise the boiling-point. They are then left to stand till quite cool.

Salmon, Kippered.—Lay the fish on a board with the tail towards you, and the back to the right hand; insert the knife at the point of the nose, and split down the backbone, or as near to it as possible. Take out the inside and the roe, and scale and wipe the fish perfectly clean; remove the backbone and every particle of blood. When clean, rub in a mixture of equal parts salt, brown sugar, and ground black pepper, about 4 large spoonfuls of each ingredient to a 10 lb. fish. Let the fish remain in the pickle 2-3 days, according to size, turning it every day. Afterwards press it between 2 flat stones in a cool place for 2-3 days more, then sprinkle it with ground pepper, and hang it out in the sun against a wall until dry, with wooden skewers to keep it flat, or it may be hung above the fireplace in the kitchen when it is warm, but not hot. After that it may be smoked for 2 days and nights in the smoke of dried seaweed and oak sawdust, or painted over with pyroligneous acid, or with Smith's Cambrian essence.

Salmon, Pickled.—Take a good salmon; cut it across in 2 or 3 pieces without splitting it; wash carefully and boil in pickle made with coarse salt and spring water strong enough to float an egg. The fish must be put down in cold pickle, and allowed very slowly to boil till it begins to separate from the bone, keeping it well skimmed all the while. Put the fish on a table to drain, and when cold pack it in a crock or keg as closely as possible without breaking the pieces, sprinkling a small quantity of powdered saltpetre, a little salt, and some bay leaves on each layer. Then cover with a pickle made thus: 1 qt. vinegar, 3 pints spring water, ¼ lb. lump sugar, 16 drops oil of cloves. This pickle will preserve any kind of fish fit for pickling, and is particularly good for oysters. These should be boiled slowly before put in

it.

Sardines.—The beheaded and cleaned fish are spread upon sieves, and plunged for 1 or 2 minutes beneath the surface of boiling oil in coppers. After draining a little, the fish are packed closely in tin boxes, which are filled up with pure cold oil, and soldered. The quality deteriorates with every immersion, owing to the matters disengaged by the boiling oil, and the coppers need frequent replenishing with oil.

Sausages.—(*a*) Take a quantity of pig's meat, remove all nerves and skin with great care; then chop it as finely as possible. Put it in an earthenware pan, add to it garlic, parsley, mint, thyme, marjoram, and burnet finely minced; pepper and cloves powdered; and salt, all in such proportions as taste may suggest. Work the whole with a wooden spoon for some time, so as to get all the ingredients well mixed; then add a tumblerful of white wine for every 2 lb. meat, and work it for some time longer. Have some skins perfectly cleaned, rub them well all over with lemon juice, and put them in water with plenty of lemon juice squeezed into it. Take them out one at a time, dry them, fill them with the meat, and tie them in lengths of about 3 in. The sausages should then be hung up to dry in a strong current of air for some days. These sausages are best eaten boiled with cabbages or greens. (The G. C.)

(*b*) Beef sausages are prepared in exactly the same manner as pork. The best part to use is beef steak. To 1 lb. of this use ¼ lb. beef suet or other good fat, ¼ pint stock, or water, 1½ oz. sifted breadcrumbs, 1 large teaspoonful salt, ½ teaspoonful dried and sifted parsley mixed with a similar quantity of thyme, and 1 small teaspoonful salt. If these sausages are

properly made and cooked, they will, when cut, give plenty of gravy; they are considered somewhat less rich than those made of pork.

(*c*) 1½ lb. pigmeat cut from the griskin, without any skin, 1½ lb. veal, 1½ lb. beef suet, the yolks and whites of 5 eggs, 1 dessertspoonful sifted sage (after being well dried), pepper and salt to taste. Chop the meat into small pieces, pound it together in a marble mortar till it is soft and tender, chop the suet very fine, and when the eggs are well beaten together (after the specks are taken out) pour the liquid over the pounded meat and chopped suet, kneading it well together with a clean hand, throwing in the sifted sage and pepper and salt from a coarse pepper-box during the operation, so as to let them impregnate the whole mass without being predominant in any part of it. Press the whole, when well mixed together, into a wide-mouthed jar, and keep it from the air in a cold place; roll the sausages on a floured board, and use very little grease in frying them, as they will be almost fat enough to fry themselves, with the aid of a frying-pan. They should be made into small flat cakes, about the size of a five-shilling piece. Lovelock's sausage-making machine is very useful.

(*d*) To each lb. veal put ½ lb. ham, in equal quantities of fat and lean. Season with ½ teaspoonful salt, a whole one of pepper, a pinch of nutmeg and sweet herbs; mix with 1 oz. sifted breadcrumbs, and moisten with 4 tablespoonfuls stock made from trimmings of the veal and ham. Proceed as for pork sausages.

Shrimps.—To preserve shrimps in a dried state, they are boiled for ½ hour with frequent sprinkling of salt; then spread out on hard dry ground, with

frequent turning, to dry and bleach for 3 or 4 days. They are then trampled to remove the shells, and are winnowed and bagged.

Shrimps, Potted.—Take some freshly boiled shrimps and half their weight of butter, pick out the meat from the tails, and chop it up fine; take the rest of the shrimps and pound them up with a little of the butter until reduced to a smooth paste, then add the meat from the tails and pound all together, seasoning well with pounded mace, grated nutmeg, and cayenne pepper; put it into pots, and cover with clarified butter.

Smoked Geese.—When geese are cheap, take as many as you please, only seeing that they are fresh, and not in the least damp or muggy; then cleanly draw, pick from pen-feathers, and wipe well out with a cloth dipped in strong salt and water; after which immerse in the following (quantities for 6 geese):—2 lb. coarse sugar, 1 lb. bay salt, 3 oz. saltpetre, 1 handful finely beaten sage, 3 shallots, 2 handfuls crushed bay leaves; boil together 10 minutes, and afterwards simmer ½ hour; when cold, pour over the geese, which must be turned often, and, if possible, kept covered with the pickle; let remain 48 hours; take out and let them drip (do not wipe), and rub cayenne pepper plentifully inside each until it adheres; smoke 3 days and nights in a cool smoke, and hang each up in a calico bag in the kitchen; when wanted for table, dissect them, and broil over a clear fire.

Smoked Neats' Tongues.—Take 6 tongues and rub well with sugar for 2 days; then rub well with common salt and saltpetre for 2 days more, apart from the sugar; then take 1 qt. each of water and porter, ¼ lb. saltpetre, 2 lb. bay salt, 2 lb. common

salt, and with the sugar first used make a hot pickle, which skim well, and pour over the tongues laid in a deep narrow tin pan completely covered; let lie for 8 days more, and they will be fit for use in any way; if to be smoked, wipe them well, and turn in the chimney 4 or 5 times for 5 days.

Sprats.—Pick out the largest, and then the second size, rejecting the remainder, or refuse, which, however, may be useful to pot. Put into baskets, and well wash in salt and water; then set to drain an hour, and afterwards plunge into a pickle that will float an egg: the smaller ones may be taken out of pickle in 4 hours, and the large ones in 6 hours, and be set to drain; which done, proceed to stick them on frames, the eye being pierced by each nail, and then, with a steady hand, put into the chimney. Set on a gentle heat for ½ hour, and let it be succeeded by a strong smoke for 12 hours longer; when cold, they will be fit for immediate consumption; but if you want them to keep a month or so, you must continue the smoke on them for 30 hours, or until they become a dark brown colour; and if for packing, they should be placed as bloaters, keeping the same-sized ones together in a dry room, and after a few hours they will have sweated in the packages, and will be very mellow and fine flavoured.

Sprats, Pickled.—For this purpose the sprats must be quite fresh and unsalted. Clean, take off the heads, and thoroughly wash them. Drain, and put in layers and rows, heads and tails, into china-lined earthen pie-dishes, wide, well glazed, or stoneware crocks, with whole pepper, allspice, chili-pods, and bay leaves; of the latter sparingly. Dissolve 1 spoonful salt in hot water, pour it over the fish, and add vinegar to cover them completely. Cover and

bake slowly for 1-2 hours, according to quantity, till all the fish are well cooked through. Take off the cover and let them cool before putting away for use. Add a little more vinegar if too dry. A few shallots or slices of silverskin onions can be added if approved of. Sprats pickled thus should come to the table in the vessel they are cooked in, and removed in layers. In cold weather, if kept for a week or two, the bones will be found to be quite dissolved by the action of the vinegar. Fresh herrings, trout, salmon peal, eels, and a variety of fresh-water fish can be thus prepared.

Sprats, Potted.—Pour some boiling (slightly salted) water on the sprats, cleaned as above-mentioned, in a deep pan. After a few minutes the meat can easily be removed from the bones. When this is done, mash it up finely and carefully with a silver fork. Add red and white pepper and a little more salt to taste. Grease 1 lb. jam-pots with clarified butter. Pack the fish closely into these, and bake for ½-1 hour in slow heat. When cold, pour some of the clarified butter or some American tinned marrow fat to the depth of 1 in. on the top of each pot, and allow to harden before tying down for use. These will keep well 1-3 weeks.

Tongues.—(*a*) Sprinkle the tongue well all over with common salt, and let it stand 2 days. If it appear slimy, remove the salt with the slime, then mix 1 lb. saltpetre and 1 tablespoonful coarse brown sugar together, with which rub the tongue well, and let it be in pickle 3-7 weeks, taking care to turn and baste it well every day during that time. If it be allowed to remain in pickle as long as 7 weeks, it should be taken out, rubbed dry, and hung up to keep for five days before using it. It is better,

however, not to keep them in so long, as tongues are always best used straight out of the pickle. Like all other boiled meats, tongues require great care in cooking. The fact is they never should boil; they should be soaked for 2 hours or more after they are taken out of the pickle, according to the number of weeks they have been in it, and should then be put into a large saucepan or stewpan in cold water. As soon as this shows symptoms of boiling, and before it begins regularly to boil, the pan should be drawn sufficiently to the side of the fire to keep up a constant simmering, to be kept up until it is done. In this way the tongue will be as tender as possible, and, cured with saltpetre as described, it should have a nice red colour.

(*b*) ½ oz. saltpetre, ½ oz. salprunella, 1 lb. salt, ½ lb. very coarse sugar, 4 bay leaves, 10 juniper berries, 1 tablespoonful vinegar, and 3 pints water. Let all boil for ½ hour, skim off the scum, and pour the liquid into a pickling dish, when it is quite cold put the tongue in, and turn it every day for 3 weeks, if you wish to cook it green, but if you intend to hang it, let it stop for a month in pickle. This pickle will keep good for months if reboiled and skimmed. Every tongue put in should be well rubbed with salt, left to drain for 3 days, and wiped dry before being put in.

Trout, Potted.—(*a*) Pour boiling water on the fish, and let them steep ½ hour; bone and skin them, and pound them in a mortar with ½ lb. butter to double the quantity of fish; add by degrees, salt, cayenne, and spices to taste; when reduced to a smooth paste, put it into pots and cover with clarified fat or butter.

(*b*) Mix together the following quantity of spices, all finely pounded. 1 oz. cloves, ½ oz. Jamaica

pepper, ¼ oz. black pepper, ¼ oz. cayenne, 2 nutmegs, a little mace, and 2 teaspoonfuls ginger; add the weight of the spices and half as much again of salt, and mix all thoroughly. Clean the fish, and cut off the heads, fins, and tails; put 1 teaspoonful of the mixed spices into each fish, and lay them in a deep earthen jar with the backs downwards; cover them with clarified butter, tie a paper over the mouth of the jar, and bake them slowly for 8 hours. When the backbone is tender the fish are done enough. Take them out of the jar and put them in a pan with the backs upwards; cover them with a board, and place a heavy weight upon it. When perfectly cold remove the fish into fresh jars, smooth them with a knife, and cover them with clarified butter.

Pickling.—The chief agent in pickling is hot vinegar, and the best way to prepare it is as follows:—Bruise ¼ lb. each of black pepper, ginger, cloves, pimento, and mace, with some garlic, horse-radish, capsicums, and shallots, in 1 qt. of the strongest and best vinegar in a stoneware jar; cork tightly, cover with a bladder soaked in the pickle, and place on a trivet near the fire for 3 days, shaking it up 3 or 4 times a day. Gherkins and similar articles should be pricked before immersion, to admit the pickle better. The addition of a little alkali (such as soda bicarbonate) heightens the green colour of the pickles. Glazed or block-tin vessels should alone be used for making pickles in. Glass or earthenware jars are best for strong pickles; they must be tightly corked and tied down with bladder soaked in the pickling liquor. A damp store cupboard is fatal to them.

Cabbage.—Choose a fine closely-grown red

cabbage, strip the outside leaves off, cut it across in rather thin slices, and lay on a dish, scattering salt over; cover with a cloth, and let lie 20 hours; drain the cabbage on a sieve, and put it in a clean jar with allspice, whole pepper, and a little ginger sliced; pour cold white wine vinegar over it to cover it well, and tie closely from the air.

Chutney.—(*a*) Cayenne pepper, ¼ oz.; mustard seed, 2 oz.; brown sugar, ½ lb.; ground ginger, 1 oz.; vinegar, 1½ pint; stoned raisins, ¼ lb.; garlic, 2 oz.; onions, ¼ lb.; salt, 2 oz.; apples, 1½ lb. Boil until soft enough to mash through a colander. (C. G. J.)

(*b*) Peel 4 lb. green mangoes, take out the stones, and cut them into quarters lengthwise; boil them slightly in 1 bottle vinegar, and put it aside in a jar till cold. Take another bottle of vinegar, to which add 2 lb. sugar, and boil it till it becomes a thin syrup; put aside till cold. Take 1 oz. salt, 2 lb. picked and dried raisins, 1 oz. yellow mustard seed, 1 oz. garlic, 2 oz. dried chillies, 1 lb. green ginger sliced. Pound the garlic, chillies, and ginger finely in a mortar; mix all the ingredients together, bottle and expose to the sun for 3-4 days, or place it in a cool oven. Apples can be used instead of mangoes; they should be finely cut up.

(*c*) Apple.—6 large sharp apples, 3 large onions, 6 oz. sultana raisins, 1 teaspoonful ground ginger, 1 saltspoonful red pepper, 1 dessertspoonful salt, 2 tablespoonfuls tomato sauce or the pulp of 2 or 3 tomatoes, 1 dessertspoonful anchovy essence, 1 dessertspoonful Indian soy, 1 tablespoonful salad oil, ½ vinegar. Chop very finely the apples and onions, and chop the raisins roughly. Now put all the ingredients, with the exception of the vinegar, into a mortar, and pound together, and by degrees add the

vinegar. When all the ingredients are well blended together, put into wide-mouthed bottles, and cork tightly.

(*d*) Elder.—The berries that remain from elder ketchup, an onion finely minced, ¼ oz. ginger, and a blade of mace and 6 cloves; pound the spice together, and put all the ingredients into an enamelled stewpan, with 3 oz. sultana raisins, 2 oz. Demerara sugar, ½ pint vinegar, 1 saltspoonful cayenne pepper, and 1 teaspoonful salt, and, if convenient, a few mulberries; boil all together 5 minutes, take from the fire, and, when cold, put into wide-mouthed bottles, and cork tightly. This makes a very good chutney for cold meat; it can be made hotter if liked.

(*e*) Green Gooseberry.—4 pints green gooseberries boiled in 1½ pint brown vinegar, 2 lb. brown sugar made into a syrup, 1½ pint vinegar; 1½ lb. raisins, stoned and chopped; 6 oz. garlic, pounded and dried; 6 oz. mustard seed, gently dried and bruised; 2 oz. dried chillies, pounded. Mix all together, put in a cool oven for some hours on several different occasions; and after, if too dry, add a little vinegar, as may be required, at the end of a month or two.

(*f*) Tomato.—Take 4-5 lb. ripe tomatoes, pick out the stalks, wipe the fruit with a dry piece of flannel, place them in a jar with a lid, add a breakfastcupful of salt, the same of vinegar, close the jar by placing a stiff paste of flour and water round the edge of the lid so as to make it air-tight, place the jar in a large pan of boiling water, let the fruit simmer slowly for 6 hours, then pulp through a colander to get quit of the skins and cores. Shred 2 oz. red chillies, the same of garlic, make a syrup of 2 pints vinegar and 2 lb. loaf sugar, cut small 2 oz. ginger, mix all with the

tomatoes, place on a slow fire, simmer gently; when it comes to the boil take off the chutney, bottle when cold, cork tight, keep in a warm, dry place.

Cucumbers.—Cut them small and unripe; make an incision at the side, and, taking out a piece of the fruit, save it entire, and extract the seeds thoroughly; put the cucumbers, with the pieces which have been cut from them, into a strong pickle of salt and water, and leave in it for 10 days, or until they become yellow; place in a pan, with thick layers of fresh vine leaves between them; dissolve a little powdered alum in the brine from which they have been taken, pour it on, and set the pan over a moderate fire; keep the cucumbers at a scalding heat for 4 hours at least, without on any account allowing them to boil; by that time they will be of a fine green colour; drain on a sieve, and when cold put a stick of horse-radish, some mustard seed, 4 cloves of garlic, and ¼ oz. of peppercorns into each cucumber; fit in the piece that was taken out, and stitch with a needle and green silk; boil 2 oz. each of black peppercorns, long pepper, and sliced ginger, 4 oz. mustard seed, 1 oz. each of garlic, mace, and cloves, and 1 gal. best white wine vinegar, together for 8 minutes; lay the cucumbers in a deep jar, and when the pickle is cold pour it on; tie first bladder, and then leather, closely over.

Gherkins.—Soak 250 gherkins in a pickle of 2½ lb. common salt to 1 gal. water; let lie 3 hours; drain on a sieve, wipe separately, and place in a jar; boil 1 gal. best white wine vinegar, 6 oz. common salt, 1 oz. each of allspice and mustard seed, ½ oz. each of cloves and mace, 1 sliced nutmeg, and 1 stick of horse-radish, sliced, for 12 minutes; skim well, and pour when cold over the gherkins; let stand 20 hours

covered up close; put altogether into a pan over the fire, and let simmer only until they attain a nice green colour; place in jars, pour the liquor and spices over them, and tie closely with bladder and leather.

Grapes.—The grapes must be carefully cut from the stalk before they are ripe, and care must be taken not to bruise the skin, or they will become soft instead of crisp. Boil 4 pints vinegar, 2 oz. whole ginger, 1 oz. peppercorns, 2 doz. cloves, and a very small piece of mace. When cold pour it over the grapes, and let them be well covered, and remain 3 days; then boil the vinegar again, and pour it cold on the grapes. Bottle and cork securely.

Grape Leaves.—A writer in the *Country Gentleman* recommends the use of fresh green grape-leaves to place on top of pickles in jars in place of flannel or other cloth usually employed. He claims the leaves will preserve the vinegar sharp and clear and impart a nice flavour. The leaves should be rinsed in pure water and left to drain before use, and occasionally changed. They exclude the air, and besides imparting a delightful flavour to the pickle cause less trouble to the housewife.

Ketchup.—(*a*) Elder.—Put into a jar 3 pints elderberries, picked from the stalks, 2 large blades of mace, 2 oz. ginger, 6 oz. anchovies, ½ oz. whole pepper, 1½ pint vinegar; set it in a rather cool oven, and let it remain there all night. Next morning strain the liquor from the berries, and put into an enamelled stewpan, with the ginger, mace, anchovies, pepper and salt; let it boil till the anchovies are dissolved. Strain off, and, when cold, put into small bottles, cork and seal. This is a nice ketchup for broiled fish. The berries will make a chutney.

(*b*) Mushroom.—The mushrooms should be gathered in the morning before the sun is on them. Break them in small bits, put them in a large dish, and sprinkle a good deal of salt upon them; let them lie for 4 days, turning them daily, and adding a little salt. Lay the pieces upon a sieve, or put them in a thin bag. Let them run all night until the juice is all run from them; put the juice in a stewpan, beat up the whites of 2 eggs, add them to the ketchup, with plenty of mixed spices. Let it boil for one minute, run it through a piece of muslin into a basin, and when cold bottle it up, cork, and seal it; keep it in a dry place.

(*c*) Ditto.—Break up the mushrooms, and add ¼ lb. salt to every 3½ lb. mushrooms; let them stand for 2 days, and drain all the juice you can procure from them by pressure; then boil it slowly for an hour, with 2 oz. of salt, a few cloves, and ¼ oz. peppercorns and whole ginger, to each qt.; then strain, and when cold bottle, using new corks, and sealing them down.

(*d*) Ditto.—Take for this full-grown flap mushrooms, crush them with the hands, and put a handful of salt to every peck; let them stand all night, then put into broad-mouthed jars, and set them for 12 hours in a quick oven, then strain through a hair sieve. To every qt. of liquor put ¼ oz. cloves, black pepper, and ginger; boil till half is wasted; when cold bottle for use.

(*e*) Walnut.—Take 6 half-sieves of green walnut shells, put them into a tub, mix up well with 2-3 lb. common salt; let them stand for 6 days, frequently beating and mashing them, till the shells become soft and pulpy, then, by banking it up on one side the tub, at the same time raising the tub on that side, the

liquor will drain clear off to the other; then take that liquor out. The mashing may be repeated as often as liquor is found. The quantity will be about 6 qt. When done, let it be simmered in an iron boiler as long as any scum rises; then bruise ¼ lb. ginger, ¼ lb. allspice, 2 oz. long pepper, 2 oz. cloves; let it slowly boil ½ hour. When bottled, let an equal quantity of spice go into each bottle, cork them tight, seal them over, and put them into a cool, dry place for one year before they are used. (C. G. J.)

Lemon.—Grate the rind from 1½ doz. lemons, taking care only to remove the extreme outer coating, leaving the white well covered with a tinge of yellow. Cut them in quarters, but do not let the knife go quite through them, leaving just enough at the bottom to hold the quarters together; rub ¾ lb. bay salt equally over them, and spread them out on a dish. Place this in a cool oven, and let them remain there until the juice has dried into the peels. This, if preferred, may be done in front of the fire, but it must be done very gradually. When the juice is so absorbed, put the lemons in a large jar, with somewhat less than 1 oz. mace, the same of grated nutmeg, half the quantity of pounded cloves, 3 oz. peeled garlic, and ¾ breakfastcupful mustard seed bruised a little and tied in a muslin bag. Over all this pour 3 pints boiling vinegar, close the jar well, and stand it near the fire for 4-5 days, shaking it up every day. Then tie it up and let it remain for 3 months to take off the bitter taste of the peels. At the end of this time turn the whole out on to a hair sieve, moving it about to get out the liquor; let it stand a day, and then pour off the fine part and bottle it. The other part must stand for 3 days more, and it will refine itself. Pour it off and bottle it, let it stand again and bottle it, till the whole is refined. It may

be put in any sauce, and will not spoil the colour. If for white sauce, 1 teaspoonful is enough, or 2 for brown sauce. Should cream be used in the sauce, the pickle must be put in before the cream or other thickening is added, or it will probably cause it to curdle.

Mixed Pickles.—1 gal. vinegar, sixpennyworth turmeric, 2 oz. black pepper ground, 2 oz. long ditto pounded, 1 oz. cloves pounded, 4 oz. flour of mustard, 3 oz. mustard seed, whole cayenne to your taste, 2 oz. ginger pounded fine, white cabbage cut in slices, quantities of horseradish scraped, ½ pint garlic, 1 pint shallots, 2 doz. large onions cut in quarters, a cucumber, a cauliflower, a few French beans, and a few radish pods, plenty of capsicums. Lay them in a red pan. You cannot put too much salt about them. Let the vegetables remain 3 days in salt, then strain them out and shake them. Lay them on a linen cloth in the sun to dry, then put them into your jar near the fire. Then boil all your spice with the vinegar, and pour it on boiling off the fire. They will be fit to use in 2 months. For an ordinary family ¼ of the above, with half the vegetables, will be found sufficient to make at a time.

Mushrooms.—Take the smallest and roundest button mushrooms, throw into cold water, and rub each separately with a piece of flannel dipped in salt to clean them thoroughly; put them again, as you proceed, into fresh cold water, and finally into a pan with a handful of table salt scattered over them on a moderate fire, covering them close that the steam may not escape, for 10 minutes, or until they are thoroughly hot and the water is drawn well out of them; pour them on a sieve, and quickly dry them well between the cloths; let remain covered up from

the air till they are cold; place in clean dry glass bottles with a little mace, and fill up with distilled or white wine vinegar, adding to each bottle a teaspoonful of salad oil; cork and seal them up so as to exclude air.

Nasturtiums.—Gather within a week after the blossoms have fallen off; take a gallon of them, and throw into a pail of salt and water, cold, in which to keep them, changing the water 3 times at least, 3 days and nights; lay in a sieve to drain, and rub perfectly dry between cloths; boil for ten minutes 1 gal. white wine vinegar, 1 oz. each of mace and nutmeg, 2 oz. white peppercorns, 4 sliced shallots, and 4 oz. common salt; skim well, and when nearly cold, pour the whole over the fruit placed in jars, and tie close.

Onions.—Take the smallest clear silver onions; after peeling, immerse in cold salt and water, and let lie for 10 days, changing the pickle daily; drain on a sieve, put into a jar, pour newly-made brine of salt and water boiling hot over them, and let stand closely covered, until cold; repeat the scalding with new pickle, and, when cold and well drained, put in bottles or jars, with a slice or two of the best ginger, a blade of mace, and a bay leaf; fill up with distilled vinegar, and be sure to add salad oil to float on the top; tie close, and seal down.

Piccalilli.—Slice up a closely-grown, sound-hearted white cabbage and a sound white beetroot, with a cauliflower divided into several small branches, a few clear gherkins, some radish-pods, and kidney beans; lay in a sieve with two or three handfuls of common salt scattered over, and expose to the sun or fire for 4 days; when you think all the water is extracted from them, put them into a large

stoneware pan, mixing well, and scattering plenty of good sound mustard seed amongst them as you go on; to each gallon of best vinegar, add 3 oz. peeled and sliced garlic, and 1½ oz. turmeric; boil, skim well, and pour the liquor while hot over the vegetables; let them lie 10 days, at least, with strong paper tied over, near a fire, until they have become a fine yellow colour, and have imbibed a fair quantity of the vinegar; then boil 3 qt. best white wine vinegar, 1½ oz. each of white pepper and mace, and ½ oz. each of long pepper, nutmegs, and cloves, for 10 minutes; skim well, and pour all over the pickles; tie the jar with bladder and leather.

Samphire.—By persons living near the sea it is usually preserved, when freshly gathered, in equal parts vinegar and sea water, or even sometimes in the water only; but when brought inland it should be steeped 2 days in brine, then drained, and put into a stone jar, covered with vinegar, and having a lid, over which put a thick paste of flour and water, and set it in a very cool oven all night, or in a warmer oven till it nearly but not quite boils. Then let it stand on a warm hob for ½ hour, and allow it to become quite cold before the paste is removed; then add cold vinegar if any more is required, and secure as other pickles.

Tomato.—(*a*) Gather 4 doz. tomatoes when turned, but not too ripe. Lay them in salt and water for 2 days, changing them twice; drain them, and dry them in a coarse cloth; put them in a pickling jar. To 1 gal. vinegar add 1 oz. ginger, shred, 1 oz. whole pepper, ½ oz. cloves, 1 pint mustard seeds, and 2 tablespoonfuls mustard flour, curry powder, turmeric, 2 oz. garlic, 2 oz. shallots, shred, 1 oz. bay salt, and a little common salt. Half of the spice to be

strewed in the jar, and the other half to be boiled in the vinegar, and to be poured hot over the tomatoes; then let them be covered close with a flannel, and a weight at the top to keep in the steam, and let them stand in the chimney corner for 2 days, but not too near the fire. The vinegar must be boiled up twice more, and poured over the tomatoes as before. When quite cold fill up with more vinegar previously boiled, so that the tomatoes are covered and tied up with bladder.

(*b*) Cut some green tomatoes in slices, sprinkle them with salt, and let them stand 12-15 hours, drain, and put them in a saucepan over the fire with fresh water, changing it until all the salt is washed out. When thoroughly scalded and partially cooked, drain them again and put them into a boiling hot syrup, made with 1 pint vinegar, 3 lb. sugar, ½ oz. cinnamon, ¼ oz. cloves, simmer them in this until tender, then carefully lift them out and put them into jars, reduce the syrup and pour it over them. After a day or two boil up the syrup again, pour it afresh over the tomatoes, and when cold tie them down carefully.

Vinegar.—(*a*) To every gal. water put 2 lb. coarsest West India sugar; boil and skim this. Pour the mixture into a common clean washing mug, and, when sufficiently cool, take 4 pints from it into a basin, and stir well into it ½*d.* worth good fresh yeast if 3 gal. vinegar are to be made, or in that proportion, and set the basin, near a fire, covered with a cloth, to get it to work. When this end is obtained, put it back to the larger quantity from which it came, and which ought to be still lukewarm; stir well round with a wooden preserving spoon, and cover the mug with a cloth, and in a few hours, or by

next morning (if made in an evening) the mixture will be found in full work. Let it stand one week from the day it was made, then carefully skim the barm off it, and put it into a barrel or mug in a warm place in winter, or in the sun in summer. It will be fit for use in 4-6 months, and then bottle off for use. As soon as you have bottled off a making of vinegar, immediately begin again, as the jelly-like "mother," called the vinegar plant, formed on the surface by the time it is ready for bottling, helps the making of the next vinegar. Add it on pouring the mixture into the barrel or closed mug.

(*b*) Make vinegar from a vinegar plant by mixing ½ lb. coarse brown sugar and ½ lb. treacle with 5 pints water, stirring it until all the sugar is dissolved; then laying the fungus on the top, and covering it with thick brown paper tied down. In 6 weeks (or a little longer in cold weather), the liquid is turned to vinegar, and must then be strained off and bottled, and a fresh mixture made for the plant. It must be put in a white ware vessel—a washstand basin is very suitable, as the vinegar corrodes the yellow glazed ware, and is injurious. The plant does not get useless if kept "going," but improves by growing thicker.

(*c*) Best of all, buy Beaufoy's vinegar, and run no risk of subsequent fermentations.

Vinegar, Primrose.—To 18 qt. water add 6 lb. moist sugar; boil and stir it very well. Let it stand until it is just warm, then add 1 peck primroses with their stalks, and a little yeast. Let it stand all night, then put it into a cask, bung it up, and allow it to remain for 2 months. Then give it a little air, and let it stand 2-3 months longer. Then taste, and, if not sour, let it stand till it is. It must be placed in a warm

situation: a great deal depends on where it is kept.

Vinegar, Raspberry.—Put 1 lb. very fine raspberries in a bowl, bruise them well, and pour upon them 1 qt. best cider vinegar; next day strain the liquor on 1 lb. fresh ripe raspberries, bruise them also, and on the following day do the same, but do not squeeze the fruit, or it will make it ferment, only drain the liquor as dry as you can from the fruit. The last time pass it through a canvas bag, previously wetted with vinegar to prevent waste. Put the juice into a stone jar with 1 lb. sugar to every pint of juice; the sugar must be broken into lumps, stir it, and when melted, put the jars into a saucepan of water, let it simmer a little, skim and remove from the fire. When cool, bottle off.

Vinegar, Tarragon.—Gather full-grown shoots of tarragon the day before they are wanted. Fill a ½ gal. jar with as many as it will hold without pressing them down; add 3 cloves and the thin rind of 1 lemon, and fill up the jar with white wine vinegar; leave it, tightly corked, exposed to the sun for 2-3 weeks, then strain off the vinegar, wringing the tarragon in a cloth, filter it through paper, and bottle it.

Walnuts.—Take 50 large walnuts gathered before the shell is hard; folding them separately in vine leaves, place them in a jar amidst plenty more leaves, so that they do not touch each other; fill up so as to cover them with best pale vinegar, and tie down closely that the air may be excluded; let stand 20 days; then pour off the vinegar and wrap the fruit again in fresh leaves, and fill up the jar again with fresh pale vinegar, standing 14 days longer; take off the leaves, put them in a jar, and make a pickle of white wine vinegar and salt that will float an egg, in

which simmer for ¼ hour ¼ oz. mace, ½ oz. each of cloves and nutmeg, and 2 heads of garlic, peeled and sliced; pour hot over the walnuts; tie close with bladder and leather.

Preserving with Sugar.—This embraces the whole range of jams and jellies, which closely resemble each other. In all cases the fruit must be fully ripe, gathered quite dry, and freed of stems, &c., but stone fruits should not be stoned. The chief differences consist in the proportion of sugar required and the duration of the boiling, which latter should always be done in a copper pan. The scum must be removed as it rises in boiling. For the most popular jams the quantities and times are as follow:—

Black currant	1	of fruit to	1	of sugar;	10	minutes
Raspberry	1	” ”	1	”	½	hour
Strawberry	1	” ”	1	”	20	minutes
Gooseberry	6	” ”	4	”	2	hours
Red currant	1	” ”	1	”	10	minutes
Blackberry	1	” ”	½	”	1	hour
Cherry (stoned)	2	” ”	1	”	till stiff	

Keeping Jams.—A not unfrequent cause for their becoming mouldy is that the jars in which jams are kept are sometimes not perfectly dry when the jam is put into them. The jam-pots put away from last year will necessarily be dusty, and require washing; and with thoughtless servants it but too often happens that they will wash the jars the same day the jam is made. They may imagine they have dried them with a cloth, but probably a slight dampness still remains which would be quite sufficient to cause the best-boiled preserve to turn mouldy, even if afterwards kept in a dry place. Have jars washed the day before they are used, have them washed in very hot water, and, after drying with a cloth, have them put down in trayfuls before the kitchen fire, to do away with the possibility of damp. The jars should then be set aside in the kitchen until the next day, covering them with cloths to keep out the dust. For making common jams, such as red and black currants, raspberries, gooseberries (and strawberries when not to be preserved whole), allow ¾ lb. loaf preserving-sugar to every lb. of fruit after it has been picked from the stalk. The fruit must be picked on a dry day, and should be ripe, but not bruised or injured.

Set the fruit on the hot plate or fire in a large copper preserving pan, which must, of course, be as bright and clean as possible; let it cook gently, until it is hot through and the juice begins to run out, then add the sugar gradually (this must have been previously crushed, but need not be pounded); keep stirring with a long-handled wooden spoon, when it comes to the boil let it remain boiling for ¾ hour, then try if it will set by putting a few drops on a cold plate, and when this condition is arrived at, pour it off into jars prepared as described. Some jams do not take so long to boil as others, so it is as well to begin to try whether they will set after they have been boiling ½ hour. Many people carefully take off all the scum as it rises, but it is quite unnecessary; if properly boiled, and constantly stirred, it will all disappear before the jam is ready to be poured off, preventing the great waste caused when it is skimmed. Care must be taken to stir constantly during the whole process. After filling the jars, let them stand till next day, when they must be tied down and set in a dry, cool place to keep.

Bottling Fruit.—Have ready some wide-necked glass bottles, with good-fitting corks and some wax to cover the corks with, in order to prevent any air from entering. The wax is prepared thus: 1 lb. common rosin, ¼ lb. beeswax, ¼ lb. tallow; pound the rosin fine, and cut the beeswax into shreds; put the rosin, wax, and tallow into an old tin, and melt the mixture gradually over the fire; boil it gently for 5 minutes, stirring it well with a smooth, flat stick. It must be kept hot enough to run easily while being put on the corks. Fill the bottles with fruit, and set them in a boiler of warm water (not hot) up to their necks, without letting any water enter the bottles; have some warm syrup ready, made in the

proportion of ¼ lb. loaf sugar to 1 pint water, boiled 10 minutes, and then allowed to cool until lukewarm; fill the bottles with this syrup, and let it cover the fruit, just leaving enough space for the cork to fit in. The bottles must not be corked. Set the boiler on the fire; a little straw should be placed on the bottom of the boiler to prevent the bottles from cracking. When the water has boiled for 10 minutes, take one bottle out at a time, cork it at once, and run the wax all over the cork, spreading it evenly with the flat stick, being careful to cover every part, lest the air should enter, and so peril the safe keeping. Gooseberries will require 10 minutes' boiling; and raspberries, strawberries, and currants about 5 minutes. Plums must have ¼ hour if large. Whatever fruit is done in this way must be thoroughly heated through, and then rendered air-tight. Should there be a flaw in the glass bottle, it will probably crack while in the boiling water; but these unpleasant accidents have to be put up with. This mode of bottling fruit is very good when the fruit is required to be kept as whole as possible. Another method is to allow ¼ lb. sugar to each lb. of fruit. Put the sugar in a preserving pan, with sufficient hot water to moisten the bottom well and help the sugar to melt. When all the sugar is melted, put in the fruit, and let it boil rapidly for 10 minutes; if raspberries or small fruit, 5 minutes is enough. It does not need skimming. Have some hot jars or bottles ready, and pour the boiling fruit into the hot bottles; cork directly each one is filled, and wax it over, or paste 3 layers good paper over each bottle. When dry, these 3 layers of paper will be equal to parchment, and are sure to exclude the air. The reason why the fruit must be put into the bottles boiling hot is because the heat expels the air contained in the bottles, which must be secured

immediately they are filled, else the air will rush in directly they begin to cool. Having the bottles in a bath of hot water before filling them with the hot fruit prevents the glass cracking. The bottles need not be dried, but a good shake must be given to free them as much as possible from the water. For green gooseberries or rhubarb, it is better to use ½ lb. sugar to 1 lb. fruit.

Apple Ginger.—2 lb. Ribstone or other hard apples, pare, core, and cut them into 8 pieces, put them into cold water whilst doing this to preserve their colour; make the syrup of 3 lb. white sugar, a little water, and 4 oz. tincture of ginger (not Oxley's). Put in the apples and simmer very slowly until transparent. The pieces of apple should be kept whole. It will keep for a year.

Apple Jam.—Select good baking apples, which cut in round slices into a brown milk-pan, taking out the cores; to every 1 lb. apples add 1 lb. brown sugar; to the panful add the juice and peel of 4 lemons, ½ lb. whole young ginger, and 1 oz. cloves. Let all stand till next day, when boil. The slices become of an amber colour, and perfectly clear when sufficiently boiled.

Apple Jelly.—Choose apples with red skins, wipe, and cut into quarters, do not peel them. To each lb. fruit put 3 pints cold water, bring to a boil, then boil rapidly for 30 minutes. Strain, and to every pint juice allow 1 lb. loaf sugar, return to the pan, and again boil rapidly for 30 minutes.

Apple Marmalade.—(*a*) Peel, core, and thinly slice, good cooking apples (apples that cook to a smooth pulp easily); allow ¾ lb. loaf sugar to 1 lb. apples; put the sugar in a preserving pan (a tin or iron saucepan will turn them black), with ½ teacupful

water to 6 lb. sugar; let it gradually melt, and boil it for 10 minutes. Then put in the sliced apple, and a few cloves, cinnamon, or lemon peel, to flavour if liked. Boil rapidly for an hour, skim well, and put in jam-pots. It should be quite a smooth pulp, clear, and a bright amber colour. Will keep good for 12 months. (*b*) Another way, to look like orange marmalade: Choose hard apples that do not cook to a soft pulp, such as russets; core, but do not peel them; make a syrup of 3 lb. loaf sugar to 1 pint water, and boil it rapidly for 20 minutes to make it syrup. Put in the apple thinly sliced, and boil quickly for an hour; flavour as preferred. This marmalade bears a great resemblance to orange marmalade in appearance, if the right kind of apples are chosen. Sufficient syrup should be made to ¾ cover the apples. Stir frequently.

Barberries, Preserved.—(*a*) Put them into a jar in layers, a good sprinkling of salt between each layer. (*b*) Take some bunches of barberries and tie several together; make a syrup with ¾ pint water to every lb. sugar, clarify it with white of egg. When quite clear throw in the bunches of fruit, and boil quickly until the fruit looks quite clear. Put them into jars, pour the syrup over them, and when cold tie them down.

Beetroot, Preserved.—Peel, trim, and slice in rather thick slices, some beetroots, fill some wide-mouthed jars about ¾ full with them, then add ½ oz. pounded sugar, 3 or 4 cloves, and either ¼ oz. coriander seeds or ½ oz. carraway seeds to every 1 lb. beetroot; fill up the jars with boiled vinegar, fasten them down with bladder.

Blackberry Jam.—For this it is necessary that the fruit should be quite ripe and perfectly dry when

gathered. After picking from the stalks, weigh it, and allow ¾ lb. crushed white preserving sugar to every lb. of fruit. Set them together over a slow fire, stirring with a wooden or silver spoon to prevent burning at first, before the juice begins to run from the berries. The stirring must be almost constant during the whole process, as for any other sort of jam. After coming to the boil, it will be about ½ hour before it jellies, which must be ascertained by putting a very little from time to time on a cool plate. Some people very carefully take off the scum as it rises, but it is not really necessary; if constantly stirred, it will all disappear in the process of boiling, avoiding the waste caused by skimming, while the jam itself keeps equally well. When done, pour it off into jars, taking care that they are quite dry; let them stand till next day, cover the jars with paper, and put them by to keep in a cool, dry place. Another way is to mix ¼ lb. any good cooking apples, weighed after paring and cutting up, to every lb. blackberries; the sharper the kind of apple the better, but they must be ripe. More sugar is required when done in this way, 1¾ lb. sugar to every 2 lb. fruit. The grated rind and strained juice of lemons are also used with blackberries instead of apples, the larger proportion of sugar being allowed, and one lemon (small) to every 2 lb. berries. Some people object very much to the small seeds in this jam. These may be avoided by rubbing the fruit through a sieve as soon as it is sufficiently cooked to admit of it; it must then be put back into the preserving pan to boil till it sets. In this way, supposing the jam to be made of blackberries alone, half its own weight of sugar will be enough when weighing the uncooked fruit, as so much is afterwards lost by removing the seeds.

Blackberry Jelly.—(*a*) Put the fruit in the oven,

and press it through canvas when tender. Allow rather more than ¾ lb. lump sugar to 1 lb. fruit syrup, and boil ¾ hour. This jelly is much improved by using equal quantities of bullaces and blackberries. The acid flavour of the bullace takes away the flatness of the blackberry. Put the jelly into moulds and cover with papers in the usual way. It is more likely to turn out well after being kept a month or two than at first.

(*b*) Boil together a quantity of apples cut small and blackberries that are thoroughly ripe, in the proportion of 1 lb. blackberries to ½ lb. apples. When boiled quite soft and pulpy, strain through a hair sieve and reboil, with ½ lb. loaf sugar to each pint juice, about ½ hour. ¼ pint water to every 4 lb. fruit may be boiled with it to advantage.

Black Currants, Bottled.—Fill some bottles as full as you can with the currants, add as much cold water as they will hold; then put them in a boiler filled with cold water, and let them boil until the fruit sinks in the bottles. Then take them up, cork them while hot, and paste thick brown paper over them.

Black Currant Jelly.—To 1 lb. picked and washed black currants add 1 gill water. Set this in a preserving pan, which should be of copper. Bruise the fruit well with a wooden spoon; afterwards take off the preserve and strain through a hair sieve. To each 1 lb. fruit allow 1 lb. white sugar. Boil 10 minutes.

Carrot Jam.—Well wash and scrape all black bits off some carrots; cut only the red part outside into pieces; put in a pan, with water to cover, and boil till it will rub through a hair sieve. To 4 lb. pulp allow 4 lb. loaf sugar, ¼ lb. bitter almonds blanched and chopped fine, the rind grated and the juice strained

of 4 lemons, and 6 tablespoonfuls brandy to make the jam keep. Let the sugar and pulp boil up thoroughly, and then simmer for 15 minutes; skim and stir all the time. When cold, add the other ingredients, and stir all well together 2 or 3 times; then pot and cover with gummed paper.

Cherries, Bottled.—Gather the cherries on a dry day; be careful that they are not over-ripe or cracked at all. Fill the bottles or jars quite full with the cherries, and put them to stand in a boiler or large saucepan of cold water, and keep the jars covered closely; boil slowly until the fruit has sunk in the jars and the skins begin to crack; then lift one by one off the fire, and immediately fill quite full each jar with boiling water. Tie down twice with bladders, and put them in a dry place until required. Put them where they will not be disturbed, as if moved they ferment. If glass bottles are used care must be taken when filling with boiling water that they do not crack. Be particular to have all you need before taking the jars out of the water, and the kettle of water boiling fast, as the great secret in bottling fruit is in filling up the bottles and tying them down as quickly as possible.

Cherries, Dried.—Stone large sweet cherries with a small pointed skewer no larger than a quill toothpick, breaking them as little as possible; throw them into a boiling hot syrup, made with 1 small teacupful water to 1 lb sugar. Scald them in this syrup for 10 minutes, but do not allow them to boil, or they will break; remove them from the fire, pour them into a pan, and cover them till next day. Then draw off the syrup, boil it up, skim it, and pour it back upon the cherries. Do this for 3 days successively. On the fourth day drain the cherries on a cane sieve till entirely free from excess of moisture;

then lay them on wire sieves, and dry them by slow heat for several hours until, when touched, they do not stick to the fingers. When cold, sprinkle sugar over them, and pack in layers between white paper. If too much heat is used in drying them, they will be dark and unsightly.

Cherries, Preserved.—Take equal quantities sugar and cherries, cut off the stalks from the cherries, wipe them clean with a soft cloth, and strew over them a little finely-powdered sugar; boil the sugar with 1 pint water to every 3 lb. sugar, clarify it with whites of egg, strain it, and then boil it to candy height. The next day boil up the cherries with the syrup for 5 minutes, and let them remain in the syrup for 24 hours; strain off the syrup, boil it again to the second degree, and pour this over the cherries. The next day boil up the sugar to the third degree, dip each cherry separately in the syrup, and put them on a sieve in a warm place to dry.

Cherry Jam.—For this use ripe fruit, but carefully reject any which is bruised or over-ripe. The Kentish is the best for this purpose, having a pleasant acid taste; other kinds are too sweet for the quantity of sugar necessary in preserving fruit. To every lb. stoned fruit add ¾ lb. loaf sugar well broken; it will require stirring occasionally from the first, and continuously after it once comes to the boil, after which it must continue boiling for ¾ hour; then try a little on a cold plate to see if it sets or jellies; if it does, pour it off into jars, and set in a cool dry place till the following day, when it should be covered down for keeping, if not, continue boiling until it will so set. It will not require skimming during the process of boiling, the scum will all boil away. The easiest way of stoning cherries is to tie a little loop of

iron wire about the shape of a hairpin, on to a stick the length of a pencil; bind the two ends firmly to the stick, leaving the loop standing up about 1 in. long, and slightly bent forward. With this the stones are easily extracted.

Citrons, Preserved.—Put them in strong salt and water in a jar, with a cabbage leaf to keep them down; tie a paper over them, set them in a warm place till they are yellow, take them out, and set them over the fire in fresh water, with a little salt and a fresh cabbage leaf; take care they do not boil; if they are not a good green change the water (and even fresh leaves will help to green them), and make hot and cover them as before; when they are a good green take them off the fire, let them stand till they are cold, then cut them in two or make a hole at the end, to take out the seeds and soft part, and put them in cold water. Let them stand 2 days, but change the water twice each day to take out the salt, then make a syrup, and put it cold to them; boil it once in 2 days for 3 weeks. For the syrup: 1 lb. loaf sugar, ½ pint water; set over the fire; when well boiled and looking clear, take it up; when cold, throw it over the citron.

Crab-Apple Jam.—To every lb. of fruit put the same quantity of preserving sugar. Having melted it with a little light wine, put it on the fire and let it boil well; when it has been skimmed clear and is boiling, put in the fruit with a few cloves; let all simmer together till the fruit begins to break, when it is done. The fruit should be rubbed dry and the stalks removed before it is put into the sugar.

Crab-Apple Jelly.—Remove the stalks from the apples and cut them in half, put them into a preserving pan, and boil till the fruit is perfectly soft;

do not stir it. When soft, pour off the water, and to every pint allow 1 lb. sugar. Put it into another pan, and let it boil slowly for ½ hour, taking off all the scum that rises. It should by this time be clear. Fill your glasses or jars with it. Now take the fruit and mash it; rub it through a coarse tammy; to every lb. allow 1 lb. sugar and ½ pint water. Let it boil slowly till it thickens, then put it into bowls. When used cut it in slices.

Crab-Apples, Preserved.—Gather them just before they are fully ripe. Put a quantity of them into a pan of boiling water, and barely scald them. As soon as one of the skins begins to crack remove them from the fire, and strain them through an earthenware colander; they may then be very easily peeled. In the meantime make a thin syrup, and, having peeled the apples, place them in jars, and pour the syrup over them quite hot. As they rise to the surface they must be pushed back, so as to keep them all under the syrup. Let them remain uncovered till the following day, when they must again all be poured out into the colander, placing the syrup in the stewpan with more sugar, to ensure its being thick. Boil and skim it well, return the fruit to the jars, and again pour the hot syrup over it. Let them still remain open; and the next day, if the fruit seems soft enough, and the syrup sufficiently thick and clear, they may be considered finished, and they may be tied down with bladder; if not, repeat the process a third time, and keep for another day. About a week after they have been tied down it is well to examine them, and, should they show any signs of fermentation or mould, the syrup must again be boiled down as before. The core is never removed from Siberian crabs; it has in itself a most delicate flavour, which improves the whole preserve.

Cranberries, Preserved.—Gather the fruit in clusters, before it is quite ripe. Pick away any dead leaves and injured berries, and keep the clusters in strong salt and water, in jars well covered. Look to them occasionally, and when the pickle begins to ferment change it. Cranberries thus preserved will retain their flavour and quality for many months.

Cucumbers, Preserved with Ginger.—Take small cucumbers, and large ones that will cut into quarters, the greenest and most free from seeds; put them in a jar with strong salt and water, covered with cabbage leaves; tie a paper over them, and keep the jar in a warm place till they yellow; wash them out, and put them over the fire in fresh water, a little salt in it, and a fresh cabbage leaf over them; cover the pan very close, and take care they do not boil. If they are not a fine green change the water and make them hot again. When a good green, take them off the fire, let them stand till cold, then cut them in halves or quarters; take out the seeds and soft parts; put them in water, and let them stand 2 days; change the water twice a day to take out the salt. Take 1 lb. white sugar, ½ pint water, set it on the fire, skim it clear, then put in the rind of a lemon, and 1 oz. ginger with the outside scraped off. When the syrup is pretty thick, take it off, and, when cold, wipe the cucumbers dry and put them in; boil the syrup once in 2-3 days for 3 weeks, and strengthen if required, for there is more fear of them spoiling at first. The syrup must be quite cold when put to the cucumbers.

Damsons, Bottled.—Fill the bottles with damsons, and add to each bottle ½ lb. castor sugar. Put the bottles in cold water in a large pan on the fire, where they must remain for ½ hour after they have begun to boil. When boiled, let them cool, cork down tight,

and tie bladder over the corks, and keep in a very dry place. Care should be taken that no bruised fruits are put in. Whilst the bottles are on the fire, hay should be put between them to keep them from breaking.

Figs.—Weigh the fruit, and have an equal quantity of sugar, the peel of 1 large lemon, and a little ginger. Lay the figs in cold water for 24 hours, then simmer them till tender; put them again into cold water, and let them remain for 2 days, changing the water every day. If not quite soft simmer again, and replace in cold water until next day. Take their weight in loaf sugar, and with ⅔ of it make a syrup, in which simmer the figs for 10 minutes. In 2 days take the third of the sugar, pounded fine, and pour the syrup from the figs on it. Make a rich syrup with the peel of the lemon and a little raw ginger, and boil the figs in it, then mix all together and put into large jam pots. The figs may be cut in half, if preferred, after they have simmered until soft.

Ginger, Preserved.—Put the ginger for 2 weeks every night and morning into boiling water. Take off the outside skin with a sharp knife. Boil the ginger in water till quite tender; slice it. Prepare a syrup of 1 lb. sugar to ½ pint water. Clarify it, and put the ginger in it. Boil it till clear. Leave it to cool before putting it into jars.

Gooseberries, Bottled.—Pick off the soft brown outside part at the top of each gooseberry, but be most particular to leave the hair-like fibre which it surrounds; cut the stem close, and if any one gooseberry breaks open reject it, as a single broken one might spoil a whole bottleful. Put them into wide-mouthed bottles (pickle bottles suit very well), fill them up with cold water, and place them

standing in a fish-kettle or any large, flat-bottomed pot; also filled with water as high as the necks of the bottles, over a very slow fire, where they are to remain until they come to a gentle boil and begin to change colour; then take them out of the pot, and let them stand until they become cold, when the bottles are to be filled up with olive oil, and they need not be corked. Look at them from time to time, and fill up with fresh oil, as some may evaporate. Keep the bottles on a shelf in a dry place, for damp spoils them, and when wanted for use, have them washed in water and soda by putting them into a colander, and then a shower of fresh water at the end, just to take off any soda which might remain.

Gooseberry Jam.—(*a*) Allow ¾ lb. lump or white crystallised sugar to each lb. gooseberries; a few spoonfuls of water must be put at the bottom of the preserving pan and care taken that the fruit does not burn. Pot ½ hour after the jam boils; keep it well stirred.

(*b*) For every lb. picked gooseberries, put ¾ lb. sugar and 1 pint water in a bowl or pan; when dissolved, place it on the fire. Beat the white of an egg well up, and stir into it when boiling: when on the point of boiling over check it by pouring in a little cold water. On its rising up the second time, take it off, and place it on one side to allow the black scum to rise, which must be taken off carefully with a skimmer. Pour the liquor away quickly, leaving the sediment at the bottom; add your fruit in the syrup, simmer gently until the fruit looks clear, break it with a wooden spoon, put the jam into pots, and cover up.

Gooseberry Jelly.—Take 1-2 gal. fruit when green, and a little more than 1 qt. water to each gal.

gooseberries. Boil till quite a pulp, strain through a jelly bag of coarse flannel; when strained add to every pint of juice 1 lb. loaf sugar. Boil till set.

Grape Jam.—(*a*) The grapes must be ripe. Wash them well, then stew them until they become a soft pulp, and pass them through a sieve. Weigh, and to every lb. add an equal quantity of sugar. Boil for 20 minutes, stirring well.

(*b*) A delicious preserve from unripe grapes can be made in the following way: They should be carefully picked, and all that are at all injured should be rejected. To 1 lb. grapes add ½ lb. sugar; no water but what hangs about them after they have been washed. Put the grapes into a preserving pan, then a layer of sugar, then a layer of grapes. Boil on a moderate fire, stirring it all the time to prevent its burning, and as the grape stones rise take them out with a spoon, so that by the time the fruit is sufficiently boiled the stones will have all boiled up and been taken out.

Grape Jelly.—Take some bunches of common outdoor white grapes, unripe will answer the purpose; rinse them in a plentiful supply of water, strip them from their stalks, and put them in a preserving pan; set them over a moderate fire for about 2 hours, or till they burst freely. Strain them through a colander or sieve, and to every lb. of pulp and juice, add 1 lb. sugar; boil them about ½ hour. Each shape will require ½ oz. gelatine; wet the moulds, and set them in a cool place. It makes a pretty dessert dish, being a light green, and tastes like greengage if managed well. Care must be taken to use either a silver or wooden spoon, and an enamelled or a copper preserving pan is important to preserve the colour.

Guava Jelly, Imitation.—This is made from medlars. It takes a great number of medlars to make a small quantity of jelly, as they contain so little juice. Put the medlars, which must be ripe, into a preserving pan with just enough cold water to cover them. Let them cook gently until they are quite soft, then put them into a jelly bag, and let the juice drain off gradually; this will be a long process, as they must not be squeezed, or the jelly would not have the clear brightness of guava jelly. It is a good plan to leave them to drain all night. To every pint of juice allow 1 lb. best white sugar, pounded. Boil them together in a preserving pan, stirring constantly with a silver or wooden spoon to prevent burning, and carefully removing the scum as it rises. It will probably take about ½ hour to boil, but it must be tested by dropping a little from time to time on a cold plate; when it jellies it is done, and must then be poured off into small jars or moulds, care being taken that they are not only clean, but perfectly dry. The next day tie them down in the usual way, and keep in a dry cool place. When this is properly made it resembles guava jelly very closely, both in colour, flavour, and consistency.

Hip Jam.—Collect the hips from the rose bushes when ripe, boil them in water until they become soft enough to be easily crushed, and press them through a very fine sieve. Take an equal weight of sugar to that of the fruit, boil the hips, when pulped through the sieve, thoroughly with sugar, and put the jam into a large stone jar. It is liable to ferment a good deal, and therefore requires space. When taking any out for use, mix and stir it up well with a little white wine, and add sugar to taste if required. This jam is excellent, either for eating alone as a sweatmeat, or for making sauce.

Hip Marmalade.—Gather hips, when perfectly ripe, wash them, and boil them in water, in the proportion of ½ pint water to 1 lb. fruit. When quite tender, pass them, water and all, through a sieve fine enough to keep back all the seeds. To each lb. pulp put 1 lb. refined sugar, and boil until your marmalade will jelly well. When a little cooled, pour it into jelly glasses or small jars, with a few small pieces of preserved ginger in each glass. Cover while hot.

Hips in Sugar.—For this, gather hips as soon as they have become red. Boil them gently until tender (but they must not be allowed to break) in sufficient water to cover them. Cut the stalks even, and a small piece from the blossom end of each berry, and with a pointed penknife or quill carefully remove all the seeds. Allow 1 lb. sugar and a little cinnamon to each lb. prepared hips. Put the sugar in a preserving pan, with just sufficient water to dissolve it—as little as possible, as the syrup should be very thick and clear. When the sugar is melted, put in the fruit, and boil gently until it is done and the syrup becomes thick; let it cool a little, and then put it carefully in glasses. It is important that the shape of the fruit should be preserved, and the largest berries obtainable should be used. A little lemon juice may be added to the above syrup if liked.

Hips in Vinegar.—Gather from the dog rose some of the largest berries you can obtain, as soon as they are quite red, but not over-ripe; cut the stalks even, leaving a short piece on each berry, wash and put them in a stewpan with as much boiling water as will cover them well. Boil gently until they are quite tender, but not at all broken. Drain the water from them, but do not throw it away. As soon as the hips

are cold, cut a small piece from each at the blossom end, and with a pointed penknife or quill remove all the seeds, taking care not to break the fruit. For a syrup for 2 lb. berries allow 1 pint good vinegar, ½ pint of the liquid in which the fruit was boiled (which should be strained in muslin), 2 lb. loaf sugar, ¼ oz. cinnamon, and ¼ oz. cloves. Put all these in a preserving-pan, stir with a wooden spoon until the sugar is dissolved, let the syrup boil for 15 minutes, then put the hips in, and boil for 20 minutes, or until the syrup is rich and thick. Store, spice and all, in small jars or glasses, and cover like any other preserve. This will keep good for 2 years and more. It is a delicious substitute for red currant jelly with game or roast mutton, and is also good for colds in the throat or chest.

Lemon Marmalade.—Take any number of lemons; 6 make a nice quantity. Slice them very thin, only putting out the seeds. To each lb. sliced fruit add 3 pints cold water; let this stand 24 hours. Then boil it until the chips are tender, pour into an earthen bowl, and allow it to remain until the next day. Then weigh it, and to every lb. boiled fruit add 1½ lb. of lump sugar, boil the whole together until the syrup jellies and the chips are rather transparent; in taking out the pips be careful to leave all the white pith in, as that goes towards making syrup.

Lemon Peel, Candied.—Cut the lemons into quarters lengthwise, remove the juicy part, and throw the peels into strong salt and water, to soak in it for about 6 days. The brine should be strong enough to float an egg. At the end of the time take them from the salt and water, and throw them into cold water, where they should remain for 1 hour; remove them from this, and place them in a copper

preserving-pan with as much fresh cold water as will cover them, and let them boil until quite soft. Try if they are done with a silver fork; if it will go in easily they have boiled long enough. Place them on a large hair sieve to drain the water from them, and during the time make a syrup in the proportion of 1 lb. loaf sugar to 1 qt. water; let them boil together until forming a thin syrup, in which boil the peels for about ½ hour, or until they look clear. Some more sugar must now be boiled with only just as much water as it will absorb; there must be enough of this made to just cover the peels when they are put into it. Again boil them, and continue boiling until the sugar begins to candy; they must then be taken out and again drained; before they are quite dry place them in large dishes, when a little very finely powdered sugar must be shaken over them. Set the dishes in a warm place for the peels to dry. They may then be stored away for use. While the boiling is going on the syrup will require constant stirring with a new wooden spoon to prevent burning.

Limes, Preserved.—(*a*) Take double the weight of crushed loaf sugar to the weight of limes. Boil the limes in water gently until the rinds are sufficiently tender to be easily penetrated with a silver fork; the water should be changed 2 or 3 times. When soft enough, drain the water from them, and cut them with a sharp knife into very thin slices, remove the pips, and put the slices of limes into a deep jar. Make a syrup, allowing 1 qt. water to every 5 lb. sugar, and let it boil gently until you can see the bottom of the preserving-pan, by which time it will be clear; stir frequently, using a silver spoon for the purpose. When ready, pour this syrup boiling hot over the limes, and let it remain for 2 days. On the third turn it all out into a preserving-pan, and let it boil for

about ½ hour, or until it jellies. Then pour off into jars, and the following day, when quite cold, tie them down as you would any other preserve. Tangerine oranges would be done in the same way; but ¾ lb. sugar would be enough to 1 lb. fruit.

(*b*) Another way of preserving limes is to make them into pickle. For this make some incisions in the rinds of 12 limes, into which rub ¼ lb. common salt, lay them out in a deep dish and let them remain in the meat screen near the kitchen fire for 4-5 days or until soft. Boil enough vinegar to cover them, with ½ oz. whole pepper, 2 oz. bruised ginger, and the same of mustard-seed. Put the limes into jars when soft enough, also the salt, and pour the boiling vinegar over them; the limes should be quite covered with it. The next day cork the jars, and either brush melted rosin over the corks, or tie a piece of moistened bladder tightly over each.

Medlar Jelly.—Fill a large jar with ripe medlars, and place it in a saucepan of boiling water; it must be large enough to allow of the water coming up to the neck of the jar, but care must be taken not to let any of the water go into it. The jar must be uncovered. Put the lid on the saucepan, and keep the water boiling until the medlars are thoroughly cooked and quite soft. Then put them into a linen jelly-bag, and let them drip into a basin; the bag must not be squeezed or the jelly would not be clear. Medlars being a very dry fruit, a great many will be required to make even a small quantity of jelly; the juice comes from them but very slowly, so that this first process should be gone through the day before the jelly is to be made, and the straining should be allowed to go on during the night. Measure the juice, and allow 1 lb. loaf sugar to every pint. The sugar

must be pounded and passed through a hair sieve to have it very fine; put it in a dish before the fire, or in the oven, until it is so hot that it would not remain any longer without melting. Boil the juice in a copper preserving-pan, stirring it with a silver spoon; when boiling add the sugar by little and little, a teaspoonful at a time; this should be shaken gently over the surface, the stirring continuing all the while. When the sugar is all in, take the preserving-pan off the fire, as no further boiling will be necessary. This jelly should be beautifully clear, and of about the same consistence as guava jelly, which it also somewhat resembles in flavour.

Melons, Preserved.—Medium-sized melons are better than very large ones for preserving, and they should not be over-ripe. Peel them, and press the juice from the pulp and seeds, which should be taken from the melons with a silver spoon: Wash the melons after this, and add the water in which they have been washed to the juice obtained from the pulp and seeds. The melons should be cut lengthwise into eight pieces, if possible using a silver knife; allow them to soak a day and night in cold water with a little salt and vinegar, in the proportion of 1 teaspoonful salt and 2 of white vinegar to ½ gal. water, throwing a clean cloth over during the time to keep out the dust. In the meanwhile prepare a syrup with the juice from the pulp and seeds, boiling 1 lb. good loaf sugar for 15 minutes to every ½ pint of the juice, and then letting it stand to become cold. After the pieces of melons have soaked for 24 hours—care being taken that they have been quite under the water all the time—place them in a preserving-pan and add the cold syrup as prepared; set it on the fire, and, after it comes to the boil, let it simmer for about ¼ hour, skimming it during the time; then remove

the slices of melon into a bowl, taking care not to break them and pour the syrup over them. For 3 successive days pour off the syrup, give it a boil up and pour it over again; on the third day place the slices of melon in wide-mouthed bottles adding some bruised ginger to each; fill the bottles with the hot syrup, let them remain until cold, and then tie tightly down with bladder.

Mulberry Jam.—Take ripe mulberries and allow 1 lb. sugar and 1 pint mulberry juice to every lb. picked fruit; boil and skim the sugar with the juice for 5 minutes after the sugar is thoroughly dissolved; then add the fruit, and boil quickly for ½ hour, stirring well; take off the fire, and, if quite stiff when cold, it is done sufficiently, if not, boil for another ¼ hour.

Mulberry Jelly.—It should be made like red currant jelly: the fruit first stewed, by putting it in jars and setting the jars in a saucepan of water and letting it simmer till the juice is well drawn; then strain it off, and to every pint of juice put 1 lb. lump sugar; boil gently for ¾ hour. Two or three kernels of peaches or almonds are a great improvement.

Orange Chips.—Cut your oranges longways, take out all the pulp, and put the rind into rather strong salt and water for 6 days, then boil them in a large quantity of spring water until they are tender; take them out and lay them on a hair sieve to drain, then make a thin syrup of fine loaf sugar (1 lb. to 1 qt. water), put in your peels, and boil them over a slow fire till you see the syrup candy about the pan and peels, then take them out and grate fine sugar over them. Lay them on a hair sieve to drain, and set them in a stove or before the fire to dry. Lemon chips or candied peel may be made in the same way.

Orange Jelly.—Peel 6 oranges very thin, and 1 lemon. Put a little hot water on the peel, and let it soak. Scoop out all the inside of oranges and lemon into a basin. Then pour 1 oz. melted gelatine over it, boil it a little while over the fire, and add white lump sugar, sweetening to taste. Then pour it hot over the peel which has been soaking in a little warm water, strain it all through some muslin, and then put it into a shape till cold.

Orange Marmalade.—(*a*) Put 6 lb. oranges (bitter) and 6 lemons into a brass pan, cover them completely with water, and boil until soft (about 3 hours). Lay a plate on the top of the oranges, to keep them below the water during the boiling. When soft take them out, cut in halves, scoop out the pulp, and throw away the stones. Scrape the skins free from the white fibre inside, then cut into very thin stripes with a silver knife. Strain the water in which oranges were boiled—probably now reduced to less than 1 qt.—put it into the pan with 12 lb. loaf sugar, another qt. of water and the pulp; boil 15 minutes, add the cut skins, boil 10 minutes, and pot.

(*b*) Cut up, say, 12 Seville oranges very thin and small, pick out the seeds, and to each lb. sliced fruit add 3 pints cold spring water; let them stand 24 hours, then boil till tender. The seeds should be put in a muslin bag, and boiled with the oranges. Let all stand till next day, then to each lb. boiled fruit add 1½ lb. loaf sugar; boil, stirring constantly, till the syrup jellies and the chips are quite clear. The grated rind and juice of 2 China oranges will improve the flavour at the last boiling, or the juice and grated rind of 2 lemons. This quantity will require a large preserving pan, and, when finished, ought to be quite clear and jellied. Excellent marmalade can also be

made from oranges cut up in large pieces and put twice through the mincing machine, instead of being sliced in the ordinary way.

(*c*) An equal weight of Seville oranges and loaf sugar must be allowed. Wash and dry the oranges, and grate the peel of about ¼ them, setting aside the grating for after use. Pare off the peel from the other ¾ of the oranges, and cut it into very fine chips; tie these chips in a thin cloth, and let them boil slowly for 2-3 hours. Cut the oranges into pieces, and scrape out the pulp, separating from it the pips and white parts or refuse; put this refuse into a basin with about 1 pint cold water, and when all the oranges are scraped, strain this refuse through a cloth, and throw the liquid from it and the pulp over the sugar in the boiling pan, and place it on the fire or hot hearth, allowing the sugar to melt slowly. After it comes to the boil, put in the chips, first straining the water from them, and let the whole boil slowly for at least ½ hour. The grating to be put in 10 minutes before the marmalade is taken from the fire. The juice of 2 lemons added is an improvement.

Oranges Preserved Whole.—Take, say, ½ doz. nice looking oranges, cut a small hole near the stalk at one end, and carefully scoop out the pips, and press out the juice without damaging the fruit, and allow the pulp to remain. Put them in a basin with 2-3 qt. fresh, spring water, and leave them 3 days, changing the water each day. In the meantime strain the juice as soon as squeezed out, and place the jar into which it is strained in a pan of boiling water for about ¼ hour, after which boil it with 1 lb. loaf sugar. Put this syrup, just as it comes off the fire, into a jar, tie it over with a bladder, and set it by. On the third day lift the fruit into a lined preserving pan, strain the

water on to them, and let them boil very gently for about 2 hours. Leave them in the pan as they are till the next day, when boil again until quite tender. Then add another lb. sugar, bring it to the boil and leave it to cool. Next day boil up the syrup and pour it over the fruit in the pan, adding another lb. sugar and hot water to supply any deficiency caused by boiling. Lift out the fruit, and repeat the boiling of the syrup every day for a fortnight, pouring it daily boiling hot on the fruit, then do it only every 2-3 days, adding more and more sugar up to 3 lb. When the fruit looks clear and bright boil up the syrup again, adding the juice that was set by at the commencement, boil them up together and skim. Put the fruit into wide-necked jars, pour the syrup on, and tie up quickly with bladders.

Peaches, Brandied.—(*a*) Drop the fruit into a weak boiling lye until the skin can be wiped off. Make a thin syrup to cover them, boil until they are soft to the fingernail; make a rich syrup, and add, after they come from the fire and while hot, the same quantity of brandy as syrup. The fruit must be covered. (*b*) The peaches must be ripe, but firm. Prick them to the stone several times all over with a pin; clarify some sugar, allowing ¾ lb. to each lb. fruit. Break the sugar in large lumps; dip each lump into cold water quickly, and put it into the preserving pan. The quantity of water absorbed by the lumps in dipping will be right for boiling. Watch carefully that it does not boil over. When it has come to a boil, let it simmer slowly, and be ready with a cold spoon to check it whenever it begins to rise. When it forms little beads it is boiled enough. Now lay in the peaches, and let it simmer slowly till it is a little softened but still firm; then set it all by to get cold. Next day take out the fruit and drain it on a sieve or

dish. Boil down the syrup to thicken, and when it is cold mix it with an equal quantity of pale brandy. Arrange the fruit in glasses, and pour the brandy syrup over. ½ lb. sugar to the lb. of fruit is often considered sufficient.

Peach Jam.—Cut the peaches in quarters, and take off the skins and stones, put them in a pan with equal weight of white powdered sugar, let them stand all night in the sugar, and next day boil them slowly until they become quite soft and the juice jellies well. Fruit that is not quite ripe is far preferable, because, when ripe, peaches have so much juice that it is impossible to reduce it sufficiently to keep well. Cover the pots with paper dipped in brandy, like all other preserves, but not till a few days after it is made.

Pear Jelly.—The pears must be a juicy sort. Cut them into quarters without paring or coring. Put 8 lb. in a pot with 1 qt. water, and boil on a slow fire to a pulp, then throw them into a jelly bag, made of coarse glass cloth, and let them remain all night to drain. Next morning squeeze any remaining juice out of the bag, and to each 1 lb. juice add ½ lb. lump sugar, and a very little lemon juice to flavour. Boil it on a quick fire till it comes to a jelly. Great care must be taken not to let this burn. It takes about 2 hours to boil to a jelly, but is more easily done in small quantities. Coarse, juicy pears are the best.

Pears, Preserved.—Take some small pears as soon as the pips are black; set them over the fire in a preserving pan with water to cover them; let them simmer until they will yield to the pressure of the finger; then with a skimmer take them out, and put them into cold water; pare them carefully, leaving on a little of the stem and the blossom end; pierce them

at the blossom end to the core; then make a syrup of 1 lb. sugar to 1 pint water for each lb. of fruit. When it is boiling hot pour it over the pears, and let it stand until the next day; then drain it off; make it boiling hot again, and pour it over the fruit. After a day or two put the pears in the syrup over the fire, and boil it gently until it is clear; then take out the fruit, boil the syrup till thick, and put it and the fruit in jars. The jargonelle pear is considered the best for preserving, or any small firm pear.

Pineapple Jam.—Choose ripe fruit, but it must not be over ripe; if at all bruised be careful to cut all the bruised parts out. Peel, and remove all the eyes; cut into slices about ½ in. thick, and again into pieces about 1 in. square. Weigh the fruit after preparing it, and to every lb. allow 1 lb. powdered white sugar. Put the fruit only in a bright copper preserving-pan on the fire until it is quite hot and the juice flowing, stirring it from the moment of putting on the fire with a wooden spoon. Then add the sugar gradually, continuing to stir all the while, and let it boil for ½-¾ hour, or until it will set. This jam requires especial care to prevent burning. If it burn in the very least, the flavour is spoilt and the colour too. After filling the jars, let them remain until the next day before tying them down to keep.

Pineapple Jelly.—Take a tin of preserved pineapple, pound the contents in a mortar, add 6 oz. sugar and ½ pint water; boil the whole for ¼ hour, then strain through a napkin, add the juice of a lemon and 1 pint clarified calves'-foot jelly. Pour into a mould, and when set turn it out by dipping the mould in warm water. Pieces of pineapple may be put in the jelly.

Pineapple Preserve.—To every lb. of fruit, weighed

after being pared, allow 1 lb. loaf sugar and ¼ pint water. The pines should be perfectly sound, but ripe. Cut them into rather thick slices, as the fruit shrinks very much in boiling; pare off the rind carefully, that none of the pine be wasted, and in doing so notch it in and out, as the edge cannot be smoothly cut without great waste. Dissolve a portion of the sugar in a preserving-pan with ¼ pint water; when this is melted, gradually add the remainder of the sugar, and boil until it forms a clear syrup, skimming well. As soon as this is done, put in the pieces of pine, and boil well for at least ½ hour, or until it looks nearly transparent. Put it into pots, cover down when cold, and store away in a dry place.

Plums, Bottled.—Take care to gather them on a dry day. They should be quite ripe, but not over ripe, and any which are bruised must be rejected. The following manner of preserving applies also to damsons and bullaces. Fill wide-necked bottles with the fruit, pack it closely, leaving only room enough in each bottle to put over the fruit ¼ lb. castor sugar. Tie a piece of moistened bladder tightly over each bottle, and place them standing upright in a fish-kettle: put a little hay between each and all round them, so as to keep them from touching each other and the sides of the kettle. Folded cloths should be placed beneath the bottles. Fill the kettle with cold water just high enough to cover the shoulders of the bottles; let them boil at the side of the fire, which must not be a very fierce one, until the fruit has sunk considerably, and appears done enough. Then take the kettle from the fire, but let the bottles remain in it until the water becomes perfectly cold. They must then be taken out, wiped dry with a cloth, and set in a cool, dry place to keep. The bladders must be constantly moistened while on the fire, or they will

burst. Should any of them burst, the first piece of bladder must instantly be replaced by a fresh piece, duly moistened. When required for use the whole bottle must be taken, for, after once being exposed to the air the fruit will not keep. One bottle will make a moderately-sized tart. Bottling without sugar is not recommended.

Plum Jam.—Take equal quantities fruit and sugar, pound the sugar, pare and cut up with a silver knife some ripe plums, remove the stones, lay the fruit in a dish, strew over them half the sugar, and leave them till the following day; then boil and skim the remainder of the sugar, add the fruit, boil it up quickly, well skimming and stirring for 20 minutes; add the blanched kernels halved, boil for 10 minutes more, and the jam will be ready to pot.

Plums Preserved in Brandy.—Choose fine plums, not over ripe, prick them slightly, put them into cold water, and let them simmer gently until the water is nearly boiling. Take them out, and throw them immediately into cold water. Have ready some clarified syrup, put the plums into it, and boil gently for 20 minutes; take them off the fire, and let them remain in the syrup until the following day; then take out the plums, and put them into a wide-mouthed bottle, boil up the syrup with an equal quantity of brandy, pour this over the plums, and when cold cork them up tightly.

Plums in Syrup.—Gather the fruit when full grown, and just as it begins to turn. Pick all the largest out, and save about ⅔ of the fruit; to the other third put as much water as you think will cover the whole. Let this boil, and skim well; when the fruit is boiled very soft, strain it through a coarse hair sieve, and to every qt. of liquor put 1½ lb.

sugar. Boil it and skim it very well; then throw in the rest of the fruit, just give them a scald; take them off the fire, and when cold put them into bottles with wide mouths, pour the syrup over them, lay a piece of white paper over them, and cover them with oil. Be sure to take the oil well off when you use them, and do not put them in larger bottles than you think you will use at a time, because all these bottled fruits should be used when the bottles are once opened.

Plums in Vinegar.—Gather the plums with the stalks, prick them with a needle, and put them, with layers of cloves and cinnamon, into glass jars. For every 4 lb. plums boil up 2 lb. sugar and 1 qt. best vinegar, and pour it warm over the plums. Next day pour off the vinegar, boil it up again, and pour over the fruit. This must be repeated a third time. Tie up with bladder. This preserve improves much by keeping.

Prune Jelly.—Put ½ lb. prunes into a saucepan, with 2 oz. white sugar, a piece of lemon, a little cinnamon, and sufficient water to cover them, stew until tender; take out the stones, pass the prunes through a sieve, crack the stones, and put back the kernels into the prune pulp. Steep ½ oz. gelatine in a little cold water, add this to the prunes with a glass of red wine; boil all together. Ornament a plain line mould with almonds blanched and split, pour the jelly into the outer part, and leave it to get cold; when quite set remove the lining, turn out the jelly, and fill up the centre with ½ pint of cream whipped to a stiff froth.

Prune Preserve.—Take some prunes, wash them well, then cover them with water and stew gently, with the grated rind of a lemon, until quite tender, and pass the prunes through a sieve; weigh the pulp,

to every lb. of pulp allow ½-¾ lb. sugar. Boil the sugar with a little water until melted, then add it to the pulp, boil both together for ¼ hour, skim well, and stir, and the preserve will be ready to pot.

Pumpkin Jam.—Weigh the pumpkin, have ready the same weight of sugar; take off the skin and take out the inside and seeds, cover the latter with water, and boil; cut the rest into thin slices, strain the seed water over it, with sufficient to cover the whole, and boil with 1 oz. whole ginger to 2 lb. pumpkin, until the latter is nearly done enough, take it out and boil the sugar in the same water until clear, then add the fruit and boil slowly for 1½ hour, take out the ginger, and tie up in pots.

Quinces, Brandied.—Peel some small ripe quinces, and allow ½ lb. loaf sugar to 1 lb. fruit; boil the quinces ½ hour in barely sufficient water to cover them; drain them, and put aside to get cool; empty the water out of the preserving-pan and put in the sugar, moistening it with a little of the water in which the quinces were boiled, and let the sugar boil for 10 minutes; put in the quinces and let them boil rapidly for ½ hour. Place them in wide-mouthed jars, as free from syrup as possible, boil down the syrup until it jellies when dropped on a plate, set it aside in a large jug or bowl, and when quite cold mix an equal quantity of good brandy with the syrup, and pour over the quinces in the jars. Cover closely with paper dipped in white of egg.

Quince Jam.—Peel and quarter your quinces, leaving the seeds in, as they readily impart their mucilage to water, and thus thicken the syrup. Allow ¾ lb. loaf sugar to 1 lb. fruit; put the fruit and sugar into a preserving-pan, and ½ teacupful water to moisten the bottom of the pan; stir the fruit and

sugar frequently, and when it boils keep it boiling rapidly until the fruit is soft, and a clear red colour. It will take about an hour, reckoning from the first boiling up. Put into jam pots, and cover when cold.

Quince Jelly.—For preserving, it is essential that the quinces should be quite ripe and perfectly sound. Pare and slice them, and put them into a copper preserving pan with just enough water to float them. Let them boil till tender, and the fruit reduced to a pulp; strain off the juice, letting it filter through the jelly-bag more than once, if necessary, to be quite clear; to every pint of juice allow 1 lb. powdered loaf sugar. Boil both together for about ¾ hour, removing the scum as it rises; when it sets, by pouring a little on a cold plate, it is done. Some people do not peel the quinces, thinking it makes the jelly a better colour to boil them down after slicing with the peel on. In this case they would have to be carefully washed before cutting up.

Quince Marmalade.—Peel the quinces, quarter them, and remove the cores and pips. The quarters should be thrown into a pan of cold spring water as they are cut, to preserve the colour. The quinces should then be put into a covered jar with 1 qt. water to 4 lb. fruit, and stewed in a slow oven for several hours, till they are quite tender, and of a bright red colour. When they are thus prepared for marmalade weigh them, and to every lb. of fruit allow ¾ lb. crushed lump sugar. Put the fruit into a preserving pan, and bring it gently to a boil, stirring frequently all the time. Continue boiling till the whole is quite soft, and a smooth pulp; then add the sugar, and again bring the fruit to a boil. Continue boiling gently for 20-25 minutes. Take the pan from the fire, and paste down the marmalade in jars while

hot with double papers, care being taken to have the paste quite boiling, and to strain the papers tightly over the jars.

Quinces Preserved Whole.—Pare some ripe quinces, and put them in a preserving-pan, ¾ covered with cold water (if they should float while the water is being poured on them, press them down with a plate until you have gauged the exact height of the water); take the quinces out, measure the water, and to every pint allow 3 lb. broken loaf sugar; let this boil rapidly in the preserving-pan for five minutes, and then put in the quinces. The syrup should not cover them at first, but when they are half-cooked it will then amply cover the fruit. Boil the quinces rapidly, until soft enough for a knitting-needle to pierce them easily, which should be in 1½ hour, reckoning from the first boiling up. Take the quinces out carefully so as not to break them, and lay them on dishes to cool. Run the syrup through a jelly bag, or a piece of new flannel put in a gravy strainer; this frees it of all odd little bits that may boil from the outside of the quinces and makes it clearer. Put the syrup back in the preserving-pan, and boil it rapidly until it will jelly when dropped on a plate; put the quinces into the boiling syrup, and let them simmer gently for 10 minutes. Place each quince carefully in wide-necked jars, pour the hot syrup over them, and when cold cover in the usual way.

Raspberry Jelly.—Put the raspberries in an enamelled preserving-pan over the fire, or in a stone jar in the oven, having first carefully picked out any that are mouldy; squeeze through a piece of cheese cloth, doubled. To each qt. raspberry juice add ½ pint red currant juice extracted in the same manner; to each pint allow ¾ lb. lump sugar; boil ½ hour

moderately; skim, and stir frequently. Use a wooden spoon for mashing the fruit, and a silver one for skimming; iron spoils the colour.

Red Currant Jelly.—(*a*) To 3 lb. red currants, which should be fresh and not over ripe, mix 1 lb. white. Place these into a preserving-pan, and gently stir over a clear fire until the juice flows freely; then turn them into a fine hair sieve, and drain; pass the juice through a jelly bag, weigh it, and boil it fast for 15 minutes, adding to each lb. 8 oz. coarsely powdered sugar. Set this aside on the hob, stirring well till all the sugar be dissolved. Then thoroughly boil the jelly for 15 minutes, and pour it into a pot. An excellent jelly may be made with equal parts of the juice of the red and white currants and raspberries. Be sure that whenever scum rises, before or after the sugar be put in, to remove it, or the preserve will be cloudy.

(*b*) Take fresh red currants and put them in the oven to draw the juice; then let them drain gradually. Take equal weights juice and lump sugar. Pound the sugar fine in a mortar, pass it through a fine sieve, then place it on a dish before the fire to get well heated. When the juice is cold put it in the preserving pan, and place it on the fire; put the sugar in slowly by handfuls, stirring all the time. By the time the sugar is all in, the juice is ready to set. The colour should be of a beautiful red.

Rhubarb, Bottled.—Bottling rhubarb is a little more troublesome than other fruits as you must be so particular in peeling it. To obviate this, use the early foreign rhubarb, which, though a little more expensive, makes much the prettiest preserve from its bright red colour, and does not require peeling. Cut the rhubarb into lengths of 1 in.; have ready

wide-mouthed bottles (also the corks in boiling water to soften them) with about ½ teacupful cold water in each, fill them with fruit to the end of the neck of the bottle; place them in a pot of cold water, without corking them; place a little hay or anything soft between the bottles to prevent their knocking together, which they will do when the water boils; let them boil for about 15 minutes, and cork at once. When the water has cooled, remove the bottles, and leave them till next day. Cut the corks level, and cover them with bottlewax. Bottled fruits retain their colour by being kept in the dark, buried in the earth if possible.

Rhubarb Jam.—Wipe the rhubarb dry, and cut it into pieces a little more than 1 in. long; unless it is old, there is no need to peel it. To every lb. of rhubarb add 1 lb. white sugar, and put a few bits of whole ginger in the preserving-pan with the rhubarb and sugar; let it reach boiling point slowly; when once it boils decidedly, keep it on the fire 20 minutes if the rhubarb is young, ½-¾ hour if it is old. Just before you take it off the fire stir in a spoonful of essence of lemon. Take out the bits of ginger as you put the jam in pots. The quantity of lemon and ginger is quite a matter of taste.

Rhubarb Jelly.—To be made in September. Cut nice stalks of red rhubarb and put them into a large jar. To 6 lb. rhubarb add the peel of three lemons, and let it get soft in a moderate oven. When cooked, pour off the juice into an enamelled sauce-pan, and add the juice of the 3 lemons. Let it simmer gently for ½ hour, and strain through a jelly-bag. Then add 1½ lb. lump sugar to every pint juice; when it is dissolved boil it in a preserving-pan for 40 minutes, keeping it well stirred and skimmed. Pour into pots,

and when cold tie down with brandy paper. To use up the pulp, well boil it in the preserving-pan, adding ¾ lb. lump sugar to every 1 lb. pulp and either halved or pounded bitter almonds or candied peel.

Rhubarb and Orange Marmalade.—To every pint cut-up rhubarb allow 3 oranges and 12 oz. crushed loaf sugar. Peel the oranges, take out some of the white pith, and cut the rinds into thin strips as for orange marmalade. Cut up the insides of the oranges into slices, removing the pips. Put rhubarb, oranges, and sugar into a preserving-pan, and let them boil gently over a moderate fire until sufficiently done, which may be ascertained as above. As the scum rises it should be removed. When the jam sets pour it off into jars, to be covered down next day when cold.

Rowan Jelly.—(*a*) The rowans should be quite ripe. Pick them off the stalks and put them into the pan, and cover with water. Take them off before they come to the boil, break them well down with a wooden spoon, and strain through a jelly-bag; then add 1 lb. sugar to every pint of juice, and boil till it jellies.

(*b*) Apples and rowans equal weight. Slice the apples without paring or coring, put them in the pan with the rowans, water just sufficient to cover the fruit. Warm slowly until they boil; then bruise with a wooden spoon, and pass through a sieve. Strain through muslin, and boil 1 lb. sugar to every lb. fruit juice. Boil to the thickness desired. It keeps better when thick.

Strawberry Jam.—Gather the strawberries on a fine dry day, pick off the stalks carefully, and reject all that are the least unsound. Weigh the fruit, and take an equal quantity of pounded sugar; put the

fruit into a preserving-pan on the fire and when the juice runs out add the sugar; let it simmer, stirring gently, and skimming well. When it boils keep it boiling, not too fast, for 20 minutes, stirring most carefully, so as not to break the fruit, all the time with a wooden spoon.

Strawberry Jelly.—Take 3 lb. strawberries, and 2 lb. pink rhubarb or red currants. If rhubarb, cut it in small lengths. Put these into a very wide-mouthed jar, and set it on a hot stove, with a ring under it lest it should catch. Cover the fruit with a plate or saucer small enough to go inside the jar, so that as the fruit sinks down you may be able to press it gently from time to time, and drain off the juice into a basin. When 1½ pint is extracted, pass it through a hair sieve into a stewpan, and put to it 2 oz. gelatine, which has been soaked for ½ hour, in ½ pint of cold water, 6 oz. loaf sugar, and the beaten whites and crushed shells of 3 fresh eggs. Stir until the gelatine is dissolved, and the jelly boils. Put the lid on the stewpan, and let it boil gently, without stirring or skimming for ½ hour. Let it stand away from the fire for a few minutes, and then strain as you would calf's foot jelly. Oil the mould you intend using well with a little good salad oil. Arrange prettily in the bottom of it, according to its pattern, a few nice strawberries and blanched almonds. Pour in sufficient of the lukewarm jelly to set the fruit, and put in a cool place until set. Keep the remainder of the jelly in a liquid state until you are ready to fill up the mould, then set the whole if possible, on ice to get firm. Turn it out just before serving in a glass dish, with or without a custard, round, but not over it. The fruit pulp left from this may be made into a tolerable preserve for nursery use, if boiled with ¾ lb. sugar to a pint of pulp.

Strawberries Preserved Whole.—Take equal weights largest strawberries procurable and fine loaf sugar, lay the fruit in deep dishes, and sprinkle half the sugar over them in fine powder; give the dish a gentle shake that the sugar may touch the under part of the fruit. The next day make a syrup with the remainder of the sugar and the juice drawn from the strawberries, and boil it until it jellies; then carefully put in the strawberries, and let them simmer nearly an hour; then put them with care into jars or bottles, and fill up with the syrup, of which there will be more than required; but the next day the jars will hold nearly or quite the whole. Cover the jars or bottles with brandy papers. (E. A. G.)

Tomato Preserve.—(*a*) Take those tomatoes not entirely ripe (the very green ones late in the autumn are nice) and remove the stems; allow ½ lb. white sugar to 1 lb. fruit; put into the preserving kettle, and add water enough to make sufficient syrup. Do not put too much water in at first, as you can add to it if there is not enough. Lemons should be sliced and put into it in the proportion of 1 lemon to every 2 lb. fruit. Cook until done through and the syrup looks thick. They make an excellent preserve and taste almost like figs.

(*b*) Take the sound fruit as soon as ripe, scald, and peel them. To 7 lb. tomatoes add 7 lb. white sugar, and let them stand overnight. Take the tomatoes out of the sugar and boil the syrup, removing the scum; put in the tomatoes and boil gently 15-20 minutes. Remove the fruit again and boil until the syrup thickens; on cooling put the fruit into jars, and pour the syrup over it; add a few slices of lemon to each jar.

Vegetable Marrow Preserve.—Take a ripe marrow

about 9 lb. weight, with the same amount of sugar, pare the marrow and remove the seeds and any soft parts; cut in pieces 1 in. thick and 2 in. length; put them in a basin with layers of sugar all night, with 1 tablespoonful capsicums tied up in muslin, and double the quantity of rough ginger well bruised and tied in muslin. In the morning pour the liquid over the remainder of the sugar, which boil and skim; then add the fruit, also the juice and rind of a lemon to each lb. of fruit, and 1 teaspoonful cochineal for colouring; boil till the fluid is clear; before taking off 2 glasses of brandy may be added.

Walnuts, Preserved.—Gather the walnuts when they are full grown, but not hard. They should be in that state that a pin will penetrate them. Prick each walnut over with a large pin, put them in cold water, and leave them for 2 hours; then pour that water away, and fill the pan with fresh. Let the walnuts remain thus for 4 days, changing the water every 24 hours, to take out all the bitterness. At the end of the time change the water, and set them on the fire. As soon as they are soft take them out carefully with a skimmer, put them again into cold water, and leave them 4-5 days, changing the water as before every 24 hours. Then place the walnuts in a large glazed pan; then take common brown sugar, boil this with some water, and run the syrup through a jelly bag. Boil it again until it becomes thick, let it stand, and when about half cold pour it over the walnuts, and leave them. Next day drain off the syrup, boil it again, and when half cold pour it on the fruit. Repeat this every 24 hours, increasing the thickness of the syrup each time of boiling. A small quantity of coarse sugar should be added at every boiling, as the fruit ought to be covered with the syrup. On the ninth day put a few cloves and some cinnamon in a glass of

water for 24 hours, then cut each clove into 4 pieces lengthwise; cut the cinnamon also into bits about the same size. Take the walnuts out of the syrup, and stick 4 pieces of clove and as many of cinnamon into each walnut. In the meanwhile boil the syrup up again, and when half cold pour it over the fruit and leave it. In 24 hours drain off the syrup, and set it on the fire for the last time. As soon as it begins to boil put in the fruit; let them boil up together about 12 times, and then take them from the fire. Make the bottles quite hot, put in the walnuts one by one with a skimmer, pour the syrup on (they should be well covered with it), and, when cold, cork them tight and tie a parchment over every one. You must not try to hurry the preserving, or you will get a bitter jam. These walnuts may be eaten immediately, or they will keep for 10 years; but, as in course of time the fruit sucks up the syrup, they should be filled up with fresh. You might use loaf sugar in preference to brown.

THE DAIRY.

The dairy should either be an isolated building or attached to the farm-house. It must be built with a view to keeping it dry, airy, light, cool, and above everything clean. Nothing absorbs the taint of bad

odours more quickly than milk. The best aspect for a dairy is the north, and while the windows admit plenty of light (which develops colour in the cream) they should be shaded with evergreens to exclude sunshine and heat. The temperature should range between 60° and 65° F., never exceeding 65° nor descending below 55°. In a temperature of 40° F., milk keeps fresh for a very long time, but the cream becomes bitter before it can be skimmed. In a temperature of 70° to 72° F., the milk sours readily and yields less cream, which latter will make a soft butter very prone to rancidity.

Where the dairy is isolated, provision must be made in the building for washing the utensils. This will need much care to avoid conflicting with the conditions just mentioned. The dairy site must be well drained. The walls may be of brick, built double with an air space between, on concrete footings 12 in. thick, with a damp-course as described on p. 5. The best material for flooring is well-laid Portland cement concrete; the floor should incline gently to one corner, where an outlet can be fitted so that the floor can be thoroughly flushed at intervals. All sharp corners, and edges, and mouldings must be avoided, as they form nests for the collection of dirt. The walls may be plastered throughout with material that will make a smooth surface capable of being washed, or they may be covered with glazed tiles. Shelves for holding the milk dishes should be about 5 ft. from the floor and preferably of enamelled iron or thin slate or stone slabs. Perforated shelves afford better circulation of air. The shelves should in any case be quite independent of the walls of the room.

A typical dairy in Chester county, United States, is thus described by Hazard. The main building, which

is built on a hillside, is 50 ft. long by 13 ft. wide. The room for the milk is 6 ft. below the surface and 12 ft. from floor to ceiling. This allows ample room for ventilation and light by side-windows. The troughs for holding the water in which the milk is set are formed of brick and cement, with their bottoms 1 ft. above the level of the floor of the building. They are 28 in. wide, so as to take in two rows of ordinary milk-pans. Across one end is a trough formed similar to the others, except that it is so arranged as to receive and hold the water to a greater depth than the side-troughs, so as to contain the cream-cans. In all there is an ingenious arrangement for increasing or decreasing the depth of the water so as to suit the temperature outside. The water is drawn from a well by a “telegraph” pump, and the surplus is passed off by a drain, secured against the upward passage of odours by a “bell-trap.” During the winter no water is used, and a fire is lighted to keep the temperature to the proper point. The utmost care is taken in ventilation, even to a small ventilator under which to set the lamp used when too dark for skimming without artificial light. At the front and in each side of the main building is a wing 13 ft. square; one of these contains the power-machine, the other the needful arrangement for heating the water and washing pans. For working the butter a large inclined table and lever are used, and the printing is done by an ingenious machine for stamping and marking in squares. This milk-house is made for a dairy of 50 cows; and it would seem, therefore, the proper proportions are 13 ft. wide by 1 ft. in length for each cow.

A supply of ice is a valuable provision in hot weather, and in some climates an ice-house may be

considered as an essential adjunct to the dairy.

Ventilation demands extreme care. “The position of the milk-room with relation to the other rooms of the dairy, as the churning and the cheese-room, and the scalding or washing-room, should be such that air can be admitted on three sides of the room, so as to ensure an equable supply of air all over the interior of the milk-room. The means adopted for ensuring a supply of fresh air by the windows are of very simple character, namely, making each window in halves, the lower and upper halves being hinged to a bar stretching horizontally across the centre of the window frame; the lower half being hinged so that it opens inwards and upwards, the upper half inwards and downwards. By adjusting the opening of the two halves, the fresh air may be admitted in any required volume, and in any direction—upwards towards the ceiling, and downwards towards the floor. For removing the used air, there are many plans. One good suggestion is that the ceiling be made up of narrow fillets so placed that spaces are left throughout the whole surface of ceiling; through these spaces the air passes, into the space between the inner ceiling and the outer roof, in which are placed ventilators with valves, which may be opened and closed as desired. If a ceiling be dispensed with and an open roof adopted, the roof will require to be double, that is, a hollow space between the inner and outer boarding; this will tend to keep the temperature of the dairy more equable, than if the boarding and slates are the only covering. The double roof is simply made by lining the inner side of rafters with inch boarding tongued and grooved. The inner surface of boarding will be all the better if papered with a glazed white paper. The door of the milk-room should be double.” (Darton.)

While efforts are required to keep the milk-room cool in summer, there may be need of warming in winter. The best means of warming is by hot-water pipes. In some dairies the milk pans stand in a series of troughs on an inclined plane, and all inter-communicating; in this way a current of warm water may be made to surround the pans in winter, and of cold water in summer. Gauze coverings should envelop the pans to exclude insects. Milk pans may be made of glass, glazed earthenware, or tinned iron, 15 to 18 in. across, and less than 6 in. deep.

Devonshire Cream.—The milk should be left in the pan till the cream has sufficiently risen—about 12 hours in summer, and 24 hours in winter. The whole pan must then be placed over a close range or on a stove, and left there till the milk becomes quite hot, when the surface will look thick, and bubbles will appear. Then take the pan back to the dairy, and skim the cream off on the following day. The milk must not be allowed to boil, and it should be heated slowly. The time that it takes to scald the cream will depend upon the heat of the fire, the temperature of the milk, and other circumstances; and it is only by practice that you will learn to know when it is sufficiently done. In Devonshire, celebrated for its clotted cream, the pans are of tin and shallow. They contain 10-12 qt. milk. These, after standing 10-12 hours, are placed on an iron hot-plate, or over a stove, until the cream has formed, which is indicated by the air bubbles rising through the milk, and producing blisters on the surface of the cream; it is then near boiling point, and the pan must be removed at once to a cool place. After some hours the cream is skimmed off with a slice. Milk which is carried from a distance, or much agitated before being put into pans to settle for cream, never throws

up so much, nor such rich cream, as if used directly after being milked. The last drawn milk of each milking is at all times richer than the first, and for that reason should be set apart for cream.

Devonshire Junket.—(*a*) If you cannot get milk from the cow warm, take fresh milk, and put it in the oven, or on a hot stove, until it becomes the same warmth as from the cow. Put a glass of brandy and powdered sugar into it sufficient to sweeten it; add a piece of rennet to the milk, or if you cannot get this use the essence of rennet, which you can buy at the chemist's. If you have used the former, remove it in a few minutes, and leave the milk to set in solid curd, which it will soon do; then lay over the top of it either very good cream, quite smoothly, or Devonshire cream, or you may whip the cream. The real Devonshire way is to remove cream from the top of a dairy pan in one sheet, and lay it over. Ornament the top with nutmeg.

(*b*) Rub 2 large lumps of sugar on a lemon, put them with 1 pint milk and ½ pint cream in a saucepan, and make warm, but be careful not to let it be hotter than you can hold your finger in. Have ready in a china bowl a small teacupful of brandy, pour the milk and cream into it; suspend a piece of rennet (which you must well wash from all the salt) by a string, and place it in a cool place to set. When turned enough, take it out, pour ½ pint cream on the top, add some powdered cinnamon, and serve.

Swiss Cream.—This may be made in a mould in the following way, and will be found extremely good. Soak 1 oz. gelatine in cold milk for ½ hour. Steep the rind of 2 lemons in 1½ pint milk with sugar to taste; put it over the fire, but do not let it boil. Bake up the yolks of 5 fresh eggs, and pour the flavoured milk

(strained) upon them. Mix well, and then stir over the fire until the custard thickens; add the gelatine, and stir again over the fire without letting it boil until the gelatine is dissolved, then pour it into a basin. Dip a mould in water, ornament it with preserved cherries, when cool pour some of the above cream into it, put a layer of macaroons, previously soaked in a little white wine, another layer of custard, and so on until the mould is quite full. Set it on ice, or in a cool place to set, and when wanted turn it out carefully.

Butter.—The room where the cream is churned, and the butter made, should be fitted with a table of marble or slate, and shelves for holding the butter.

The yields of cream from milk, and butter from cream, are subject to much variation. The richness of milk differs too at morning and evening. But the average figures are approximately these:—12 qt. of milk should give 1 qt. of cream, and 1 qt. of cream should afford 14 oz. of butter. Morning milk is richer than evening milk, and the last portion drawn from the cow at each milking, is richer than the first. Autumn milk is best for butter, summer milk for cheese.

Milk to be sold fresh as such should be cooled immediately it is drawn from the cow, because while warm and exposed to the air, the sugar present undergoes oxidation with consequent liberation of lactic acid, which is indicated by the milk turning sour. When promptly cooled, milk can be kept sweet and transported without risk, besides which it gives up its cream more readily. The Americans have introduced various coolers, all of which are more or less effective.

As fast as brought in, the milk should be run

through a hair sieve. This, and also the vessels with which the milk comes in contact, must be kept scrupulously clean by the aid of constant scalding, to be followed by rinsing with cold water, and drying in the air. The milk is exposed in the pans for varying periods in order that the globules of fat may have an opportunity of separating from the milk and floating on the surface. This process is now very commonly replaced by the use of a hydro-extractor, in which centrifugal action breaks up the milk into cream and "skim milk" without any need for waiting. According to the older practice the milk is left to stand for a considerable time, but no advantage is gained by exceeding 24 hours; in fact the best authorities say that it should be skimmed before the surface begins to look wrinkled, as this appearance is a symptom of incipient putrefaction. Large shallow perforated tin ladles are used for removing the cream, which should be carefully deposited, without splash, in white stoneware jars holding 2 to 12 gal., according to the size of the dairy. Common glazed earthenware is to be avoided on account of injurious chemical action. Skimming should be done twice daily, and each time an addition of cream is made to the jar the whole contents should be well but gently stirred with a stoneware spoon. The jars should be covered with gauze to exclude insects. In some dairies skimming is avoided by the simple plan of having a hole in the bottom of the milk dish by which the milk is drawn off, leaving the cream undisturbed.

Butter consists of the fatty portion of the milk, which is separated by the process known as "churning," the object of which is to rupture the envelopes which hold the fatty matter. The bulk of this fatty matter resides in the cream. Butter may be

"made" by churning either the milk or only the cream; and these may be either in a sweet or sour ("lappered") state. The most general practice is to churn the cream alone in a lappered condition. For this reason the cream is set to ripen in stoneware jars for several days, averaging about 3 days in summer, and 5 or 6 in winter, preferably with occasional stirring. It is the general opinion that to get the best butter, the operation of churning should be comparatively slow, from ¾ hour to 2 hours—an hour being a fair average, varying, however, according to the season; the operation being much more tedious in winter than in summer. After the butter is separated from the cream, the buttermilk remains, containing the casein, salt, and sugar present in the original cream, though a portion of these is taken up with the butter. The greater the proportion of casein left in the butter, the poorer is the latter in quality, and the more readily will it become rancid.

Commenting on Jenkins' pamphlet, 'Hints on Butter-making,' the *Field* recently published the following remarks:—

"Cheese-making, owing to American importations, has recently been so unprofitable that there is the more necessity for attention to butter-making. Why should the dairies of France, Holland, Denmark, and Sweden be able to supply an article in our markets which is superior to the bulk of our own make? And why, above all, in the matter of fresh butter, should Normandy be preferred by our large purveyors to the home dairies, were it not that by superior cleanliness and systematic management the quality is more dependable? For instance, we have been told that the manager of the Midland Hotel at Derby obtains all

his butter from Normandy, because he finds it more reliable and of better and more uniform quality than English produce, notwithstanding that he lives in the centre of a great dairy district, and that the foreign produce is liable to deterioration by the journey. Here, then, the English farmer has an opportunity which he is very wrong to neglect. Cheese does not pay—at least, such varieties as are usually made; the demand for milk is limited; but good sweet butter will always command a fair and often a very high price. The reasons given by Jenkins for the inferior butter are these: That the milk is not skimmed early enough—often not before a certain amount of sourness has been developed in the milk, and an appreciable amount of curd has therefore become mixed with the cream. It is true that this curd increases the quantity, but it affects the quality; the butter becomes rank, and fetches a low price. Careless skimming, by taking off some of the milk with the cream, causes the same results. Carelessness in churning or in the manipulation of the butter, by which buttermilk and water are left in the butter. It may be that this is sometimes intentional, as more weight is obtained; but the quality is greatly injured. Much handling of the butter in making up is also a source of injury. Dirt in any form, bad smells, unskilful milking, bad food and water given to the cows; bad water, soap, or other noxious substances used in washing the dairy and vessels, are all causes of bad butter which must be guarded against. Temperature being allowed to vary, bad packing, &c., are all elements that require more care than is usually bestowed. As regards the food, Jenkins points out that in a wet season, grass alone cannot be depended on to give a good result—it is too succulent in its nature, and should be modified by

the use of 4 lb. of bean meal given to each cow daily; whilst under ordinary circumstances the ration may consist of 2 lb. to 3 lb. of decorticated cotton cake, or 2½ lb. of bran and 2½ lb. of oatmeal, or 3 lb. of oatmeal and 2 lb. of bean meal. And he states, what all who have had experience will confirm, that by the use of such food more cows can be profitably kept, and that a farmer should look upon grass and hay as the most expensive articles of food. Then Jenkins proceeds to describe the process of butter-making adopted in the best districts of Normandy. We shall make no apology for publishing these directions *verbatim*, as we shall thereby assist the society in the dissemination of useful knowledge.

"1. Clean all dairy utensils by rinsing them with clean cold water, and afterwards scrubbing them with boiling water; after which repeat the cold rinsing.

"2. Cool the milk directly it is brought into the dairy by placing the cans in a running stream, or by any other available method. This, we may be permitted to observe, whilst most desirable, is often not easily attainable. The Americans, in selecting the site for the dairy, always prefer the base of a hill, so as to secure two very important factors—shelter from the sun and a cold spring of water. If running water cannot be obtained, that from a deep well may be used.

"3. Set the milk at a temperature of not exceeding 55°F. in glazed earthenware or tin pans. The question of whether these shall be shallow or deep will depend upon our facilities for reducing the temperature. If we have running water or ice, there is no doubt that the deep cans thus surrounded offer a greater surface of milk to the cooling influence,

and this rapid and regular cooling causes the cream to rise freely and quickly; but if we have not these facilities, then shallow pans are preferable.

“4. Skim after 12 hours with a perforated tin saucer, and take care that nothing but cream is removed; 12 hours after, skim a second time; but this should not be mixed with the first skimmed cream at all, if our object is to make the finest class of butter; but otherwise it must be mixed with the first cream just before churning. Of course by following this plan we do not obtain the maximum produce, but we have the best quality. If the cream is too thick, a little pure water may be added, but the addition of milk should be avoided.

“5. Keep the cream, until the time for changing, in the coldest place available, in covered earthenware or tin vessels.

“6. Churn the cream at a temperature of 57° to 60° F., and obtain this by gradually raising or lowering the temperature by placing the vessel in a bath of warm or cold water. Use an ordinary revolving barrel, or a midfeather churn, fitted with a spigot. The more simple the churn, and the less mechanism, the more easily is it churned. Thomas and Taylor’s Self-acting Eccentric Churn (Stockport, Cheshire), which gained the first prize at Bristol, is recommended, to be turned at from 50 to 60 revolutions per minute. Stop the churning at once when the butter comes, however small the globules may be. Remove the buttermilk by allowing it to run through a hair sieve, and return any butter globules to the churn.

“7. Work the butter slowly with cold water by half filling the churn, giving it 3 or 4 turns, and then withdrawing the water. Repeat the working until the

water comes out clear; this is of great importance. Remove the butter by a pair of wooden patters, and press out the water by passing it under a kneading board, or on a larger scale, by using a revolving butter worker. The board and roller can be obtained for 13*s.* 6*d.*, of How, 13, Bishopsgate-street, E.C.; or of T. Bradford and Co., 140, High Holborn. Avoid using the hand.

"8. Make up the butter as is most saleable, and pack it in small packages, lined first with white paper, and then with new and clean muslin previously well rinsed in boiling water and again cooled, &c."

We often consider the French our inferiors in agricultural matters, but they have built up a position upon butter and cheese which has made two or three departments absolutely wealthy, and they still pursue the system in a most business-like and thrifty manner. We wish we could point to a single English county in which one-half is done with butter that is done in Calvados; but while we are content to grow corn at a loss, and buy our dairy produce at considerably more than we can get it for at home, we shall continue to contribute to the wealth of Normandy and the difficulties which beset the land question at home. Our producers must first break the back of the middleman, and then there will be no such facts existing as the best fresh butter a drug at 11*d.* a lb. in some of our country districts, while it is 1*s.* 10*d.* in London.

Butter, Potting.—The best month of the year in which to pot butter is May, or, at any rate, the business should be completed before the hot weather comes on. If the butter is to be kept for several months, it will be necessary to put a good deal of salt

with it; 1 oz. salt to 1 lb. butter will not be found too much. To ensure the proper incorporation of the salt, it is best to add it by small quantities at a time, kneading and re-kneading the butter till the whole is thoroughly mixed. It must then be pressed firmly into wooden tubs, or "kits," as they are technically called; or stone jars may be used if preferred. It is hardly necessary to add that great care must be taken to have every vessel employed in the preparation as clean and sweet as possible. Another very simple way to preserve butter is to have a good-sized earthenware jar or pan filled with some strong brine, and place it at hand in the dairy. Into the brine put from time to time, as it can be spared, ½ lb. of fresh butter, each piece being folded up separately in thin muslin. The only care required is to be certain that the butter is always thoroughly covered with brine: it will sometimes be necessary to put a weight on the butter, as it has a tendency to rise to the surface when the brine is strong. The butter will keep in this manner for weeks, or even months, and, besides the advantage gained by this plan of being able to take out just as much as is required for use at a time; there is the additional benefit of having preserved fresh butter, as it does not absorb the salt.

Butter, Rancid.—(*a*) Rancid butter may be recovered and sweetened by washing and kneading it well, first in new milk, and afterwards in cold spring water, butyric acid, on which the rancidity depends, being freely soluble in new milk.

(*b*) Let the butter be melted and skimmed as for clarifying; then put into it a piece of bread, well toasted all over. In a minute or two the butter will lose its offensive smell and taste.

(*c*) Beat the butter in a sufficient quantity of water,

in which you put 25-30 drops lime chloride to 2 lb. butter. After having mixed it till all its parts are in contact with the water, it may be left in for 1-2 hours, afterwards withdrawn, and washed anew repeatedly in fresh water.

Cheese.—When milk is curdled, it separates into two portions, curd and whey. The former consists of the butter and casein, and produces cheese; the latter is mainly water, with the sugar and mineral constituents of the milk in solution. Milk for cheese-making, which is more or less rich in cream, according to the kind of cheese, is placed in vats at a temperature varying from about 70° to 85° F., with the due amounts of rennet and colouring matter, for 1-1½ hour under cover. The rennet must be prepared from perfectly fresh (untainted) calves' veils soaked in soft water—the halves of 1½ veils steeped in ½ gal. water will suffice for 250 lb. of cheese. The best colour is liquid arnatto, ½ fl. oz. to 25 lb. cheese.

As soon as the curd has set, say 1-1½ hour, the curd is "cut" by a special implement and broken up by the hand, a process demanding much skill and care. This completed, the curd is subjected to pressure, with the object of expressing the whey, which latter is drained off. The pressure is increased and judiciously regulated as the curd hardens, so as to remove all the whey without losing any butter. Various appliances are in use for this purpose. When the curd has been thoroughly freed from whey, it is broken up, salted in due proportion, and again submitted to repeated and increasing pressings. Finally it goes into the curing room to ripen.

Rennet.—Rennet is easily made at home, and costs less than half what the same quantity is charged when bought ready-made. Home-made rennet is also

much stronger than the bought preparation and is useful in making summer delicacies. Get a calf's maw from a butcher. They always keep them on hand, and charge about 1*s.* each. Tie the skin tightly at one end, with a double loop of twine, and leave it in a dairy or cool larder. When you want rennet, cut a piece about 1 in. square, and soak it in a teacupful warm water all night. Next day, take out the bit of maw, and to 1 pint cream or milk, use 1 large tablespoonful of the liquid. As a rule, the Gloucestershire cheese-makers do not manufacture their own rennet but buy it ready prepared. The kind generally employed is Hansen's Patent Rennet Extract, which is used in the proportion of 1 teaspoonful extract to 6 gal. milk.

Cream Cheese.—Take ½ pint very richest cream and a cheese cloth. Pour the cream into the cloth, and lay it upon one of your dairy pans for an hour. Then take a perfectly clean knife and scrape off any cream that may have stuck to the cloth, and lay it on the top and sides of the cheese. Tie it up somewhat loosely, and hang it up to drip; open it from time to time, and remove any cream that has stuck to the cloth, and place it as before. When it stops dripping the cheese is ready, and will turn out easily. The cheese should always be used the same day it is made. In summer a few hours will suffice. If you tell your dairywoman the day before, she will have thicker cream for the cheese by keeping some of the milk that is set for cream 12 hours or more beyond the usual time for ordinary purposes before skimming it. The quantity of cream depends of course on the number of your party; ½ pint is enough for 6-8 people. If the cream be rich and the cheese well made, it will be soft, but without losing its round shape in the least. Though tied up loosely

at first, it should be gradually tightened, after being opened from time to time as directed above.

New-milk Cheese.—Mix 4 gal. new milk with a breakfastcupful of salt, and a small teacupful of prepared essence of rennet. The milk should be used warm as it comes from the cow, or, if it has cooled, all or a part of it should be heated again, so that the whole marks about 95°F. The cheese is better if a pint or more of cream is added to the milk, but it is not necessary. The curd and the cheese will be hard if the milk is too hot. After about 2 hours the curd will have set. It should then be slashed across in all directions, and some of the whey ladled out with a cup. Next the curd should be drained in a cloth laid over a colander, and then put into a wooden or tin cheese mould in layers, with salt between. This should not be done until the curd is fairly dry. The mould should be covered and turned every day. Only a very light weight (if any) should be laid over. At the end of 2 weeks the cheese should be put in a muslin bag, and hung up in an airy, dry place, where the sun cannot reach it. Late in the year try half or a third this quantity, as, though there is more waste in a small cheese, it ripens quicker. May and June are the best cheesemaking months. Cheese moulds are generally round or cylinder shaped; but any strong box of wood, with gimlet holes at top, bottom, and sides, and a lid that fits inside and not over (so that as the cheese shrinks it still presses on it), will do for a makeshift.

Rush Cream Cheese.—To 1 pint thick, fresh cream, add ½ pint new milk, warm from the cow, 1 teaspoonful pounded loaf sugar, and 1 tablespoonful rennet. Let it remain near the fire till it turns to curd. Take the curd up with an egg slice, and fill the rush

shape, made as directed, and covered with a piece of straining cloth inside. Lay a ¼ lb. weight on a saucer over the curd the first day; afterwards a ½ lb. weight. Change the cloth every day until the cheese is firm and begins to look mellow. Then dispense with the cloths, and return the cheese to the rush shape and leave it to ripen there. It may be ripened more quickly by keeping it from first to last in a tolerably warm room. Although cream cheeses are generally considered to be only in season during the summer, there is no reason why they cannot be as readily made at any time of the year, and of late they have come to be considered an almost indispensable delicacy at a fashionable dinner-table. A little extra trouble is all that is needed to ensure success. The cream and milk must be made rather more than new milk warmth, and if rennet is used, the cream must be covered and put in a warm place until the curd is come. During the whole process the temperature should never be lower than 65°F.

Sage Cheese.—This is made by colouring the milk with juice pressed from young red sage leaves and spinach. It should be added with the rennet to the milk.

Much obscurity has hitherto hung around the natural processes concerned in the development of flavour in cheese. Cheeses of different districts and of different countries possess (apart from mere richness due to the quantity of cream fat contained) each a piquancy characteristic of itself, which the differences in the mode of manufacture appear frequently much too slight to adequately account for. In the cheese-making districts of the Continent, however, this matter has been made the subject of scientific investigations; and already results are

forthcoming which throw much light upon the subject. Among these, the researches of Duclaux, at the dairy station at Fau, Cantal, France, deserve particular attention, from the suggestiveness of the conclusions adduced. This *savant* has succeeded in isolating and in studying the life history of certain microscopic organisms (microbia), in which he recognises the primary agent that is engaged in modifying the constituents of cheese. These organisms are nourished by the casein or curd of the cheese, which they break up into a number of substances of simpler constitution, some of which, like the fatty acids, are characterised by highly piquant qualities. There are several ferments which produce these odorous principles in different proportions, and thus give rise to the differently flavoured cheeses; and the skill of the dairyman largely consists (though he does not know it) in always employing the same ferments or ripening agents, and in preventing other and less desirable organisms from gaining a foothold. Fortunately, in course of time, the useful ferments establish themselves in large quantities in the dairy; they impregnate the air of the factory, and cling to the vessels and the clothing of the operatives. From the moment the milk is drawn, it becomes exposed to the influence of these germs, which, developing rapidly in the warm milk, and becoming entangled in the curd when the rennet is added, accompany it through the operations that follow. On the Continent it appears common to curdle the milk at a much higher temperature than we do. Duclaux speaks of the rennet being frequently added just as the milk comes from the cow; and if it has been allowed to cool, it is warmed up to the natural temperature, 95°-98° F.

In making fine cheeses but little rennet is used, and the coagulation takes a long time. The curd is soft and full of whey, which is drained off slowly and as completely as possible, in order to get rid of the milk sugar. That which is left is chiefly converted into lactic acid, which renders the new cheese slightly acid. Soon, however, the casein ferments begin to develop over the surface of the cheese, giving rise to carbonate of ammonia, which neutralises the acid, and leaves the cheese in the end slightly alkaline. From the living cells of the ferment are at the same time secreted a diastase similar to the active principle which in malt, and in all germinating seeds, converts the starch into sugar. This penetrates the curd little by little, and renders it soluble, and thus a yellow translucent layer creeps gradually inward to the centre, and replaces the white and opaque casein. When isolated, this diastase attacked curd so strongly as to reduce it in 3 or 4 days to the consistency and appearance of Camembert cheese; but, as the flavouring organisms were absent, the resulting product was insipid and tasteless. This action resembles strongly the digestion to which the cheese is afterwards more completely subjected in the body. Indeed, the similarity in properties between this peculiar principle and the ferment of the pancreas is very marked. Simultaneously with the digestive diastase there is also secreted a diastase capable of coagulating the casein; but the cheese maker does not wait for this to be developed, but adds to the milk some rennet, which is a solution containing this diastase in considerable quantity. Such, in short, is the rationale of cheese curing—first, an organised ferment decomposes the curd, and produces in small quantities highly flavoured compounds, which, like a

condiment, give relish to the whole mass; and secondly, a diastase, or unorganised ferment secreted by the organism, mellows the curd and renders it more easily soluble.

The conditions most favourable for the exclusive development of these organisms have been learnt by long practice; but should these conditions at any time fail to be observed, some other ferment, incapable of producing the particular kind of ripening wished for, may intrude itself. The chamber is then said to be "sick," and has sometimes to be temporarily abandoned.

Special members of the yeast and mould families are also largely concerned in the ripening of certain cheeses, and their action is very similar to that mentioned above. Roquefort and Pontgibaud cheeses, for example, are ripened by *Penicillium glaucum*, or, in other words, bread mould. These cheeses are kept as near as possible to 32° F., not because so low a temperature is most favourable to the development of the mould, but because other ferments, and especially such as give rise to putrefaction (vibrios), are thereby checked. From the low temperature and unsuitable soil the ripening is apt to proceed so slowly that it is customary to expedite the fermentation by a liberal inoculation of mouldy bread, and by piercing holes to enable the plant to penetrate inwards.

In Gruyère cheese are found long cells constricted in the middle like an elongated figure of 8. These cells multiply by splitting in two at the constricted part, forming two individuals. A gelatinous layer surrounds each cell when young, and also divides and envelopes the new individuals. This, however, disappears with age, leaving the cell naked. The

action of this organism is to resolve any milk sugar that may be present into alcohol, acetic acid, and carbonic acid, and as this latter is a gas, it forms a number of small bubbles in the cheese. Gruyère is a cooked cheese; for in order to hasten the elimination of the whey, and enable the curd to be pressed in the mould as quickly as possible, the curd is heated slowly, and with constant stirring, to about 120° F. This requires considerable care, for if the heating be too rapid, the grains formed are large, and in the press flatten out and adhere to one another, and so clothe the cheese with an impenetrable layer, through which the whey is unable to escape. On the other hand, an undercooked curd is liable to retain an excess of whey; and the evil of this is that too much gas is given off by the fermentation of the sugar, and consequently, instead of bubbles, long channels appear in the cheese, which depreciate the value of the product. Again, as the ferment is killed at a temperature very near 120° F. (varying a little with the acidity or alkalinity of the curd), it is very possible to destroy it by overheating, and then the cheese becomes dry, is difficult to mature, and is said to be “dead.” Under any circumstances the ripening of Gruyère cheese is a very slow process.

In Duclaux’s own district of Cantal, a soft, quickly maturing, uncooked cheese is made, which has the disadvantage of slowly depreciating after ripening, owing to the large quantity of moisture it contains. The practice is to curdle the milk rapidly, and then, while the curd still retains a considerable amount of whey, to allow it to ferment till all the milk sugar has disappeared. On pressing the mass, there is squeezed out a certain amount of liquid and much ferment; but the remainder, equivalent to half the weight of the cheese, is retained, owing to a curious change in

the properties of the curd. So obstinately is this held, that, with additional pressure, fat is forced out in preference to water. Duclaux finds, however, that with cheese containing less fat—say, half skimmed and half raw milk—more liquid can be extracted, and thus a better-keeping cheese obtained. As the flavour and odour are derived almost entirely from the alteration products of the casein, the main characteristics of the Cantal cheese are not altered by this modification, and he consequently recommends its adoption.

The most praiseworthy part of Duclaux's investigations—that on the life history of these organisms, and the isolation and investigation of the diastases secreted by them—is of too scientific a nature to be reproduced here. We may mention, however, that Manelli and Mussi, in their researches on the maturing of Parmesan cheese, have independently come to much the same conclusion as those given above; so there is every reason to consider that we possess now a correct explanation of the phenomena of cheese ripening.

Apart from the interest attached to the explanation of an every-day process, researches such as these are sure in the end to lead to results of direct practical utility. Little by little we are getting to understand that no process of fermentation or putrefaction can be truly called "spontaneous." They are as much the result of sowing as a thistle that turns up in a field where it was not purposely planted; and just as we can keep our agricultural crops in order by due attention, so crops of ferments can be controlled, the valuable ones being cultivated, and the pernicious weeds sterilised. Methods are known to the vinegar maker by which he can rear, when he needs it,

unmixed crops of *Mycoderma aceti* to ferment his liquors; and the high-class brewer already uses the microscope to ascertain the healthiness of his yeast plant and its freedom from bacteria. May not even cheesemaking, then, be raised from an empirical art into a science, and each cheese factory of the future devote itself knowingly to the cultivation of its own appropriate fungus, learning its likes and its dislikes, and the enemies that have to be contended with? Even the mould sowing of the Roquefort peasants might be improved upon, and pure crops of ferment be raised to inoculate our cheeses. Granted that even then our finest cheeses would not be made better, yet the possibility of raising all cheese to the highest standard of quality of which it is capable is surely sufficient to claim for the scientific experimenter respect and encouragement.

In France there are a variety of cheeses which vary in consistence, constitution, flavour, and ability to keep, and these differences are rather owing to the process of manufacture than to the nature of the soil or the peculiarity of climate. The various denominations applied to them, too, indicate differences in manipulation rather than any change in their matter. Nevertheless, we are far from partaking of the opinion of those who deny that both sun and soil have any influence; for as with wine and cider, so with butter and cheese, the pasture has a marked action upon aroma and quality. If we consider the general manner or process of manufacture, we find that it comprehends five distinct operations, which in France are called: 1st, *coagulation du lait*, or the formation of the curd; 2nd, *rompage*, or breaking up of the curd; 3rd, *égouttage*, or drainage, which is accompanied in some cases by *pressage* or pressing; 4th, *salaison*, or salting; and 5th,

fermentation, or maturing of the cheese. It is in the various methods, many of which differ very little from each other, and in all of which these operations are in force, but carried out under different conditions, that it is found possible to make 40 or more varieties of cheese, which are divided into 4 categories; 1st, fresh soft cheese; 2nd, salt ditto ditto; 3rd, firm or medium-pressed ditto; 4th, cured cheese, more or less hard and pressed.

In the first category we have the Neufchâtel, the manufacture of which is extensive and profitable in the district of Bray; the Brie, the Pont l'Evêque, and the Camembert may be mentioned as examples of the second; Roquefort and Dutch of the third; and Gruyère and Parmesan of the fourth.

There are defects to which even the best cheeses are commonly subject—defects, of the causes of which the professed cheese-makers themselves do not always give consistent accounts. Every good cheese should be of uniformly smooth surface, and perfectly firm; of colour unvarying throughout the whole surface, save only where the marks of age, necessary to certain kinds, appear. Softness and soapiness of texture; cracks, attributed by some to the action of lime on pasture, by others to the employment of too strong a draught in the process of drying; and holes, caused by "heaving" or "sweating," are patent signs of imperfection which should warn the most careless purchaser against the cheese in which any of them are found. "Marbling," the worst of all faults, is a mottled appearance of the surface, somewhat resembling the veining of marble. It is due to one or more of the following causes: not properly scalding the cheese; adding the colouring (which should be put in before the rennet) after the

cheese has come; not properly squeezing out the whey. Wherever this occurs, it imparts to the cheese an exceeding ill flavour—in fact, makes it unfit to be eaten. It is especially dangerous in cheeses of the North Wilts kind, where the surface is invisible to the purchaser. Rankness of flavour, which can of course be guarded against by those who buy their own cheese, is also to be met with in the best kinds. This has been imputed to impurity of rennet; but, as it is frequently found in the cheeses of Scotland, where it is pretended that the greatest care is taken of the rennet, it may possibly also result from bad quality of pasture. In the Scotch dairy farms it is said to be obviated by pouring a very small quantity of saltpetre into the pail before milking the cows.

Following are some remarks on the chief British cheeses, culled from the *Field*.

Cheddar.—The manufacture of this, the king of cheeses, occupies a large tract of country, its head-quarters being at and about Pennard, a few miles from the cliffs of Cheddar in the Mendips. For richness combined with delicacy of flavour, and, indeed, for every good quality that may become a cheese, it is without a rival. None can serve better its purpose at dinner. This cheese is made of circular shape, of large surface, and considerable depth; its price about 13*d.* per lb. at a good cheesemonger's. It is mostly white, but is occasionally coloured red, for which purpose Nicholl's "colouring" is used. It is said to make no perceptible difference in the flavour. Cheddar, to be in perfection, must be kept for at least 2 years before being eaten, when it will not show any outward signs of decay. It is said, that the facility of exportation given by railways at present has caused much of this cheese to be moved before it

is properly ripe, thereby producing a considerable general deterioration of its quality in the markets. Yet by taking a little pains, and by selection of right places of purchase, the best of it may still be obtained.

Cheshire.—This justly celebrated cheese, though for delicacy of flavour inferior to Cheddar, was, and is still by many good judges, held to be the best of English cheeses. In taste it is a good deal stronger, not to say coarser, than Cheddar, but it is equally rich in substance. Perhaps, owing to its strength, it may be considered as better adapted for dinner than luncheon. It is of large size, and circular in shape. Like Cheddar, it must be kept at least 2 years before eating, and no cheese is more improved by age. It is for the most part made in the county the name of which it bears, though, of course, the general area of its distribution exceeds the limits of that county, and very good specimens of it may be had at some distance beyond the borders. Much of its excellence is, however, said to be imparted by the peculiarity of the soil of Cheshire itself, and by the salt springs with which that soil abounds. At least, wherever such salt springs are most found, the cheese there produced has always been deemed of superior quality. The price of the best quality in London shops is mostly the same as that of Cheddar.

Cottenham.—Some say that it is a much superior cheese to Stilton. In external appearance it closely resembles Stilton, and might easily be mistaken for it. The interior, however, which is of a far richer and creamier texture, is very different. The flavour is fuller, though equally delicate; and although Cottenham, to be really good, requires, like Stilton, to be kept until decay shows itself, yet it is in itself

not so insipid but that it may be eaten before that decay is very fully developed. The veins with which it will then be marked are of a brownish hue. It is about the same size as Stilton, or perhaps a little larger, and its price ought to be about the same as the price of that cheese.

Daventry.—A rare cheese of remarkably pleasant flavour, very delicate of taste, and possibly rich of substance. It is of medium size, flat and circular of shape, of whitish colour, and should be marked when fit for eating with veins, somewhat after the manner of Stilton, but of deeper green than is usual with that cheese.

Dorset (Double), or Blue Vinney.—This cheese is generally known throughout a large tract of country, but is in fact a poor enough cheese, and only adapted to make a tolerable luncheon off. It is circular and flat, of white colour, mottled with a network of blue veins; whence its name, though the etymology of the name has disappeared in the popular spelling of it.

Dunlop.—This, the most famous—indeed, the only famous—Scotch cheese, is made in the counties of Ayr, Renfrew, Lanark, and Galloway, in various sizes from ¼ to ½ cwt. In texture and taste it somewhat resembles double Gloucester, and, like it, is well adapted for toasting.

Gloucester, Double and Single.—Double Gloucester is also a very rich cheese, but with a certain poverty of flavour, by reason of which it can hardly be recommended for use at dinner, although at luncheon it may not be unacceptable. Its taste is peculiarly mild, and this, combined with its waxy texture, which allows it to be cut into thin slices without crumbling, admirably adapts it for toasting, for which purpose it is, with hardly an exception, the

best cheese we possess. It is of circular shape, and generally weighs about 22 lb. The single Gloucester is currently reported to be of the same substance and richness as the double; but in fact, as a rule, is made of far poorer materials, being composed of milk skimmed overnight, or partially thereof; it is also of only about half the weight and thickness. It is fit for nothing but toasting.

Leicester—commonly called in London shops *Derbyshire*—is chiefly made in the county from which it takes it name; it is in shape flat and circular, and very shallow, of moderate size, and coloured a deepish red. It is a good second-rate cheese, and if any one shall desire a serviceable article, whether for luncheon or dinner, very equal in quality and agreeable of taste, let him try Leicester. The price should be 9-10*d.* per lb.

North Wilts.—This, which derives its name from the county of its birth, is a rich and nice little cheese, of a very delicate and agreeable flavour. From the extreme mildness of its taste, it is far fitter for the luncheon than for the dining-table. In shape it is cylindrical, with a smooth hard rind, and weighs about 10-12 lb. It is coloured red with arnatto. The price in London is 10-11*d.* per lb.

Stilton.—At Stilton, in Huntingdonshire, where the coaches of the great north road were wont to stop for luncheon, this cheese was first introduced to the public. Its sole connection with Stilton is its name, the cheese itself having been made in the neighbourhood of Melton Mowbray. Since then it has extended itself over most of the rich lowlands of Leicestershire and a portion of Nottinghamshire. In shape it is cylindrical, the outside covered with a whitish rind, very thick and rough. The flavour of a

good Stilton is exquisite, though, perhaps rather cloying as compared with the finer sorts of “plain” cheese. It is unfit to be eaten—indeed, is of a nauseous insipidity—until pretty well covered with blue veins. This will occur in about 2 years, and should be allowed to come on gradually and naturally, by merely keeping the cheese moist enough not to check the decay. Many artifices, however, are resorted to in order to hasten its maturity, as by placing it in a damp but warm cellar; sinking it, wrapped in brown paper, in a hotbed, &c. The practice of pouring port wine into Stilton is condemned by some as at once wasting good wine and spoiling good cheese. Stilton will be found most acceptable both at luncheon and dinner. In size it averages 12 lb., and its price is from 1*s.* 6*d.* per lb. There is, however, no cheese so unequal in quality, whether from accidents to which it is liable during manufacture, or from whatever other cause, and the utmost care must be taken in its purchase.

Subjoined is an account of the best known foreign cheeses, from the same source.

Camembert.—This cheese, which is made in Brittany, is a kind of cross between the “real” and “cream” cheese. It reminds one much of the best privately made cream cheese of our own country, with a rich and peculiar flavour superadded. It is of a soft and creamy texture, of a yellowish white, flat and very shallow, with a dark brown rind, very thick and soft. It may be confidently recommended as a real delicacy, rather for the dinner than the luncheon-table. The price of Camembert cheeses, which are o£ small size, is about 9-10*d.* each.

Cream Cheeses.—In this production the palm must be yielded by the English to the foreign market. Our

own cheeses of the kind, including the best of private manufacture, are made to be eaten at once, and will not bear keeping, by which process the Continental cheese, more skilfully put together, is much improved.

The principal foreign cream cheeses are Stracchino (Milan), which is a long way the best; Brie (Meaux), Marolles, and Pont l'Evêque, all very good of their kind, and Neufchatel, which last is, of all, the most commonly met with on this side of the Channel. Neufchatel, frequently called "Bondon," from being made of the shape and size of the *bondon* (Ang. "bung") of a cask, is made at Neufchatel, in Normandy. It is simply a white cream cheese, and when fresh, extremely insipid—in fact, hardly equal to our own Yorkshire and Bath cheeses. By keeping, however, until it becomes "ripe," it acquires a flavour by no means to be despised, though hardly on a level with some of the cream cheeses already mentioned.

Crême de Brie has been alluded to as once the *crême de la crême* of cheeses, and even now "running a good second" to Roquefort. La Brie is situated near to Paris, in the Department of Seine et Marne, with proximity, together with the difficulty of distant transport and the fondness of the Parisians for the thing itself, causes the most dainty to be almost entirely eaten in Paris. Imitations of it are many, and, as a rule, as worthless as is the genuine article valuable, for of all the French cheeses it is the most expensive by reason of its not keeping sound beyond a few days, and the large quantities in which it is partaken of at a meal. Brie is a soft, creamy cheese, made in rounds of large size but of little thickness.

Dutch (Holland and Belgium).—This cheese is

perhaps better known in kitchens than in the upper regions. It has, however, many good points, and is of by no means disagreeable flavour, though, owing to the process of making, a little too salt for delicate taste. It is also in general very safe, and very equal in quality. Being extremely mild, it is hardly suited to the dinner table, but affords an excellent luncheon. For domestic use it is eminently serviceable, and will be found (which is a great merit) generally acceptable in the kitchen. It is of a spherical oval shape, softish in texture, and coloured red. Its cheapness is also a recommendation, as it costs but 8*d.* or 9*d.* a lb. An imitation of this cheese is made in the district of Calvados, Normandy.

Gorgonzola (North of Italy).—This is an excellent cheese, and one that bears a close resemblance to Stilton. It has, however, so strongly marked and distinct a character of its own, that it would be injurious to institute a comparison between it and any other cheese. In texture and marking it is not altogether unlike Stilton, but is of deeper yellow, and the veins of a greener hue. It is equally good for luncheon and dinner, having great delicacy combined with fulness of flavour. Price about 1*s.* 5*d.* a lb.

Gruyère.—Gruyère is made in the Canton of Fribourg, and in the Vosges, the Jura, and Ain. The best cheeses of this kind are selected for exportation. Gruyère is a flat cheese of some 3 in. in depth, of a pale yellow colour, and plain surface, marked sparsely with large holes, which contain moisture. The rule laid down on the “plain” cheeses of England as to uniformity of colour in the surface of cheese holds good abroad as well as at home, but uniformity of surface in foreign plain cheeses need not be so

closely looked for. In fact, the holes that abound in some of these cheeses constitute neither blemish nor unsoundness. The odour of Gruyère is strongish, but the taste mild and delicate. If anything, it is a little cloying. It is a fair cheese, but cannot be called more than fair, for dinner; but will serve very well for luncheon, though perhaps likely to pall on the taste if eaten constantly at this meal. The wholesale price is 11*d.* a lb.

Parmesan (from the district in the North of Italy between Lodi and Cremona) is a finer cheese than Gruyère. The cows from whose milk it is made are kept in the house nearly all the year round, and fed in summer on cut grass, in winter on hay. The process of making both Gruyère and Parmesan is the same, but the quality of the milk considerably differs. Parmesan is of great size, sometimes reaching 180 lb. and is perhaps, of all cheese imported from abroad, the most useful "all round." It is the only cheese that can be used grated for soup or macaroni. It is the custom of a good many people to supply grated Parmesan as a dinner cheese, but grated cheese, as compared with whole, suffers a certain deterioration of flavour. However this may be, avoid, if the cheese is served whole, the cutting of either this or Gruyère into thin slices, as the manner of some is. Let the cheese have fair play, and its full flavour, which it will not, unless it be cut, like any other cheese, of a reasonable thickness. Parmesan is of a yellowish-green hue, of firm and hard surface, marked by small holes. The time for ripening it properly is about 3 years. When not wanted for use, it should be kept covered with a cloth slightly steeped in sweet oil. The wholesale price is 1*s.* 5*d.* a lb.

Port du Salut.—This cheese is hardly as well-known in England as are the Roquefort and other French cheeses. It is, when fresh, a soft, pasty, mild, most palatable cheese, generally made in round cakes of 5-8 lb. in weight, and stamped with a cross and words showing its place of manufacture.

Roquefort, made in the department of Aveyron, in the south of France, is not only the most highly priced and most highly prized of the cheeses of that country, but a most formidable rival to any of the best cheeses made on the continent, and even to our own more celebrated "fancy" cheeses. It has been likened by some to Stilton; but, beyond a certain similarity of surface texture, the two have not much in common. They are, moreover, made of very different matter, Roquefort being composed of sheep and goats' milk intermixed. Its peculiar excellence is said to be due to the natural qualities of the cellars wherein it is placed for ripening, and partly also from the manner of milking the sheep in making it. It should be kept until considerable progress of decay has been made. It is of very delicate though rather pungent flavour, and, if it lacks something of the softness and mellowness of the Stilton, will be found equally agreeable with it, at least at the dinner table. For luncheon Stilton has the preference. Its wholesale price per lb. is 1*s.* 5*d.*

Schabzieger.—This cheese is of spherical shape, of size somewhat larger than a cricket ball, with a dark thick rind. Its colour is yellow, with green veins. It is of a strong odour, and, unlike Gruyère, of an equally strong and rank taste. There is no doubt of its power to fulfil one purpose of cheese, the annihilation of the taste of anything you may have previously eaten, and for this it will be found to do good and useful

service. It is a deservedly popular delicacy. The price of each cheese is about 8*d.* See also p. 1002.

SUPPLEMENTARY LITERATURE.

John Darton: 'The Dairyman: a Practical Guide to Cow-keeping, and the Making of Butter and Cheese.' London. 1872. 1*s.*

Willis P. Hazard: 'Butter and Butter-making, with the Best Methods for Producing and Marketing it.' Philadelphia. 1877.

H. M. Jenkins: 'Hints on Butter-making.' London. 1886. 6*d.*

J. P. Sheldon: 'Dairy Farming.' London. 1*l.* 11*s.* 6*d.*

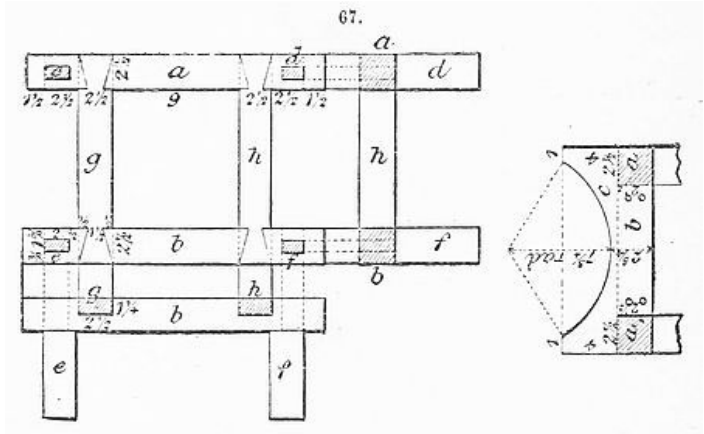
Canon Bagot: 'Easy Lessons in Dairying.' London, 1883. 6*d.*

The *Field.* London. Weekly. 6*d.*

THE CELLAR.

A great mistake is sometimes made in ventilating cellars. The object of ventilation is to keep the cellar cool and dry; but this object often fails of being accomplished by a common mistake, and instead the cellar is made both warm and damp. A cool place should never be ventilated, unless the air admitted is

cooler than the air within, or is at least as cool as that, or a very little warmer. The warmer the air, the more moisture it holds in suspension. Necessarily, the cooler the air, the more this moisture is condensed and precipitated. When a cool cellar is aired on a warm day, the entering air being in motion appears cool, but as it fills the cellar the cooler air with which it becomes mixed chills it, the moisture is condensed, and dew is deposited on the cold walls, and may often be seen running down them in streams. Then the cellar is damp, and soon becomes mouldy. To avoid this, the windows should only be opened at night, and late—the last thing before retiring. There is no need to fear that the night air is unhealthful—it is as pure as the air of midday, and is really drier. The cool air enters the apartment during the night, and circulates through it. The windows should be closed before sunrise in the morning, and kept closed and shaded through the day. If the air of the cellar is damp, it may be thoroughly dried by placing in it a peck of fresh lime in an open box. A peck of lime will absorb about 7 lb. or more than 3 qt. of water, and in this way a cellar may soon be dried, even in the hottest weather.



67. Barrel Stand.

Barrel Stand.—A simple and effective barrel stand may be made in the manner described below. It consists of a stout frame on 4 legs 9-12 in. high, made of quartering which may vary from 2 in. sq. for small casks to 3 in. sq. for larger ones. The proportions given in the annexed illustration (Fig. 67) are suited to a 9 gal. cask. This should be 22 in. long, 15 in. wide, 9 in. high, and made of 2½ in. stuff, of which it will consume about 9½ ft. run. It will be seen that the sides *a*, *b* are joined to the legs *c*, *d*, *e*, *f* by mortice and tenon joints, while the ends *g*, *h* are dovetailed into the sides *a*, *b*. The joints are secured by pins of oak or red deal driven into holes bored by a gimlet. The stand thus made is only adapted to carry casks stood on end. For holding them steadily on their side, and at the same time giving them a tilt forward to allow all the clear contents lying above the sediment to be drawn out without disturbing the barrel, use is made of 2 pieces of board hollowed out to receive the barrel. For the sized cask mentioned (9 gal.), 15 in. will suffice in length and 1 in. in thickness for each piece. Both are

prepared for letting down into the frame by cutting out a piece 2½ in. sq. from each of the 2 bottom corners as at *a*, and can then be screwed to the cross piece *b* of the frame. Previously the cradle is formed by describing on the piece of wood an arc of a circle corresponding to the size of the cask at the point where it is to be supported. Supposing the diameter of the cask to be 15½ in., the radius of the circle to be described will be 7¾ in., as shown. This gives the correct arc, but as the cask will lie sloping and not flat, the foremost edge of the arc must be shaved away till the cask will rest on the entire breadth of the edges of the cradle *c*. For the front cradle the board may be 6½ in. wide, and for the back 8½ in.

Cleaning Casks.—(1) The acid smell very often found in casks may be attributed to absorption in the pores of the wood of acetic and lactic acids—a very small quantity of either of them having power to communicate their principle to any fermenting liquid with which they may be brought in contact, and increasing very fast at the expense of the alcohol in the liquid, while at the same time causing unsoundness to a greater or less extent, according as the temperature of the atmosphere may be high or low. Bearing this in mind, it is of the utmost importance that all free acid which the cask may contain should be carefully neutralised before filling with a liquid so liable to change as fermenting wort. Casks before filling, after being well washed with boiling water, should be allowed to cool, and then examined by some responsible person as to their cleanliness, acidity, and probable mustiness; the cask is well smelt, and usually a light is passed through the tap-hole, so that the examiner may view the interior. Any cask that may smell sour (especially in summer weather, or when required for stock or pale

ales) should be rejected, and be well treated with lime. This should be put into the casks *dry*, small lumps of the lime being broken, so that they can be easily inserted in the bung-holes, and when sufficient has been put in (say, about 4 lb. to a barrel), then about 4 gal. of *boiling* water must be added, the casks bunged up, and kept so for a few hours, occasionally rolling about. The lime should then be well washed out, and the casks steamed, and allowed to cool, when they will be in a fit condition for containing the most delicate liquid without any injury. The hard brown substance, which on being scraped with a nail leaves a white mark, so often found in casks, is a deposit that forms from the constituents of the liquid contained in them, and is often carbonate of lime, or yeast dried, or both. When this is formed, the only effectual method of cleansing is to take out the head, and put it into the cooper's hands to be well scraped, until every particle of the fur is removed. Cask-washing machines never remove fur or thick dry deposit properly; they are very convenient in a general way for the usual run of casks, but any exceptionally bad must be unheaded, and cleaned by hand. For stock ales it is a good plan to rinse with solution of bisulphite of lime just before filling trade casks. (2) With regard to the coating spoken of in (1), it not only preserves the wood but keeps it clean and sweet, and does no harm at all to the beer. It takes some considerable time before the wood is coated with such a protecting enamel. It occurs alike in rounds, puncheons, and stone squares. Formerly it was customary to have all vessels that were furred over thoroughly dressed by the cooper, but now intelligent coopers advise brewers to keep it on. (3) Blow sulphur fumes into foul casks by fumigating bellows, such as gardeners use when fumigating

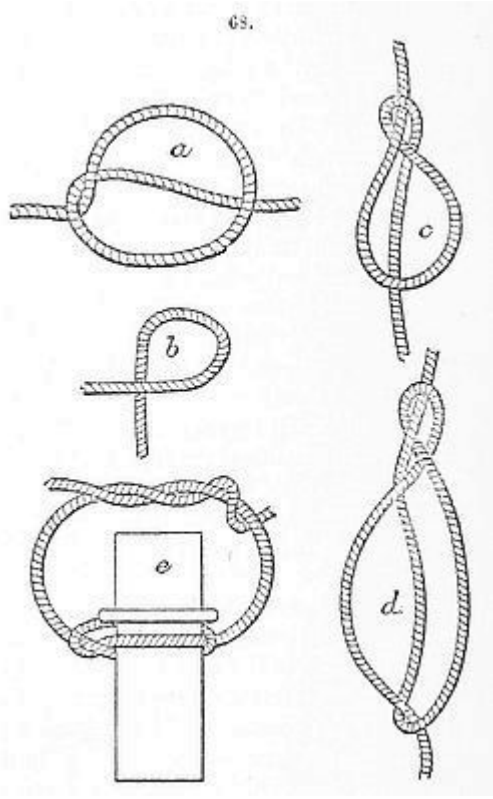
conservatories. The sulphurous acid formed by burning brimstone is a powerful purifier, and will not leave an unpleasant taste, being easily washed away. (4) Cider casks.—Half fill each cask with boiling water, and add ¼ lb. of pearlash, then bung it up, and turn over occasionally for 2 days, then empty, and wash with boiling water. (5) Scald out with boiling water; if the heads are out, put them over a straw fire for a few minutes, so as to slightly char the inside. If you have a steam boiler, partially fill with water, and admit steam through the bung-hole by a pipe down into the water, and so boil. (6) Vinegar casks.—Old vinegar barrels become impregnated to such an extent with acetous substances that it is next to impossible to render them fit for the storage of any other liquid. Fill the barrels with milk of lime, and let this remain in them for several months, then rinse out well with plenty of warm water, and steam them inside for ½ hour.

Cleaning Bottles.—(1) The commonest plan is by means of water and small shot. But lead shot, where so used, often leaves lead carbonate on the internal surface, and this is apt to be dissolved in the wine and other liquids afterwards introduced, with poisonous results; and particles of the shot are sometimes inadvertently left in the bottle. Fordos states that clippings of iron wire are a better means of rinsing. They are easily had, and the cleaning is rapid and complete. The iron is attacked by the oxygen of the air, but the ferruginous compound does not attach to the side of the bottle, and is easily removed in washing. Besides, a little oxidised iron is not injurious to health. Fordos found that the small traces of iron left had no apparent effect on the colour of red wines; it had on white wines, but very little; but he thinks it might be better to use clippings

of tin for the latter. (2) Take a handful of common quicklime, such as bricklayers use, and a handful of common washing soda; boil them in a large kitchen iron saucepan (which will only be cleaned, not damaged, by the process). When cold, the fluid will be lye; put this into the vessel you want to clean with some small pebbles; make it warm if you can, and shake up or let it soak according to the nature of the vessel. (3) Gypsum, free from silicate, marble, or bruised bones, is preferable to shot or sand. Sulphuric acid and bichromate mixed, are best to free porcelain and glass from organic matter.

Drying Bottles.—After washing, bottles and decanters should be thoroughly dried inside. Let them first drain completely, then warm them slightly and blow in fresh air by means of a pair of bellows; this will absorb the moisture and leave the interior quite dry.

Corks and Corking.—Cheap bad corks are always dear; the best corks are soft, velvety, and free from large pores; if squeezed, they become more elastic and fit more closely. If good corks are used, of sufficiently large size to be extracted without the corkscrew, they may be employed many times in succession, especially if they are soaked in boiling water after, which restores them to their original shape, and renews their elasticity.



68. Corking Bottles.

The most common mode of fastening down corks, is with the ginger-beer knot, which is thus made:—First the loop is formed as at *a* Fig. 68, then that part of the string which passes across the loop is placed on the top of the cork, and the loop itself is passed down around the neck of the bottle, and by pulling the ends of the cord it is made tight beneath the rim; the ends of the string are finally brought up, and tied either in a double knot, or in a bow on the top of the cork.

For effervescing drinks, such as champagne, which require to be kept a longer time and are more valuable, a securer knot is desirable, which may be made thus:—A loop as at *b* is first formed, and the lower end is then turned upwards and carried behind the loop, as shown at *c*; it is then pulled through the loop as at *d*, and in this state is put over the neck of the bottle; the part *a* being on one side, and the two parts of the loop on the other; on pulling the two ends, the whole becomes tight round the neck, and the ends, which should be quite opposite, are to be brought up over the cork, twice twisted, as at e, and then tied in a single knot.

Insects are often troublesome in devouring corks. This evil may be prevented by the following remedies. (1) Smear petroleum over the corks and bottle-necks, (2) Dip the cork and neck into a paste of quicklime which has just been slaked, and let it concrete on the bottle.

Aerated Drinks.—These may be divided into two classes, alkaline and saccharine. The alkaline, usually called mineral waters, are such as soda, seltzer, potass, &c.; while the saccharine are those which contain a portion of sugar, such as ginger beer, lemonade, and the various drinks made from the syrups. The alkaline mixtures after settling in the tanks, are usually passed through a lawn sieve, and then pumped through the machine, which impregnates them with carbonic acid gas. Saccharine drinks do not undergo this process, but a given quantity is put into each bottle or siphon, and the aerated water is forced into the bottle on it.

Either hard or soft water may be used for aerated drinks, so long as it is pure; when any doubt exists, it

is always best to have it filtered. When a choice of water can be had, use hard or spring water for saccharine drinks.

The following recipes may be varied considerably. Some of the best beverages have been produced by mixing several of the essences together, and altering the colour. In all these drinks it is the essence that is used, as the fresh fruit will not do for bottle goods; while for the fountain drinks, the fresh fruit, being consumed as soon as mixed, forms a creamy beverage much in demand.

In all cases, in warm weather, it is advisable to have the factory as cool as possible, and more particularly the water. It is a good system and is employed in many factories, to have the pump of the machine surrounded with ice, the refrigerator being external; any kind of ice may be used.

In regard to the machinery, fountains, &c., used in the manufacture and dispensing of aerated beverages the reader is referred to the catalogues of the various manufacturers of the same.

Saccharine drinks are never pumped through a machine, but a given quantity of the syrup is put into each bottle by means of a syrup measure-tap, or better still, a syrup pump attached to the filling machine, and the aerated water is bottled on it.

Following are the principal saccharine aerated beverages:—

Champagne Cider.—This is lemonade syrup flavoured with pear essence, and coloured with the sugar colouring.

Gingerade.—(1) Mix 5 oz. essence of cayenne, 5 oz. essence of ginger, and 5 oz. water; (2) dissolve 3 lb.

citric acid in ½ gal. hot water; (3) dissolve 4 oz. magnesia and 20 lb. fine loaf sugar in 3¼ gal. pure water. Filter the first compound and add 7 oz., also 14 oz. of the second, to the third; there will be no cloudiness; bottle at a pressure of 70 to 80 lb., using 1 oz. syrup to a bottle.

Ginger Ale.—This is ginger-beer syrup coloured slightly with sugar or saffron colouring. An addition of pineapple will also greatly improve the flavour. Bottle as for lemonade. Add albumen compound, q.s.

Ginger Beer.—This is lemonade syrup flavoured with essence of ginger and capsicine. The soluble essence of ginger is added to the syrup by dropping the quantity required on to pieces of sugar, when the syrup is lukewarm; the palate will be the best guide for quantity, as the essences vary much in strength. The albumen compound is to be added at the same time as the essence; bottle as for lemonade, using ¾ oz. to a bottle.

(*a*) A strong ginger beer is made by boiling with every gallon of water, 2 lb. loaf sugar, and 1 oz. bruised ginger, 1 oz. cream of tartar, and one small lemon, sliced. To the cooled mixture some yeast is added, and the whole is set aside for fermentation. When the tumultuous fermentation is over, the liquid is bottled. Ginger beer thus made is, when properly fermented, of considerable alcoholic strength, equal at least to the strongest Scotch ale.

(*b*) Keeps for many months. Take white sugar, 20 lb.; lime juice, 18 (fluid) oz.; honey, 1 lb.; bruised ginger, 22 oz.; water, 18 gal. Of course the quantities can be modified. Boil the ginger in 3 gal. water for ½ hour, the sugar, the lime juice, and the honey with the remainder of the water, and strain through a cloth. When cold, add the white of one egg and ½ oz.

(fluid) essence of lemon. After standing four days, bottle.

(*c*) Boil a sliced lemon with 1 oz. ground ginger in ½ pint water for ½ hour; stand to settle, and pour off clear part into a vessel containing 5 qt. cold water; add 1 lb. lump sugar and 1 oz. cream of tartar; ferment with 2 oz. German or other yeast spread on toast or plain bread; stand to ferment in warm place; cover from dust; bottle soon as fermented; drink in three days.

(*d*) White sugar, 1 lb.; cream of tartar and ginger, each 1 oz.; honey, 2 oz.; lemons, 2; water, 2 gal.; tartaric acid, 40 gr.; white of an egg. Bruise the ginger, and let the water boil for 10 minutes; pour it on the cream of tartar, sugar, and lemons. Let it stand till cold, then add white of an egg and a tablespoonful of yeast; let it work 6 hours, then add tartaric acid and bottle directly.

(*e*) Put into a 30 gallon brew 2 lb. of good fresh brewer's yeast, and stir it up well. Now allow it to ferment, taking care that there shall be a gradual rise in temperature during fermentation. Skim the yeast off carefully until the beer is ready for bottling (which will not be under 24 hours), then add your eggs, and bottle quickly. After bottling lay the bottles down, as they will mature better than if standing up. The eggs have no effect on the strength of the beer. The barm should not be skimmed off too often; it is necessary to allow a good head to form before skimming. About three times should be sufficient. 70° F. is too high a temperature to commence a fermentation; better commence at 63° or 64° F. Beat up the eggs with a birch rod, mixing well with 2 or 3 pints of beer; add it to the beer after the fermentation is finished, then well mix the whole

together and bottle. If the fermentation has been conducted properly, it will not be necessary to rack into a clean cask before fining and bottling. Use sufficient yeast (2 lb.), avoid skimming too often, and do not have the liquor too hot.

Ginger Champagne.—This refreshing and agreeable beverage is, according to a French recipe, made as follows:—Take 60 gal. water; add 40 lb. ginger cut in small pieces, and gently boil for ½ hour, carefully removing any froth that may arise. Cool the liquor as quickly as possible, and when at a blood-heat (100° F.) add 9 lb. raisins chopped fine, and the juice of 6 doz. oranges and 6 doz. lemons. Allow the liquid to ferment, and after standing a month it may be bottled in the usual manner. If desired, the ginger may be omitted, and the number of oranges increased to 18 doz.

Lemonade.—(*a*) A difference of opinion exists as to whether this syrup is best by simmering over a slow fire, or by merely pouring boiling water on the ingredients; but this is greatly influenced by the quality of the water used. The quantity of sugar and citric acid used to a gallon of syrup is also subject to variation, as some like it more acidulated than others. The usual proportions are 27 lb. loaf sugar and 12 oz. citric acid, previously dissolved, to 3 gal. water. Simmer over a slow fire for 5 minutes; carefully skim it and strain through a felt bag while hot; when cooled down to the warmth of new milk, add about ½ oz. oil of lemon. A slight head is considered an improvement, to produce which add about ½ oz. of the French gum extract to 1 gal. syrup; 1 oz. of syrup is to be put into the bottle, and the aerated water bottled on it at a pressure of 90 to 100 lb.

(*b*) Rinse out with boiling water an earthen glazed vessel, to warm it; put into it about 27 lb. loaf sugar and 12 oz. citric acid, previously dissolved in a small quantity of boiling water; stir occasionally, and when properly dissolved, strain it through a felt bag. Drop oil of lemon on some large lumps of sugar till they have taken up ½ oz.; when the mixture has cooled down to the warmth of new milk, drop in the lumps of sugar, and see that they are dissolved before proceeding to use it. Tartaric acid may be used in place of citric acid, but it is not so good. Use 1 oz. to each bottle, and bottle as for (*a*).

As lemonade syrup forms the basis for so many of the saccharine drinks, it may be as well to state that some makers prefer to use less water, as well as to vary the proportions of citric acid and sugar; it is also considered an improvement to add a drop or two of otto of roses to each gallon of syrup; this, without adding at all to the quality of the drink, throws off a pleasant aroma on the opening of a bottle. Caramel is used for a strong colour.

Nectar.—This is lemonade syrup, flavoured with the essence of pineapple.

Orange Champagne.—Take 7 gal. water, 20 oz. citric acid, 54 lb. sugar. When cold add to each gallon 3½ oz. orange tincture; colour to fancy (sugar colouring), add ¼ oz. albumen compound at the rate of 1½ oz. to a ½ pint bottle. This is a very delicious drink, and should be put up in champagne bottles; a special corking machine is required, and also a better cork than the one used for lemonade.

Pepper Punch.—Take 1¼ oz. concentrated punch to 1 gal. plain syrup; mix well; add a few drops essence of capsicine. About 1½ oz. of the syrup for each bottle, filling up with aerated water.

Tonic Lemonade.—Lemonade syrup flavoured with quinine, using the same quantity as for tonic water; or to suit the palate.

The chief ingredient in all saccharine aerated drinks is the syrup. This is formed by making concentrated solutions of sugar in pure water, or in water containing the principles of various flavouring substances; the former are called simple, and the latter compound syrups.

There are many precautions to be taken in order to ensure the production of good syrups, the most important being, perhaps, the selection of the sugar. Cane-sugar only should be used, and that should be perfectly refined. The least shade of colour in the sugar is due to the presence of impurities, and syrup prepared from such sugar not only has an unpleasant flavour, but is also very difficult to keep. The use of common or brown sugar may be regarded, in many cases, as an adulteration.

Syrups are very easily prepared. A hemispherical copper basin, not tinned, but well polished, and kept scrupulously clean, is the apparatus employed. This basin stands on three legs, and is furnished with a false bottom, which is also hemispherical. The two hemispheres are surrounded by a copper cylinder, fitted with a lid; the three parts of the apparatus are fixed together by means of two circular iron rings, which are fitted to the circumference of the hemispheres and to the bottom of the cylinder, the whole being well pinned or bolted together. A stop-cock in the outer hemisphere communicates by means of a short pipe with the inner one, and serves to withdraw the contents. Another cock, placed almost at the top, serves for the admission of steam between the two bottoms; and the condensed water

is drawn off by means of a third cock communicating only with the outer bottom, and placed at a short distance from the first. The whole apparatus may be of any convenient size. Its chief advantage is that the syrup can be heated to the required degree with the utmost nicety; the steam is admitted until this degree is reached, and the supply may then be stopped in a moment, thus ensuring perfect regularity of working.

There are many circumstances which tend to produce changes in syrups when made, and to cause them to degenerate and become worthless; these must be carefully guarded against. The most common is fermentation; this may be either the result of too short or too long-continued boiling; or of the presence of an excess of mucilaginous substances; or an imperfect clarification of the syrup will also produce it in the course of time. But the most frequent cause of fermentation is found in leaving the syrup in a warm place, or in vessels which are not completely filled, and especially if they happen to have been wet when the syrup was introduced. In order to guard against under or over-boiling of simple syrups, it should be laid down as a rule that they stand at 32° B. when boiling, and when cold at 34° B. in winter, and 35° B. in summer. They should then be bottled, and stored in a cool cellar.

In the preparation of syrups, which are solutions of sugar, more or less strong according to the object for which they are used, care should be taken to employ only the best refined sugar, and either distilled or filtered rain-water, as they will be rendered much less liable to spontaneous decomposition, and become perfectly transparent without the trouble of clarifying. When, however, impure sugar is employed, clarification is always necessary. This is

best done by dissolving the sugar in the water or fruit juices cold, and then beating up a little of the cold syrup with some white of egg and 1 or 2 oz. cold water, until the mixture froths well; this must be added to the syrup in the boiler, and when the whole is frisked up to a good froth, heat should be applied, and the scum which forms removed from time to time with a clean skimmer. As soon as the syrup begins to simmer it must be removed from the fire and allowed to stand until it has cooled a little, when it should again be skimmed, if necessary, and then passed through a clean flannel. By using refined sugar, however, all this trouble of clarification can be avoided.

When vegetable infusions or solutions enter into the compositions of syrups, they should be rendered perfectly transparent by filtration or clarification, before being added to the sugar.

The proper quantity of sugar for syrups will, in general, be found to be 2 lb. to every pint of water or thin aqueous fluid. These proportions allow for the water that is lost by evaporation during the process, and are those best calculated to produce syrup of proper consistence and possessing good keeping qualities. They closely correspond to those recommended by Guibourt for the production of a perfect syrup, which, he says, consists of 30 parts of sugar to 16 parts of water.

In the preparation of syrup it is of great importance to employ as little heat as possible, as a solution of sugar, even when kept at a temperature of boiling water, undergoes slow decomposition. The best plan is to pour the water (cold) over the sugar, and to allow the two to lie together for a few hours in a covered vessel, occasionally stirring, and to

apply a gentle heat, preferably that of steam or of a water-bath, to finish the solution. Syrups are sufficiently boiled when some taken up in a spoon pours out like oil, or a drop cooled on the thumb nail gives a proper thread when touched. When a thin skin appears on blowing the syrup, it is judged to be completely saturated. These rude tests, however, often lead to errors, which might be easily prevented by employing the proper proportions, or determining the specific gravity by immersing in the syrup one of Baumé's saccharometers or syrup gauges, as indicated in the following table:—

Sugar in 100 parts.	Sp. Gr.	Deg. Baumé.
0	1·000	0
5	1·020	3
10	1·040	6
15	1·062	8
20	1·081	11
25	1·104	13·5
30	1·128	16·3
35	1·152	19
40	1·177	21·6
45	1·204	24·5
50	1·230	27
55	1·257	29·5
60	1·284	32
67	1·321	35

A fluid ounce of saturated syrup weighs 577½ gr.; a gallon weighs 13½ lb.; its specific gravity is 1·319 to 1·321 or 35° Baumé; its boiling point is 221° F., and its density at the temperature of 212° is 1·260 to 1·261, or 30° Baumé. The syrups prepared with the juices of fruits mark about 2° or 3° more on Baumé's

scale than the other syrups. According to Ure, the decimal part of the number denoting the specific gravity of a syrup multiplied by 26 gives very nearly the number of pounds of sugar it contains per gallon.

The preservation of syrups, as well as of all saccharine solutions, is best promoted by keeping them in a moderately cool, but not a very cold place. Let syrups be kept in vessels well closed, and in a situation where the temperature never rises above 55° F. They are kept better in small than in large vessels, as the longer the bottle lasts the more frequently will it be opened, and the syrup consequently exposed to the air. By bottling syrups while boiling hot, and immediately corking down and tying the bottles over with a bladder, perfectly air-tight, they may be preserved even at a summer heat for years, without fermenting or losing their transparency.

The candying of syrups may be prevented (unless the syrup be over-saturated with sugar) by the addition of acetic or citric acid, 2 or 3 dr. per gallon. Confectioners add a little cream of tartar to prevent granulation. Syrups may be effectually prevented from fermenting by the addition of a little sulphite of potash or lime; also by the use of salicylic acid in small quantities. Fermenting syrups may be immediately restored by exposing the vessel containing them to the temperature of boiling water. The addition of a little spirit is also good, say about 10 per cent.

A solution of sugar prepared by dissolving 2 parts of double refined sugar in one of water, and boiling this a little, affords a syrup which neither ferments nor crystallises.

The basis of most mineral water syrups is simple

syrup, which is prepared by adding 16 lb. of finest white sugar and the whites of 4 eggs to 1 gal. water; stir until all the sugar is dissolved; simmer over a gentle heat for 2 or 3 minutes; skim well and strain through a fine flannel bag.

The best way to keep fruit syrups from fermenting is by bottling while hot, into suitable bottles or larger vessels, and to prevent access of air. This is the principle, and it may be carried out in various ways. For instance, fill the syrup while hot in quart bottles, previously warmed, and fill them almost full. Cover or cork the bottles temporarily until the syrup cools a little and contracts in volume; then, having heated a small quantity of the syrup, refill the bottles, cork them securely and wax them.

A great variety of syrups are made by the addition of proper flavouring ingredients to simple syrup; but in other cases, especially when the juices of fruits are employed, the syrup is not first prepared and then flavoured, but the processes go hand-in-hand. In such instances specific instructions will be given. It is always advisable, when fresh fruit can be obtained, to use it in preference to the essence. One general recipe, which answers for nearly all fresh fruit, is as follows: Use nothing but the very best fresh fruit, which must be freed from stocks, &c., and crushed with a wooden instrument (not metal); when well mashed, let it stand in a room of even temperature (about 68° F.) for 4 days, which will give sufficient time for fermentation to take place; press out the juice from the fruit and let it settle in a cool cellar for 2 days, after which 5 lb. of the clear juice is to be simmered with 9 lb. loaf sugar; while warm, strain through flannel. The colour may be improved by a solution of some colouring agent.

It is advisable to add to the fresh fruit before setting it for fermentation, about 2 lb. powdered loaf sugar for every 100 lb. fruit. When cold, it is ready for bottling. Cleanliness should be strictly observed in all the utensils used. When bottling for storing, skim the top off any floating matter from the syrups in the large pan, and see that no residue at the bottom goes into the bottles. Most of the syrups not made of fruit, may have a little mucilage of gum arabic added, in order to produce a rich froth. The following recipes comprise syrups made from the fruit, and also from essences. These may be varied to suit taste and requirements. A variety of syrups have been brought into use by adding the various wines, such as claret, hock, sherry, &c., to simple syrup; others, by the addition of spirits, as milk punch, by adding to vanilla cream Jamaica rum and nutmeg. Almost any syrup may be made by the addition of a sufficient quantity of flavouring essence to simple syrup; but these artificially prepared syrups are inferior to those made from fresh fruits.

Red Colouring for Soda-Water Syrups.—The most convenient is probably tincture of cudbear, as it affords a good, substantial, and natural-looking colour miscible with syrups without cloudiness. It may be made as follows:—2 to 4 oz. powdered cudbear, 1 pint diluted alcohol. Exhaust by maceration or displacement. Used alone, the tincture gives a shade of red closely imitating the colour of raspberries or currants. For deeper red, like blackberries, the addition of some caramel is all that is necessary. The strawberry colour is best imitated with tincture of cochineal. Aniline red, owing to its cheapness, is often used for colouring syrups, but it produces a glaring, artificial-looking bluish-red, and is liable to the objection that it sometimes contains

arsenic.

Ambrosia Syrup.—A mixture of equal parts of vanilla and strawberry syrups.

Apple Syrup.—As for pineapple syrups.

Banana Syrup.—As for pineapple syrups.

Blackberry Syrup.—Prepared from ripe fruit the same as raspberry syrups. Improved by adding 1 oz. best French brandy to each quart.

Capillaire Syrup.—9 lb. loaf sugar, 5 lb. orange-flower water. Boil till the sugar is dissolved and the syrup is clear; while hot, strain through flannel; add to the cool syrup 2 dr. tartaric acid, previously dissolved in 8 oz. strongest orange-flower water; lastly add 4 oz. best Rhine wine.

Cream Syrup.—(*a*) 1 pint condensed milk, 1 pint water, 1¼ lb. sugar. Heat to boiling and strain. This will keep for over a week in a cool place.

(*b*) Imitation.—Make an emulsion with 3 oz. fresh oil of sweet almonds, 2 oz. powdered gum arabic, and 2 oz. water; then dissolve 1 lb. white sugar by gentle heat, strain, and when cool, add the whites of two eggs. It should be put up in small bottles, well corked, in a cool place. This is not only an excellent imitation and substitute for cream syrup, but will keep for a considerable time.

Currant Syrup.—(*a*) 6 pints simple syrup, 2 pints water, 2 oz. tartaric acid, 3 dr. fruit essence. Mix; colour with liquid carmine for red currants, and with burnt sugar, for black.

(*b*) 1 pint red currant juice, 1 gal. simple syrup.

Ginger Syrup.—(*a*) 6 pints simple syrup, 2 pints water, 1 oz. tartaric acid, 2 oz. ginger. Burnt sugar to

colour.

(*b*) 4 oz. extract Jamaica ginger, 1 gal. syrup. Shake well. A few drops of tincture curcuma to colour.

(*c*) 9 lb. loaf sugar, 5 lb. water, 12 oz. essence of ginger, 4 oz. Rhine wine. Boil sugar and water until dissolved and clear; when cool, add ginger and wine. Mix well and let settle.

Grape Syrup.-½ pint brandy, 1 oz. tincture of lemon, 1 gal. simple syrup, 1 qt. tincture red saunders.

Imperial Syrup.—Equal parts of raspberry and orange syrups.

Lemon Syrup.—(*a*) Grate off the yellow rinds of lemons, and beat it up with a sufficient quantity of granulated sugar; express the lemon juice; add to each pint of juice 1 pint of water, 3½ lb. granulated sugar, including that rubbed up with the rind; warm until the sugar is dissolved and strain. Under no circumstances must the syrup be allowed to boil, and the less heat that can be used to effect the complete solution of the sugar the better will be the syrup.

(*b*) Add to 1 gal. simple syrup when cold, 20 drops fresh oil lemon and ½ oz. citric acid, previously dissolved in 3 oz. water; mix by shaking well in a bottle; add 4 oz. gum solution, made by dissolving 2 oz. fine white gum arabic in 2 oz. warm water.

(*c*) 6 pints simple syrup, 2 pints distilled water, 2 oz. essence of lemon, 2 oz. citric acid, dissolved in boiling water. Mix, and, if required, colour with saffron.

Maple Syrup.—3½ lb. maple sugar, 1 qt. water.

Dissolve, and, if desired, add a small proportion of gum solution to produce a rich froth.

Milk-Punch Syrup.—To 1 pint heavy syrup add ½ pint each brandy and Jamaica rum; flavour with 2 teaspoonfuls of an extract prepared by macerating 2 oz. ground nutmegs in 8 oz. alcohol. The syrup is first to be poured into the glass in the proper quantity, and ordinary cream syrup added before drawing the soda water.

Mulberry Syrup.—Made from the fruit, the same as strawberry, and acidulated slightly with a solution of citric acid. It may also be made from the fruit essence in the same manner as for strawberry, using about half the quantity of tartaric acid.

Nectar Syrup.—(*a*) 1 oz. extract of vanilla, 1 oz. extract of rose, 1 oz. extract of lemon, 1 oz. extract of bitter almonds. Mix and add 1 gal. of simple syrup; colour pink with cochineal.

(*b*) Mix 3 parts vanilla syrup with 1 each of pineapple and lemon syrups.

Orange Syrups.—These may be made from the fresh fruit or from the essence in a similar manner as for lemon syrups. Orange syrups may be coloured slightly with tincture of saffron or of turmeric.

Orgeat Syrup.—(*a*) ½ pint cream syrup, ½ pint simple syrup, 1 pint vanilla syrup, 5 drops oil bitter almonds.

(*b*) Beat to an emulsion in a mortar 8 oz. blanched sweet almonds and 4 oz. bitter ones, adding a little water; when smooth, add 3 pints water; mix and strain; dissolve in this without heat 6 lb. sifted white sugar, and 4 oz. fresh orange-flower water.

(*c*) An excellent imitation of orgeat syrup is made

by flavouring cream syrup, made with eggs and milk, with a few drops of oil of bitter almonds.

Pear Syrup.—As for pineapple syrups.

Pineapple Syrup.—(*a*) Take a convenient number of the fruit; pare and mash them in a marble or porcelain mortar, with a small quantity of sugar; express the juice; for each quart of juice take 1½ pint water, and 6 lb. sugar; boil the sugar and water, and add the juice; remove from the fire; skim and strain.

(*b*) 6 pints simple syrup, 2 pints distilled water, 1 oz. tartaric acid, 1 dr. essence of pineapple. Saffron to colour.

(*c*) Proceed as for raspberry (*d*); but the hard nature of this fruit requires pounding with a heavy chump of wood (not metal) in a tub with a strong bottom; when well mashed, it will require great pressure to extract all the juice from this fruit; a cider press will answer the purpose; add 14 lb. sugar to 1 gal. juice and a little pure acetic acid; put it on a slow fire, and stir until the sugar dissolves; when cold, bottle and tie down.

Raspberry Syrup.—(*a*) Take fresh berries and enclose them in a coarse bag; press out the juice, and to each quart add 6 lb. white sugar and 1 pint water; dissolve, raising it to the boiling point; strain; bottle and cork hot, and keep in a cool place. Raspberry syrup is improved by adding 1 part of currants to 4 parts of raspberries.

(*b*) 5 qt. raspberries, 12 lb. white sugar, 1 pint water. Sprinkle some of the sugar over the fruit in layers, allowing the whole to stand for several hours; express the juice and strain, washing out the pulp with the water, add the remainder of the sugar and

water; bring the fluid to the boiling point, and then strain. This will keep for a long time.

(*c*) 6 pints simple syrup, 2 pints water, 2 oz. tartaric acid, 2 oz. essence of raspberry. Colouring sufficient. Colouring for raspberry, blackberry, &c., syrups may be made by boiling 1 oz. cochineal with half a teaspoonful cream of tartar; filter.

(*d*) Take any quantity of fully ripe fruit; free them from stalks; place them in a tub and crush them with a wooden spatula; after they have been mashed, let them remain for 3 or 4 hours, and strain the crushed berries through a strong flannel bag or strainer into a suitable vessel. Dissolve ½ oz. citric acid in 3 oz. water, and add this quantity to each gallon of juice; mix 14 lb. broken sugar to every gallon of juice; put on a slow fire and stir until all the sugar is dissolved (not boil); take off the fire, and when cold, bottle and cork for future use. If too thick when cold, it may be brought to a proper consistency by the addition of water.

(*e*) Imitation.—3 oz. bruised orris root, 2 oz. acetic acid, 1 oz. acetic ether, 1 pint alcohol. Cochineal to colour. Mix and allow to stand a few days; filter, and use to flavour simple syrup.

Rose Syrup.—1 gal. simple syrup, 1 oz. essence of rose. Colour pink with prepared cochineal, and acidulate lightly with a solution of citric acid.

Rowan Syrup.—Dry the berries till they are quite shrivelled. Then place them in brandy, and leave them in it for 7-10 days. Strain it off the berries at the end of that time, and mix with an equal quantity of thick very clear syrup made with loaf sugar in a brass boiler. A handful of picked berries is sufficient for 1 pint brandy. This is a very palatable liqueur.

Sarsaparilla Syrup.—(*a*) 1 gal. simple syrup, 2 oz. essence of sarsaparilla. Colour with caramel.

(*b*) 1 gal. simple syrup, essence of sarsaparilla, q.s., 1 oz. powdered extract licorice, 15 drops oil of sassafras, 15 drops oil of wintergreen, 10 drops oil of aniseed. Stir the oils with the powdered licorice; add a portion of the syrup; stir smoothly, and mix the whole together by agitation.

Sherbet Syrup.—Mix equal parts of orange, pineapple, and vanilla syrups.

Sherry Cobbler Syrup.—To 1 pint good sherry add an equal measure of heavy simple syrup, and one lemon cut in very thin slices. Allow the syrup to stand a few hours; strain through a sieve, and bottle for use.

Strawberry Syrup.—Proceed as for raspberry syrup (*d*); but the fruits being more stubborn will require a good beating with the spatula to mash them; when they have stood 3 or 4 hours, strain and press the juice out by squeezing the strainer between the hands; add to the juice the same quantity of citric acid; dissolve in each gallon 14 lb. loaf sugar; simply warm the juice sufficiently to dissolve the sugar; take from the fire, and when cold bottle and cork till required.

Vanilla Syrup.—(*a*) 1 gal. simple syrup, 1 oz. extract vanilla, ½ oz. citric acid. Stir the acid with a portion of the syrup; add the extract of vanilla; mix.

(*b*) 4 pints simple syrup, 2 oz. extract of vanilla.

The essences used by aerated water makers are usually purchased ready made, though in many cases it is found desirable to prepare them at the factory. Below are given a few recipes for those most

commonly used:—

For essence of lemons, remove the outer rinds of 40 lemons, without a particle of pulp, and macerate them with 6 qt. perfectly pure alcohol at 85°. After two or three days, distil to dryness in a water-bath; add 2 qt. water and rectify to obtain 5 qt. of the essence. The essences of oranges and cedrats are made in precisely the same way.

For essence of strawberries and raspberries, take 56 lb. of the fresh fruit, free from stalks and leaves, and place them in 45 qt. pure alcohol at 80°. Macerate for 24 hours in a vessel closed in a water-bath; add 20 qt. water, and distil to obtain 44 qt., each containing 17½ oz. of essence.

Beer.—Owing in a great measure to Excise restrictions, very little home-brewed beer is made now in England; but a few notes may be useful.

Half-hogshead of Ale.—Take 5 bush. pale malt, 4 lb. best Worcester hops; put into mash tub 30 gal. hot water (202° F.), 13 gal. cold water (49° F.), mean heat 166° F.; shake the malt in and stir it well about, and let it stand 1½ hour; draw off the wort and mix it with the hops; pour over the grains sufficient hot water at 200° F. to fill your barrel, allowing some for waste in boiling and working. Boil the wort and hops for one hour. Put 1 pint yeast to 3 gal. wort, at 72° F., to begin to work, and add the remainder at 68° F.

Summer Beer.—Over 1 bush. (40 qt.) malt pour enough boiling water to enable you to draw off 100 qt. of wort. Put into the wort ½ lb. hops, and boil it an hour. Having washed your mashing tub well from the grains, pour the wort into it, and, when cooled to the temperature of new milk, add in summer ½ pint

of yeast, in winter a little more. Cover the tub with a cloth, and let it work till next day; pour it into your barrel before it begins to sink, and rack it before the barrel is stopped up. It will be fit to drink in a fortnight or three weeks.

Champagne Beer.—According to Teltscher, of Breslau, this beer is prepared in the following manner:—A light, strongly hopped, bottom-fermentation beer is left in cask until fit for consumption, and is then mixed with 2 per cent. of "Krausen-beer" (that is to say, beer in the first stage of active fermentation), and bottled. The bottles are filled up, carefully corked, and racked with the necks downwards, in which position they are left for a fortnight. The mixture develops an amount of carbonic acid not obtainable in other light bottom-fermentation beers strongly hopped. The reversed position of the bottles causes the floating particles of yeast to settle inside the necks, and by drawing the bottles lengthwise through the hands daily, these particles are detached and settle down finally on the cork. When the beer has generated enough carbonic acid gas, as indicated by its paleness, which sometimes occurs as early as the eighth day, the bottles are taken one by one in the left hand, with the neck inclining outwards and downwards, and the cork being removed with the right, the internal pressure is allowed to blow away the sediment from the neck. The bottles are then carefully re-corked. In this way a light bottom-fermentation beer, strong of the hop, and perfectly free from yeast, is obtained, which, owing to the large proportion of carbonic acid it holds, retains its refreshing properties at temperatures as high as 18° C. (64° F.), whereas beers of a *like* character with little or no carbonic acid become flat at 8° C. (46° F.). That the beer can

be drunk without artificial cooling is put forward as another recommendation.

Bottling Beer.—(*a*) The bottles should be clean, sweet, and dry, the corks sound and good, and the beer "fine." When the bottles are filled, if for home consumption, they should not be corked till the day following, and if for exportation to a hot climate, they must stand 3 days or more (if the liquor is new); it should be well corked and wired, but for family use they may do without wiring, only they should be well packed in sawdust, and stand upright. But if some are wanted ripe, keep a few packed on their sides, so that the liquor may touch the corks, and this will soon ripen, and make it fit for drinking.

(*b*) Choose clear weather, and leave the bung out of the cask all night. Fill the bottles, throw sheets of paper over them to keep out the dust, let them stand 24 hours, then cork, wire, and pack away in a cool place. If for immediate use, ripen by adding a piece of sugar to each bottle before corking.

Brightening Cloudy Beer.—Add calcined oyster shells, but after the application of oyster shells the ale requires to be rapidly drunk, as it will not keep good for any length of time. At the time of being brewed, if it is rapidly cooled, it never will become cloudy. All depends upon the time it takes to cool.

Restoring Sour Beer.—When beer has once been sour, i.e. has once been through acetous fermentation, it never again will have its former brilliancy, liveliness, or full flavour; it will always remain acid. Procure a 4½ gal. cask (commonly called a pin), rack the ale into it, and get about 3 oz. of new hops, which put in the pin, bung it down tight, put it in a cellar, where let it remain six months at least; it may then be better.

If beer is sour in bottles, put ¼ teaspoonful of soda carbonate and a large teaspoonful of brown sugar into each bottle; then cork well, and tie it down the same as ginger beer, and place the bottles cork downwards for about 3 weeks, where it is not too cold.

Finings.—(*a*) Take 1½ pints water and 2 oz. unslaked lime, mixed well together; let them stand 4 hours, and when the sediment is settled pour it off clear and mix 2 oz. isinglass, cut small, in ½ pint water. When dissolved put it into a barrel of beer.

(*b*) Eggs, any quantity; beat them to a froth and expose them to a gentle heat or in the sun to dry; then powder. In some cases a little fine wheat flour is added, the paste made into balls, and dried in the sun or a warm room, and then powdered.

(*c*) Isinglass, 1 lb.; water, 8 gal.; vinegar, 4 gal. Mix the vinegar and isinglass, and macerate for 4 days, then add the water.

(*d*) Isinglass, 1 lb.; sour beer or cider, 5 gal.; water, 6 gal. Digest the first two until the isinglass is dissolved, then add the water, and strain.

Weevil in Malt.—This can be killed by heat or checked by cold. If the temperature is raised to 167°-190° F., the insects die; if cold air is introduced, they cease to breed. Frequent turning of the malt, careful whitewashing of the walls, and the introduction of cold air (leaving all the windows open for two or three frosty nights) are the best preventives.

Bitters.—The following are the chief kinds in vogue.

Amazon.—90 gal. plain proof spirit; 3¼ lb. red

Peruvian bark; 3¼ lb. calisaya bark; 1⅛ lb. calamus root; 4¾ lb. orange peel; 3½ oz. cinnamon; 3½ oz. cloves; 3½ oz. nutmeg; 2 oz. cassia buds; 6½ lb. red sanders wood. First mash all the ingredients, put them in the spirit, and let them infuse 14 days, stirring the mixture well twice every day. Rack off and colour with 11 pints brandy colouring, to get a dark red tint. Stir ¼ hour. Dissolve 30 lb. white sugar in 30 gal. water; add, and again stir ½ hour. Let the mixture rest 4 or 5 days, and when bright, bottle. If the sanders wood is not used, the colour will be a bright amber. Compounded according to the above directions, will yield 120 gal. 25° below proof.

Angostura.—4 oz. gentian root; 10 oz. each calisaya bark, Canada snake-root, Virginia snake-root, liquorice root, yellow bark, allspice, dandelion root, and Angostura bark; 6 oz. cardamom seeds; 4 oz. each balsam of tolu, orangetis, Turkey rhubarb, and galanga; 1 lb. orange peel; 1 lb. alkanet root; 1½ oz. caraway seed; 1½ oz. cinnamon; ½ oz. cloves; 2 oz. each nutmegs, coriander seed, catechu, and wormwood; 1 oz. mace; 1¼ lb. red sanders wood, and 8 oz. turmeric. Pound these ingredients and steep them for 15 days in 50 gal. proof spirit; before filtering, add 30 lb. honey.

Aromatic.—Macerate 2¾ lb. ground dried small orange apples, ¼ lb. ground dried orange peel, 2 oz. ground dried calamus root, 2 oz. ground dried pimpinella root, 1 oz. ground dried cut hops, for 14 days, with 10 gal. of spirit at 45 per cent.; press, and add 2½ pints brown-sugar syrup. Filter. Colour dark brown.

Boker's.—1½ oz. quassia; 1½ oz. calamus; 1½ oz. catechu (powdered); 1 oz. cardamom; 2 oz. dried

orange peel. Macerate for 10 days in ½ gal. strong whisky, and then filter and add 2 gal. water. Colour with mallow or malva flowers.

Brandy.—Grind to coarse powder 3 lb. gentian root, 2 lb. dry orange peel, 1 lb. cardamom seeds, 2 oz. cinnamon, 2 oz. cochineal. Infuse 10 days in 1 gal. brandy, 8 gal. water, and filter.

Essence.—40 gal. proof spirit, 1 drm. oil of anise, 1 drm. oil of caraway, ½ drm. oil of cloves, 1 drm. oil of lemon, 1 drm. oil of oranges, 1 drm. oil of cinnamon, ½ drm. oil of bitter almonds, 1 gal. sugar syrup. Cut the oils in 95 per cent. alcohol, and mix. Colour with brandy colouring.

French Cognac.—1½ lb. each red Peruvian bark, calisaya bark, bitter orange peel, and sweet orange peel; 2 oz. calamus root; 4 oz. cardamom seeds; 1½ oz. each cinnamon, cloves, and nutmegs; 4 oz. caraway seed; and 3 lb. wild cherry bark. Pound all these ingredients to a coarse powder and steep for 15 days in 45 gal. proof spirit (or 60 gal. spirit 25° below proof), stirring occasionally. Then rack it off, and mix sufficient caramel to make it a dark red; add 15 lb. white sugar dissolved in 15 gal. water; let the whole settle, then filter. If the bitters are required to be of an amber colour, omit the wild cherry bark and the caramel colouring.

Hamburg.—Grind to a coarse powder 2 oz. agaric, 5 oz. cinnamon, 4 oz. cassia buds, ½ oz. grains of Paradise, 3 oz. quassia wood, ¾ oz. cardamom seeds, 3 oz. gentian root, 3 oz. orange apples dried, 1½ oz. orange peel; macerate with 4¼ gal. 95 per cent. alcohol, mixed with 5¾ gal. water; add 2¾ oz. acetic ether. Colour brown.

Nonpareil.—Grind to coarse powder 2 oz. Peruvian

bark, ½ oz. sweet orange peel, ½ oz. bitter orange peel, 25 gr. cinnamon, 25 gr. cloves, 25 gr. nutmeg, 15 cayenne seeds. Infuse 10 days in 2 gal. 65 per cent. alcohol, then filter.

Orange.—(1) Macerate 6 lb. orange peel for 24 hours with 1 gal. water, cut the yellow part of the peel from off the white, and chop it fine; macerate with 4¾ gal. 95 per cent. alcohol for 2 weeks, or displace; then add a syrup made of 4¼ gal. water and 16 lb. sugar. Filter through Canton flannel. (2) ½ oz. Seville orange peel, ¼ oz. lemon peel, ¼ oz. gentian root, ¼ oz. ginger, all bruised and put into a jug; pour a pint of boiling water on it, and cover up with a cloth.

Peruvian.—8 oz. red Peruvian bark; 8 oz. orange peel; 1½ drm. each cinnamon, cloves, and nutmeg; and 75 cayenne pepper seeds. Infuse them, well bruised, in 8 gal. proof spirit, for 15 to 20 days, stirring every day. Draw off and filter.

Spanish.—Grind to coarse powder 5 oz. polypody, 6 oz. calamus root, 8 oz. orris root, 2½ oz. coriander seed, 1 oz. centaurium, 3 oz. orange peel, 2 oz. German camomile flowers; then macerate with 4¾ gal. 95 per cent. alcohol, and add 5¼ gal. water and 1½ oz. of sugar. Filter, and colour brown.

Stomach.—Grind to a coarse powder ½ lb. cardamom seeds, ⅛ lb. nutmegs, ¼ lb. grains of Paradise, ½ lb. cinnamon, ¼ lb. cloves, ¼ lb. ginger, ¼ lb. galanga, ¼ lb. orange peel, ⅛ lb. lemon peel; then macerate with 4¾ gal. 95 per cent. alcohol, and add a syrup made of 4½ gal. water and 12 lb. sugar; filter.

Stoughton.—(1) To 12 lb. dry orange peel, 3 lb. Virginia snake-root, 1 lb. American saffron, 16 lb.

gentian root, add 1 lb. red sanders wood. Grind all the ingredients to a coarse powder, and macerate for 10 days in 20 gal. 65 per cent. alcohol, then filter.

(2) 2 lb. ginseng; 2 lb. gentian root; 1½ lb. dry orange peel; ½ lb. Virginia snake-root; 1 oz. quassia; ¼ lb. cloves; 3 oz. red sanders wood; 3 gal. alcohol 95 per cent.; 3 gal. soft water. Grind all the ingredients to coarse powder, infuse 10 days, and filter.

Wild Cherry.—Wild cherry bark, 4 lb.; squaw vine (Partridge berry), 1 lb.; Juniper berries, 8 oz. Pour boiling water over, and let stand for 24 hours; strain, and pour again boiling water on the ingredients; let macerate for 12 hours, then express and filter through paper, so that the whole will make 5 gal., to which add 3½ lb. of sugar; 1½ gal. molasses; 6 oz. tincture of peach kernels; 3 oz. tincture of prickly ash berries; 2 qt. alcohol.

Cordials and Liqueurs.—These consist mainly of best spirit flavoured with essences and sweetened with white-sugar syrup.

Absinthe.—This liqueur is prepared in various ways. (*a*) The genuine Swiss absinthe is prepared in the following manner: by macerating 4 oz. wormwood herb, 2 oz. star anise-seed, 2 oz. green cherry leaves, 2 oz. sage herb, in 5 gal. proof spirit; and after one week's maceration add ¼ oz. oil of anise, ½ oz. oil of bergamot, ¼ oz. oil of fennel.

(*b*) Another recipe for making the absinthe is, to dissolve the best oil of wormwood, say 2 oz., in 5 gal. pure spirit, and add ½ oz. oil of anise, ¼ oz. oil of calamus, ¼ oz. oil of orange, 1 gal. white syrup, and prepare the colour from neutral extract of

indigo, made green with tincture of turmeric.

(*c*) 4 lb. tops of *Absinthum majus*, 2 lb. tops of *A. minus*, 15 gr. angelica root, 15 gr. Chinese aniseed, 15 gr. calamus aromaticus, 15 gr. dittany of Crete, 4 gal. brandy 12 u.p.; macerate for 10 days; add 1 gal. water; distil 4 gal. by gentle heat, and dissolve 2 lb. crushed white sugar in the distilled spirit.

Alkermes.—(*a*) 1 lb. bay leaves, 1 lb. mace, 2 oz. nutmegs, 2 oz. cinnamon, 1 oz. cloves, all bruised; 3½ gal. cognac; macerate for 3 weeks, frequently shaking; distil 3 gal., and add 18 lb. clarified spirit of kermes, 1 pint orange-flower water; mix well, bottle.

(*b*) 4 gal. British brandy; spice as (*a*), 1 gal. water; macerate as (*a*); distil 4 gal. and add 2 gal. capillaire and ¼ pint sweet spirit of nitre. Cassia often replaces the cinnamon.

Angelica Cordial.—To 1 oz. oil of angelica add ¼ oz. calamus, dissolve them in 1 gal. pure spirit, and add 1 gal. white-sugar syrup.

Angelica Ratafia.—1 dr. angelica seeds, 4 oz. angelica stalks, 1 oz. bruised, blanched bitter almonds, 6 qt. proof spirit or brandy; digest for 10 days, filter, add 1 qt. water, 3½ lb. white sugar; mix well, and in a fortnight decant clear portion through flannel.

Anise Liqueur.—1 lb. essence of anise, ¼ lb. tincture of orris, 20 drops oil of coriander, 2 bar. pure spirits.

Anise-seed Cordial.—Dissolve 3 dr. oil of anise-seed in 2¾ gal. 95 per cent. alcohol; then add 2½ gal. fine white syrup, mixed with 4¾ gal. water. Stir and filter.

Anisette.—(*a*) Dissolve 2 oz. oil of anise and ½ oz.

oil of star anise in 10 gal. pure spirit, and add 2 gal. white-sugar syrup to it.

(*b*) 2 oz. aniseed (or 1½ dr. essential oil) and 3 lb. sugar per gal. If weaker than 45 u.p. it cannot be made full flavoured without liability to milkiness.

(*c*) 4 oz. aniseed, 1 oz. bruised coriander seeds, 1 oz. bruised sweet fennel seeds, ½ gal. rectified spirit, 3 qt. water; macerate for 5 or 6 days; distil 7 pints, and add 2½ lb. lump sugar.

(*d*) 15 drops oil of aniseed, 6 drops cassia oil, 6 drops caraway oil; rub with a little sugar, and dissolve in 3 qt. spirit 45 u.p. by well shaking together; filter if necessary, and dissolve 1½ lb. sugar in the clear liquid.

(*e*) 1 gal. brandy or proof spirit, ¾ lb. sugar, dissolved in 1 pint aniseed water.

(*f*) Put in a barrel 13 gal. 95 per cent. alcohol. Dissolve 3½ oz. essence of green anise-seed in 1 gal. 95 per cent. alcohol, and add ½ gal. orange-flower water, 8 or 10 drops infusion of mace, and 5 drops essence of cinnamon. Then put in the barrel 26 gal. sugar syrup 25° Baumé. Stir and filter.

Apple or Cider Brandy.—1 lb. oil of apple, ½ lb. oil of pear, 1 gal. syrup of gum arabic, 5 bar. good rectified spirit.

Aromatic Wine-bitters.—Macerate 1 lb. orange peel, 2 lb. orange buds, ½ lb. agaric, ½ lb. Peruvian bark, 1 lb. gentian root, 5 gal. Teneriffe wine, 20 gal. spirits of wine.

Blackberry Brandy.—(*a*) 1 lb. essence of blackberry, 1 gal. blackberry juice, 1 gal. syrup of gum arabic, 4 bar. pure spirit.

(*b*) To 10 gal. blackberry juice and 25 gal. spirit 40 above proof, add 1 dr. each of oil of cloves and oil of cinnamon dissolved in 95 per cent. alcohol, and 12 lb. white sugar dissolved in 6 gal. water. Dissolve the oils separately in ½ pint 95 per cent. alcohol; mix both together, and use half the quantity; if the cordial is not sufficiently flavoured, use the balance.

(*c*) ¼ oz. each of cinnamon, cloves, and mace, 1 dr. cardamom. Grind to a coarse powder; add to 16 lb. blackberries, mashed, and 5 gal. 95 per cent. alcohol. Macerate for two weeks; press; then add 10 lb. sugar, dissolved in 3⅜ gal. water. Filter.

Blackberry Cordial.—(*a*) Crushed blackberries, 1 gal.; sugar, 2 lb.; brandy, 1 gal. Macerate the berries in the brandy for 5 or 6 days; express the liquor; add the sugar and after 2 weeks decant and filter.

(*b*)	Dried blackberries	16	oz.
	Or fresh blackberries	4	pints.
	Powdered blackberry root	12	oz.
	Powdered mace	1½	oz.
	Powdered cassia	9	dr.
	Powdered allspice and cloves, of each	5	dr.
	Sugar	60	oz.
	Brandy	2	pints.
	Port wine	1½	pints.
	Alcohol	1	pint.
	Water	q.s.	

Soak the berries, if dry, in q.s. of water, and express, and repeat until 6½ pints of juice are obtained. If the berries are fresh, express the juice, and mix water with residue, to wash out all juice; then add water to

make it measure 6½ pints. Mix the spirit with the 6½ pints of juice; moisten the powders with this mixture, and pack in a percolator. Allow it to drain, and pour on water until percolate measures 10 pints; then add the sugar, dissolve and, if necessary, filter.

Brandy Shrub.—1 gal. brandy, 1 pint orange juice, 1 pint lemon juice, peel of 2 oranges and 1 lemon; digest for 24 hours, strain, add 4 lb. white sugar dissolved in 5 pints water; in a fortnight decant the clear liquid.

Cacao.—Infuse 1 lb. Caraccas cacao nuts, cut small, add ½ oz. vanilla in 1 gal. brandy for 8 days; strain, and add 3 qt. thick syrup.

Caraway.—From the essential oil or the seed (1 fl. dr. of the oil = ¼ lb. seed), using 2½ lb. sugar per gal., and adding a little cassia oil and essence of lemon or orange.

Cedrat.—(*a*) 1 pint spirit of citron, 1 qt. spirit of cedrat, 3 qt. proof spirit, 16 lb. white sugar dissolved in 2 gal. pure soft water.

(*b*) ¼ oz. cedrat essence, 1 gal. pure proof spirit; dissolve; add 3 pints water; agitate well; distil 3 qt., and add equal measure of clarified syrup.

Celery Cordial.—To 1 lb. essence of celery, add 1 gal. pure spirit and 1 gal. syrup of white sugar.

Chartreuse.—Macerate 64 parts by weight, each, of the fresh herb of sweet balm and hyssop, 32 parts of fresh root of angelica, 16 of cannella, and 4 each of Spanish saffron and mace, in 1000 parts of alcohol, for 8 days. Then distil it on to a certain quantity (which varies according to the colour desired) of fresh balm and hyssop; after a time these are expressed, the liquor sweetened with 125 parts of

sugar, and filtered.

Cherry-bounce.—(*a*) This is a very wholesome cordial, and may, with great benefit, be taken by persons affected with cough of long standing, or those suffering with lung complaint. Take 5 gal. cherry juice, 2 gal. syrup of white sugar. And dissolve in 1 gal. pure spirit, ½ oz. oil of bitter almonds, ¼ oz. oil of cloves, ¼ oz. oil of cinnamon. Mix all together.

(*b*) To 15 gal. cherry juice, add 15 gal. 80 per cent. spirit; 30 gal. Catalonia or Marseilles wine; 1½ oz. essence of noyeau; 3 oz. mace infused in 1 qt. 95 per cent. alcohol; ½ lb. cinnamon infused in ½ gal. water; ¼ lb. cloves ground and infused in 1 qt. water. Put all the above ingredients in a clean barrel and add 60 gal. sugar syrup 25° B. Stir up the ingredients well, and filter after 4 or 5 days. If the colour is not deep enough, add a little sugar colouring. The above recipe is to make 120 gal., but a much smaller quantity may be made by reducing the quantity of each ingredient and observing the same proportion in all.

(*c*) To 12 gal. cherry juice, add 30 gal. 80 per cent. spirit; 30 gal. Catalonia or Marseilles wine; 3 oz. essence of noyeau; ½ lb. cinnamon ground and infused in ½ gal. water; ½ lb. cloves ground and infused in ½ gal. water; 1½ oz. mace infused in 1 pint 95 per cent. alcohol. Mix all the above ingredients in a clean barrel, and add 60 gal. sugar syrup 13° B. Stir up all the ingredients well together, and filter after 4 or 5 days. Make the colour a little darker with sugar colouring, and to give a good shade add a little orchil.

Cherry Brandy.—(*a*) 1 lb. essence of cherry, ¼ lb. essence of pineapple, ¼ oz. oil of cinnamon, ¼ oz.

oil of cloves, 4 bar. pure rectified spirits, 2 gal. cherry juice.

(*b*) Mash 16 lb. of black cherries with their stones; 5 gal. 95 per cent. alcohol. Macerate for 2 weeks; press; then add 10 lb. sugar, dissolved in 3⅜ gal. water. Filter.

Cherry Cordial.—Good French brandy, 1 qt.; juice of cherries, 1 qt.; best white sugar, finely powdered, 2 lb. Add the sugar to the juice and stir until it is thoroughly dissolved; add the brandy, and filter through blotting-paper.

Cherry Ratafia.—8 lb. Morella cherries with kernels bruised, 1 gal. brandy or proof spirit, 2 lb. sugar; as currant.

Cinnamon.—Usually made from cassia bark or oil (1 oz. oil = 8 lb. bark or buds), with 2 lb. sugar per gal., adding 5 or 6 drops each of essence of lemon and orange peel, with a spoonful of essence of cardamoms per gal. About 1 fl. dr. of the cassia oil suffices for 2½ gal. Colour with burnt sugar.

Cinnamon Brandy.—1 lb. essence of cinnamon, ½ lb. essence of cherry, 1 gal. syrup of gum arabic, 4 bar. pure spirits.

Citron.—From the oil or peel, with 3 lb. sugar per gal.

Citronelle.—(*a*) 2 oz. fresh orange peel, 4 oz. fresh lemon peel, ½ dr. cloves, 1 dr. coriander seed, 1 dr. cinnamon, 4 pints proof spirit; digest for 10 days, add 1 qt. water, and distil to ½ gal.; add 2 lb. white sugar dissolved in 1 qt. water.

(*b*) 1 dr. essence of lemon, ½ dr. essence of orange, 10 drops clove oil, 10 drops cassia oil, 20 drops coriander oil, 5 pints spirit 58 o.p.; agitate till

dissolved; add 3 pints distilled or soft water; well mix, filter through paper, if necessary; finally add q.s. dissolved sugar.

Clairet.—1 oz. aniseed, 1 oz. fennel seed, 1 oz. coriander seed, 1 oz. caraway seed, 1 oz. dill seed, 1 oz. candy-carrot seed, ½ gal. proof spirit; digest for a week, strain, and add 1 lb. loaf sugar dissolved in water.

Clove.—1 oz. bruised cloves (or 1 fl. dr. essential oil), 3 gal. proof spirit: when distilling, add some salt, and use a quick fire; sweeten with fully 3 lb. sugar per gal.; and colour with poppy flowers or burnt sugar; add 1 dr. bruised pimento or 5 drops of the oil per oz. of cloves.

Clove Brandy.—1 lb. essence of cloves, ½ lb. essence of cherry, ¼ lb. essence of ginger, 1 gal. syrup of gum arabic, 4 bar. pure spirit.

Clove-pink Ratafia.—4 lb. clove pinks without the white buds, 15 gr. cinnamon, 15 gr. cloves, 1 gal. proof spirit; macerate 10 days, express tincture, filter, and add 2½ lb. white sugar.

Cocoa Ratafia.—1 lb. Caraccas cacao, ½ lb. W. Indian, both bruised and roasted; 1 gal. proof spirit; digest 14 days, filter, and add 2½ lb. white sugar, ½ dr. tincture of vanilla; decant in a month, and bottle.

Coffee Ratafia.—1 lb. roasted and ground coffee, 1 gal. brandy or proof spirit, 2 lb. sugar dissolved in 1 qt. water.

Coriander.—As cloves, adding a few sliced oranges.

Cream Ratafia.-¼ pint noyeau cream, ¼ pint sherry, ½ pint capillaire, 1 pint fresh cream; beaten together.

Crême de Macarons.—(*a*) 1 dr. cloves, 1 dr. cinnamon, 1 dr. mace, all bruised, 7 oz. bitter almonds, blanched and beaten to a pulp, 1 gal. spirit 17 u.p.; digest for a week, filter, and add 6 lb. white sugar dissolved in 2 qt. pure water.

(*b*) 2 gal. clean spirit 24 u.p., ¾ lb. bitter almonds, 1½ dr. cloves, 1½ dr. cinnamon, 1½ dr. mace, in coarse powders; infuse 10 days, filter, and add 8 lb. white sugar dissolved in 1 gal. pure water; tint with infusion or tincture of litmus and cochineal. The almonds may be reduced to half.

Crême de Naphe.—7 qt. spirit 60 u.p. containing 3½ lb. sugar per gal., 1 qt. orange-flower water.

Crême des Barbades.—As citronelle, adding orange juice and 1 lb. more sugar per gal.

Crême d'Orange.—3 doz. sliced oranges, 2 gal. rectified spirit; digest 14 days; add 28 lb. loaf sugar, previously dissolved in 4½ gal. water; 1½ fl. oz. tincture of saffron, 2 qt. orange-flower water.

Curaçao.—(*a*) This liqueur derives its name from the Curaçao peel, as it is nothing else but a tincture of the Curaçao orange peel, sweetened and flavoured with more essential oils. Macerate 5 lb. green Curaçao orange peel in 6 gal. pure spirits, adding about ¼ lb. red sanders wood for obtaining at the same time the reddish brown colour; after a week's digestion, strain off, and dissolve ¼ oz. oil of bitter almonds, ¼ oz. oil of cinnamon in the above tincture, and then add 1 gal. white-sugar syrup; when all ingredients are mixed, filter and fill in bottles, and after standing a few weeks it will produce a delightful cordial.

(*b*) Spirit 56 u.p., containing 3½ lb. sugar per gal., flavoured with a tincture made by digesting the

"oleo-saccharum," prepared from 9 Seville oranges, 1 dr. cinnamon and ¾ dr. mace in 1 pint rectified spirit; colour by digesting 1 oz. powdered Brazil wood for 10 days, and mellow with burnt sugar.

(*c*) 2 lb. Curaçao orange peel, ½ lb. Ceylon cinnamon. Let them soak in water; boil them for 5 minutes with the juice of 32 oranges and 14 gal. white plain syrup; then add 6 gal. 95 per cent. alcohol; strain, filter; colour dark yellow with sugar colouring.

(*d*) 2 oz. each essence of bitter oranges and neroli; ¼ oz. essence of cinnamon; 3 dr. mace infused in alcohol. Dissolve the above essences in 1 gal. 95 per cent. alcohol, then put in a clean barrel 13 gal. 85 per cent. alcohol, 26 gal. sugar syrup 30° B., and add 1 gal. perfumed spirit. Colour with saffron or turmeric.

Curaçao Cordial.—Oil of orange, very fresh, 1 dr.; oil of cinnamon, 1 drop; oil of juniper berries, 2 drops; oil of coriander seed, 2 drops; deodorised alcohol, 3 pints; simple syrup, 2 pints; water, sufficient to complete 1 gal. Mix the alcohol with an equal volume of water, and add the mixture slowly to the essential oils previously rubbed in a mortar with carbonate of magnesia or phosphate of lime. Transfer the whole to a bottle, and set it aside with occasional agitation, for 2 or 3 days. Then add the simple syrup, the remainder of the water, and filter through paper. This gives the *white cordial*; for the *red*, infuse in the alcoholic menstruum about 2 dr. of cudbear.

Currant Ratafia.—1 qt. black currant juice, 1 dr. cinnamon, ½ dr. cloves, ½ dr. peach kernels, 1 gal. brandy, 3 lb. white sugar; digest for fortnight, and strain through flannel.

Dorée.-½ oz. cinnamon, ½ oz. bitter orange peel; ½ oz. Peruvian bark, ¼ oz. hay saffron, 3 qt. brandy, 3 qt. Malaga wine; digest for a week, strain, and add 2 lb. lump sugar.

Dry Ratafia.—5 pints gooseberry juice, 1 pint cherry juice, 1 pint strawberry juice, 1 pint raspberry juice, 6 qt. proof spirit, 7 lb. sugar; macerate.

Elixir Vitæ.—Macerate for 10 days, in 5 gal. pure spirits, 1 oz. zedoary root, 1 oz. ginger root, ½ oz. gentian root, ½ oz. agaric, ¼ oz. rhubarb root. Strain off the clear tincture, and add 2½ gal. water and ½ gal. syrup.

Extract Bishop or *Glow-wine.*—1 lb. tincture of Curaçao peel, ¼ lb. tincture of orange buds. Dissolve in the same 5 drops of the oil of nutmegs, 10 drops of the oil of cloves, 20 drops of the oil of cinnamon. Mix them together, and add about ½ gal. sugar syrup.

Extract Punch.-½ oz. essence of Jamaica rum, 1 oz. tartaric acid, 1 gal. sugar syrup, 2 gal. pure spirits, 10 drops oil of lemon. Dissolve the oil of lemon and essence of rum in the spirits, and the tartaric acid in a little water, before adding all together.

Four-fruit Ratafia.—30 lb. cherries, 15 lb. gooseberries, 8 lb. raspberries, 7 lb. black currants; express the juice, and add 6 oz. sugar to each pint, with 6 gr. cinnamon, 3 gr. mace, and 3 gr. cloves.

Ginger Brandy.—1 lb. essence of ginger, 20 drops oil of bergamot, ¼ lb. tartaric acid, 1 gal. elderberry juice, 1 gal. syrup of gum arabic, 4 bar. pure spirits.

Ginger Cordial.—To 1 qt. essence of ginger add 1 gal. pure spirit and 1 gal. white-sugar syrup.

Gold Cordial.—1 lb. sliced angelica root, ½ lb.

raisins, 2 oz. coriander seeds, 1½ oz. caraway seeds, 1½ oz. cassia, ½ oz. cloves, 4 oz. figs, 4 oz. sliced licorice-root, 3 gal. proof spirit, 1 gal. water; digest 2 days, and distil 3 gal. by gentle heat; add 9 lb. sugar dissolved in 1 qt. rose water and 1 qt. clean soft water; colour by steeping 1¼ oz. hay saffron.

Grenoble Ratafia.—(*a*) 2 lb. small wild black cherries, with kernels bruised, 1 gal. proof spirit, 3 lb. white sugar, a few gr. citron peel; as Juniper.

(*b*) 1 qt. cherries with bruised stones, 2 qt. rectified spirit; mix; digest for 48 hours, express the liquor, heat to boiling in a close vessel; when cold add enough sugar or capillaire, with a little noyeau, syrup of bay laurel and galangal, to flavour; decant in 3 months, and bottle.

Hop Cordial.—The following is recommended as a palatable preparation, not inferior to many of the so-called "Hop Bitters."

Hops	2 oz.	Stillingia	2 oz.
Dandelion	2 oz.	Orange peel	2 oz.
Gentian	2 oz.	Alcohol, water, of each	77 fl. oz.
Camomile	2 oz.	Syrup, simple	12 fl. oz.

Exhaust the solids, with the alcohol and water, and add the syrup.

Huile de Venus.—2½ oz. wild carrot flowers, 3 lb. sugar per gal. spirit; coloured by cochineal powder.

Juniper Ratafia.-¼ lb. juniper berries, each pricked with a fork, 40 gr. caraway seed, 40 gr. coriander seed, 1 gal. finest malt spirit 22 u.p., 2 lb. white sugar; digest a week, strain with expression.

Kirschwasser.—Dissolve 1 oz. oil of bitter almonds in 3 gal. pure spirits, and add 1 gal. white-sugar syrup.

Kümmel.—1 lb. essence of caraway, ¼ oz. oil of anise, ¼ oz. oil of fennel, 20 drops oil of neroli, 1 gal. syrup of gum arabic, 2 bar. pure spirits.

Lemon Cordial.—2 oz. fresh lemon peel, 2 oz. dried lemon peel, 1 oz. fresh orange peel, digested in 1 gal. proof spirit for a week; strain with expression, add enough soft water to reduce to desired strength.

Lime-juice Cordial.—4 oz. glucose, 1 pint syrup, 1 pint lime juice, 36 oz. water; tincture of lemon peel and triple orange-flower water, each sufficient to flavour.

Liquodilla.—3 sliced oranges and 3 sliced lemons, with 2½ lb. sugar per gal.

Lovage.—1 oz. fresh lovage roots per gal., ¼ oz. each fresh roots of celery and fennel; also sometimes a little fresh valerian root and oil of savin before distillation.

Malliorca d'Espagne.—40 gal. 55 per cent. alcohol, 5 oz. essence green anise-seed and 5 oz. essence of star anise dissolved in 95 per cent. alcohol, ½ dr. ether (to give the cordial age). Stir and filter.

Mandarin Delight.—1 gal. spirit 22 u.p., ½ gal. pure soft water, 4½ lb. white sugar, crushed small, ½ oz. Chinese aniseed, ½ oz. ambrette, ¼ oz. safflower; digested together in a stone jar of double the capacity and agitated every day for a fortnight.

Maraschino.—(*a*) This is an Italian cordial, while the curaçao is a favourite in Holland. Maraschino derives its aroma from the oil of bitter almonds, blended with the oils of cinnamon and rosewater, &c. 10 gal. pure spirits, 1 oz. oil of bitter almonds, ½ oz. oil of cinnamon, ¼ oz. oil of cloves, ¼ oz. oil of vanilla, 5 drops oil of rose, 5 drops oil of neroli, 5 drops oil of bergamot. To this solution add 2 gal. white-sugar syrup, ¼ gal. rosewater, and ¼ gal. orange-flower water; mix together, filter, and fill in bottles.

(*b*) Dissolve in 1½ gal. 95 per cent. alcohol, 1½ oz. essence of maraschino, 1½ dr. essence of rose, ½ dr. essence of noyeau, 5 drops essence of cloves, and 8 drops essence of cinnamon; add ½ gal. orris root flavouring. Mix the above with 12 gal. 95 per cent. alcohol and 26 gal. syrup of 30° B. Stir thoroughly and filter.

(*c*) 4 oz. essence of noyeau; 1 oz. essence of rose; ½ oz. essence of neroli (genuine); 4 dr. of mace, infused in 95 per cent. alcohol; ¼ lb. cinnamon, infused in 1 qt. water; 2 oz. cloves, infused in 1 pint water; 2 lb. orris root (powdered), infused in 2 gal. 95 per cent. alcohol for 15 days. Dissolve the essences in 2 gal. 95 per cent. alcohol. Mix, put into a barrel 41 gal. 85 per cent. alcohol; add the aromas, in 4 gal. 95 per cent. alcohol, sugar syrup, 90 gal. at 32° B. Stir all the ingredients well together for at least ½ hour and let the mixture stand 2 weeks; then filter and put in the filter 2 or 3 sheets of filtering paper.

(*d*) 1¼ oz. essence of maraschino, 1½ dr. essence of rose, ½ dr. essence of noyeau, 8 drops essence of cinnamon, 5 drops essence of cloves, ½ lb. orris root (powdered), infused in ½ gal. 95 per cent. alcohol

for 15 days. Dissolve the essences in 1 gal. 95 per cent. alcohol. Mix, put in a barrel 12 gal. 80 per cent. alcohol and add 2 gal. 95 per cent. perfumed alcohol (as described above); sugar syrup, 26 gal. at 25° B. Mix and filter.

(*e*) 3½ oz. essence of noyeau, 6 dr. essence of rose. Dissolve in ½ gal. 95 per cent. alcohol, and add 4 spoonfuls of magnesia, 1 gal. orange-flower water, ½ lb. cinnamon (bruised) infused in ½ gal. water, ¼ lb. cloves (bruised), infused in ¼ gal. water, 4 dr. mace infused in alcohol, 2 lb. orris root (powdered) infused in 2 gal. 95 per cent. alcohol for 15 days. Mix 41 gal. 80 per cent. alcohol, 90 gal. syrup at 25° B., and add 4 gal. perfumed spirits, as described above. Stir and filter as already directed.

Molucca Balm.-½ oz. cloves, 1 dr. mace, 1 gal. clean spirit 22 u.p.; infuse for a week in a well-closed jar, frequently shaking; colour with burnt sugar; to clear the liquor, add 4½ lb. loaf sugar dissolved in ½ gal. pure water.

Nectar Cordial.—1 oz. oil of bitter almonds, ½ oz. oil of orange, ½ oz. oil of cloves. Dissolve them in 1 gal. pure spirits, and add 1 gal. white-sugar syrup and 2 gal. of Teneriffe wine.

Noyeau.—This cordial is generally drunk by ladies, and requires to be very sweet. Take 1 oz. oil of bitter almonds, ½ oz. oil of orange, ¼ oz. oil of cinnamon. Dissolve in 2 gal. pure spirits, and add 1 gal. syrup of white sugar.

Noyeau Ratafia.—120 peach or apricot kernels, bruised, 2 qt. proof spirit or brandy, 1 lb. white sugar; digest for a week, press, filter.

Orange.—As lemon, using ½ lb. fresh orange peel per gal.

Orange Brandy.—2 oz. oil of orange, 10 drops oil of neroli, 1 lb. essence of orange, 1 gal. syrup of gum arabic, 4 bar. pure spirits.

Orange Elixir.—(*a*) To 5 gal. pure spirits add ½ lb. orange peel, ¼ lb. calamus root, ¼ lb. hops. After macerating for one week, strain, and add 1 gal. sugar syrup, and colour with sugar colouring.

(*b*) Dissolve in 3 gal. pure spirits, 1 oz. oil of orange, ¼ oz. oil of calamus, add 1 gal. white-sugar syrup, and colour the whole with sugar colouring.

Orange-flower Ratafia.—2 lb. fresh orange petals, 1 gal. proof spirit, 2½ lb. white sugar; as clove pink; 1 dr. neroli may replace the orange-flower.

Orange Gin.—The rinds of 8 Seville oranges and 8 large lemons, cut very thin, put into 1 gal. gin for 4 days. Then strain off the spirit from the rinds. Have ready 4 lb. loaf sugar boiled in 1 pint water, which must be thrown into the spirit boiling hot and well stirred, to cause it to mix well together. When cool, bottle.

Orgeat.—To milk of blanched sweet almonds, 2 lb., add 2 dr. oil of bitter almonds, 1 dr. oil of orange, 1 gal. white-sugar syrup, ½ gal. spirit.

Parfait Amour.—(*a*) Macerate in 10 gal. pure spirit, 2 oz. orris root, 4 oz. raisins, 2 oz. figs, for one week. Then dissolve ¼ oz. oil of lemon, 1 dr. oil of cinnamon, 1 dr. oil of juniper, 1 dr. oil of calamus, 1 dr. oil of cloves, 1 oz. oil of vanilla. Colour by sugar colouring, and add 4 gal. white-sugar syrup: it is then filtered through a woollen filtering-bag, and filled in bottles.

(*b*) 3 lb. sugar per gal., flavoured with yellow rind of 4 lemons, and a teaspoonful of essence of vanilla;

coloured with cochineal.

Peach Brandy.—(*a*) 1 lb. essence of peach, 1 gal. syrup of gum arabic, 1 oz. acetic ether, 1 oz. pineapple ether, 4 bar. pure spirits.

(*b*) Mash 18 lb. of peaches, with their stones; macerate them for 24 hours with 4¾ gal. of 95 per cent. alcohol and 4 gal. water. Strain, press, and filter; add 5 pints white plain syrup. Colour dark yellow with burnt sugar colouring.

(*c*) Take 4½ oz. powdered bitter almonds, 3¼ gal. 95 per cent. alcohol, 5¼ gal. water. Mix together, and macerate for 24 hours; then add a strained syrup, made of 3¾ lb. sugar, 1 pint peach jelly, 2¼ oz. preserved ginger, 1 lemon cut in slices, 1 dr. grated nutmegs, 1 dr. allspice in powder, and 5 pints of water boiled for 2 minutes. Mix the whole, and filter.

Peppermint.—5 oz. peppermint oil, 3 pints rectified spirits of wine, well agitated for some time in a corked bottle holding 4 pints; empty into a 100 gal. cask, pour in 36 gal. white and flavourless proof spirit, and agitate 10 minutes; add solution of 2¾ cwt. best double-refined lump sugar in 35 gal. pure filtered rain-water, and "rummage up" for 15 minutes; add sufficient clear rain-water to make up to 100 gal., containing 5 oz. alum in solution, and again shake for ¼ hour; then bung down and let repose a fortnight before broaching. If at all thick, add 2 oz. salt of tartar dissolved in 1 qt. hot water, and let stand a few days.

Peppermint Brandy.—To 40 gal. proof spirit add 4 oz. essence of peppermint, dissolved in 95 per cent. alcohol. Colour with ½ lb. powder of turmeric infused in 1 gal. spirit 95 per cent. Use this infusion

in such quantity as to get the proper shade.

Peppermint Cordial.—To 1 oz. oil of peppermint dissolved in 1 gal. pure spirit, add 1 gal. syrup of white sugar.

Peppermint Liqueur.—1 lb. essence of peppermint, ¼ lb. sulphuric ether, 1 gal. syrup of gum arabic, 2 bar. pure spirit.

Plum or Zwetschen Brandy.—(*a*) This favourite German liquor, also called Sligowitz, is prepared from 1 lb. plum essence, ½ lb. acetic ether, ½ lb. banana, 1 gal. syrup of gum arabic, 4 gal. pure spirits.

(*b*) Another mode of preparing the sligowitz or plum brandy is from prunes, which are mashed together with the kernels, and exposed to fermentation, when it is again distilled, and produces a fine spirit.

Provençal Ratafia.—1 lb. striped pinks, 1 qt. brandy or proof spirit, ¾ lb. white sugar, ¾ pint strawberry juice, 20 gr. saffron; as Clove-pink.

Quince Ratafia.—3 qt. quince juice, 3 dr. bitter almonds, 2 dr. cinnamon, 2 dr. coriander seeds, ½ dr. mace, 15 gr. cloves, all bruised; ½ gal. flavourless rectified spirit; digest for a week, filter, add 3½ lb. white sugar.

Railroad Liqueur.—To 5 gal. pure spirits add ¼ oz. oil of peppermint, ¼ oz. oil of absinthe, 10 drops oil of roses. Add to the solution 1 gal. white syrup, and colour the liqueur with blue orchil.

Raspberry Brandy.—1 lb. essence of raspberry, 1 lb. acetic acid, 1 gal. syrup of gum arabic, 1 gal. raspberry juice, 4 bar. pure spirits.

Raspberry Cordial.—Take 5 gal. raspberry juice, 2 gal. white-sugar syrup, and 1 gal. pure spirits.

Quince, gooseberry, strawberry, black and red currant, peach, nut, and apple cordials, are all prepared in the same manner from their respective juices.

Red Ratafia.—3 qt. black cherry juice, 1 qt. strawberry juice, 1 qt. raspberry juice, 1 dr. cinnamon, 15 gr. mace, 15 gr. cloves, 2 gal. proof spirit or brandy, 7 lb. white sugar, macerate.

Roman Punch.—This very refreshing beverage is prepared from 1 oz. lemon juice or citric acid, ½ oz. essence of rum, dissolved in 1 gal. pure spirit, adding ½ gal. syrup of sugar. Mix all together, and filter.

Rose Cordial.—To ½ oz. otto of rose add ¼ oz. oil of bitter almonds. Dissolve in 1 gal. highest-proof alcohol, add 1 gal. syrup of white sugar, and colour by cochineal rose colour.

Rum Shrub.—34 gal. proof rum, 2 oz. orange oil, 2 oz. lemon oil, dissolved in 1 qt. rectified spirit, 300 lb. good lump sugar dissolved in 20 gal. water; mix well by "rummaging"; gradually and cautiously add enough Seville orange juice or solution of tartaric acid in water to produce pleasantly perceptible acidity; rummage for 15 minutes; add sufficient water to make up 100 gal.; again rummage for ½ hour; bung loosely, and let remain for about a fortnight, when it should be sufficiently "brilliant" for racking. It is much improved by adding 1 oz. each of bruised bitter almonds, cloves, and cassia, the peel of about 2 doz. oranges, and a "thread" of the essences of ambergris and vanilla.

Sarsaparilla Mead.—(*a*) Sarsaparilla root, contused, 1 lb.; sassafras, 8 oz.; aniseed, 2 oz.; ginger, 2 oz.;

cloves, 1 oz. Boil for 15-20 minutes in 8 gal. water; strain and set the liquor aside for several hours to become clear. Then decant, and transfer to a 10 gal. soda-water fountain, adding to it molasses, 3 qt.; honey, 3 pints. Complete with water the 10 gal., and charge with carbonic acid gas. (*b*) Another way is to add to the completed mixture 1 qt. brewer's yeast, and when the fermentation is about half completed, to bottle the mead in ordinary soda-water bottles.

Shrub.—1 pint Seville orange juice, 3 pints rum or brandy, 2 lb. white sugar. When the sugar is dissolved, strain the mixture through a jelly-bag and bottle it.

Sighs of Love.—(*a*) Proof spirit, flavoured with equal parts otto of roses and capillaire.

(*b*) 6 lb. sugar, enough pure water to make 4 gal. syrup; add 1 pint eau-de-rose, 7 pints proof spirit; colour pale pink by powdered cochineal; 1 drop essence of ambergris or vanilla improves it.

Sloe Gin.—(*a*) To 1 gal. gin in a 2 gallon jar put 3 qt. sloes, ½ oz. bitter almonds, 2½ lb. loaf sugar, or the same quantity of sugar candy, if preferred. Let it be well shaken twice a week for 3 months. Then strain and bottle it, and well seal the corks. It will keep for years, and improve whilst in bottle. (*b*) Pick the sloes free of stalks, and let them be quite dry. Fill wine or other bottles, that are wide enough at the mouth to admit the fruit, with them. Next put in as much white pounded sugar as you can, then fill up with gin and cork. Shake well every few days for 14 days. Leave for 6 months, then strain off through a piece of muslin into clean bottles.

Strawberry Cordial.—Take any quantity of thoroughly ripe strawberries, pour over as much

proof spirit as will cover them; allow to stand for 24 hours; drain off and replace with the same quantity of fresh proof spirit; allow to stand another 24 hours; now drain off and replace with water; add fine sugar or syrup in the proportion of 3 lb. to every gallon of the mixed liqueur; also, a gill of orange-flower water. Filter and bottle.

Tears of the Widow of Malabar.—As molucca balm, using ½ oz. mixed cloves, 1 dr. shredded mace, and 1 teaspoonful essence of vanilla for flavouring; also ¼ pint orange-flower water. Slightly colour with burnt sugar.

Tent.—1 qt. port wine, 1 qt. plain spirit 22 u.p., 1 pint sherry, 1 pint soft water, ¼ pint orange-flower water, ¼ pint lemon juice, 2 drops essence of ambergris, 2 lb. sugar.

Tolu Ratafia.—1 oz. tolu balsam, 1 qt. rectified spirit, dissolve; add 3 pints water; filter, and further add 1½ lb. white sugar.

Vermouth.—Take of Peruvian bark ½ oz.; lemon peel, angelica root, balm leaves, lesser centaury, of each 3 dr.; juniper berries, coriander seeds, cinnamon, mace, of each 1½ dr.; wormwood, 1 dr.; syrup of bitter orange peel, 4 oz.; spirits of wine, 3 oz.; dry white wine, 3 gal.; macerate for some days and filter.

Violet Ratafia.—3 oz. orris powder, 4 oz. litmus, 2 gal. rectified spirit; digest 10 days, strain, add 12 lb. white sugar dissolved in 1 gal. soft water.

Walnut Ratafia.—60 young walnuts with soft shells, pricked; 2 qt. brandy, 15 gr. mace, 15 gr. cinnamon, 15 gr. cloves; digest for 8 weeks; press, filter, add 1 lb. white sugar; keep for some months.

Wormwood Liqueur.—1 lb. essence of wormwood, 1 oz. oil of tansy, 1 oz. oil of calamus, 2 oz. oil of orris, 1 gal. syrup of gum arabic, 3 bar. pure spirits.

Wine, and Miscellaneous Drinks.—Fruits intended for making wine must be perfectly ripe and sound, and gathered in dry weather. The most convenient sized cask is 10 gal. All utensils must always be scoured and scalded, and set out of doors to sweeten the day before being used. The tub in which the liquor is put to settle should have a tap within 3 in. of the bottom, so that the wine may be drawn, instead of poured off, without disturbing the lees or sediment; which must not on any account be put into the cask until it has been filtered well. The sieves and flannel strainers should be kept perfectly sweet, and exposed to the fresh air, and nothing of brass or copper used.

Never add the yeast for fermentation until the liquor is cool enough to receive it: 85° F. is about the proper temperature. Stir the liquor well occasionally, and cover the vessel close in cold weather. When liquor is working in a cask, it must be kept quite full to allow it to work out, or the wine will not be clear; keep a tile over the bung-hole that the froth may escape, or put the bung on lightly. Fermentation will be accelerated by mixing the yeast with 2 qt. of the liquor in a jar for 10 minutes, and then adding it to the whole quantity.

Wines made from raspberries, mulberries, elderberries, blackberries, and all such fruits as produce much sediment, should always be filtered through flannel bags into the cask, as this saves much trouble in fining and racking. Wines never “feed” on the lees, but, on the contrary, fret; and if

not made strong, frequently go sour.

When the liquor is ready for putting into the cask, draw it off as long only as it runs clear; then filter the lees more than once, if necessary, and fill completely. Put any overplus into bottles, with a small quantity of brandy, as a reserve for filling up in future. When brandy is to be added, take out 3 qt. of the wine, pour in the spirit, and then fill up. Never add water to wines when casked; should there by accident be a deficiency of the liquor, add foreign wine mixed with brandy.

Racking off is best performed by drawing the wine off into a clean vessel as long as it runs perfectly clear, then put in a cork, and turn the lees out in a separate tub, and filter it well. Next return all that is bright into the same cask; add what is recommended, and stop it up again securely. This should be done in cool weather, or early in the morning.

When bottling take care that your bottles are clean and not specked, or they will leak; fill them so that the wine will just come in contact with the cork when driven home. Use the best corks, and dip each in some of the wine, or in brandy, which is better. Seal the corks of such white wines as require caution when ripe, with green wax to distinguish them, and fasten them with wire. All newly-made wines should be kept in cool, dry, dark cellars. When casks are emptied, stop all the holes to prevent their becoming musty or foul.

Bins are formed of brickwork, board, or iron. Place some fine dry sand over the bottom of each bin, and make it quite level. On this lay down 2 or 3 laths, so that the necks of the first layer of bottles may rest on them, and at the same time be quite level. They are usually placed in rows two deep, and in laying them

down, be careful the shoulders of one row do not touch those of the opposite one, or they will break from the pressure. Be sure that the bottom rows are perfectly secure, as upon these depends the safety of the whole pile. Upon the first layers of bottles place a lath, to support the necks of those in the second row, the bottoms of which should rest on the laths placed over the necks of the first in the intervals between each bottle neck. Continue in this way until the piles are 3 or 4 ft. high.

All the bins that contain wine should be labelled, to specify the kind of wine and the date of their being bottled.

To cool wine, swathe the bottle or decanter in a wet bandage, and stand it in the full heat of the sun; when the bandage is nearly dry the wine will be found as cool as if iced.

Apple Wine.—Cut up 1 lb. of apples into quarters, add ½ lb. sugar, and then pour over them ½ gal. boiling water. Let it get cold, and then pulp the apples. Pour the fluid over the pulp, let it stand an hour, and then strain. This forms an agreeable drink, the acid of the apple blending with the sweet of the sugar pleasantly, so as to be grateful to a parched palate.

Apricot Wine.—Boil 10 gal. river water ½ hour, and set it to cool in a clean vessel. Cut 45 lb. ripe apricots into thick slices, and put them, with their juice, into the water, adding 25 lb. best loaf sugar, and stir them well; then cover the vessel closely, and let them steep until the day following. Boil the liquor and fruit together, stir in the whites of 8 eggs well beaten, and take off the scum as it rises. When the liquor is clear, and the fruit is reduced to a pulp, press, and strain it through a fine sieve, into a cooler,

add the stones broken, and stir well. Spread good yeast on both sides of a toast, and when the liquor is at its proper warmth, work it well 2 days, and strain it through a jelly-bag into the cask, put on the bung lightly, and let it work over, keeping the cask full, and when it has done fermenting, add to it 2 qt. French brandy, and 2 oz. white sugar-candy. Then put in the bung, and secure it well, keep it 12 months, and then bottle it. It must remain in bottle a year or more, for it is a very rich wine, and will improve greatly by age.

Badminton.—(*a*) 1 bot. vin ordinaire, 2 bot. soda water, 1 small glass pale brandy; add lemon peel, sugar, and ice.

(*b*) 1 bot. light claret, 1 or 1½ glass sherry, 1 bot. soda water, crushed sugar to taste.

(*c*) Put the parings of half a cucumber in a cup with white sugar; pour on 1 bot. claret, and let stand ½ hour in ice; add 1 bot. soda water.

Balm Wine.—Into 8 gal. water put 20 lb. moist sugar; boil for 2 hours, skimming thoroughly; then pour into a tub to cool; place 2½ lb. balm tops, bruised, into a barrel with a little new yeast; when the liquor is cold, pour it on the balm; stir it well together, and let it stand 24 hours, stirring it frequently; then close it up tightly at first, and more securely after fermentation has quite ceased; when it has stood 2 months, bottle off, putting a lump of sugar into each bottle; cork down well, and keep in bottle at least a year.

Barley Water.—Wash the barley well, add a few strips of lemon-peel, very thin, and pour on the water boiling. The juice of the lemon should be squeezed in fresh just before it is served. Robinson's

patent barley is best (see p. 775).

Beetroot Beer.—Having well cleansed and scraped the roots, removing the discoloured portion near the set of the leaves, cut them into pieces of an inch or so in thickness, fill the copper with them, and then put in as much water as will just cover them. Boil for about 5 hours, place them lightly in a wicker basket or sieve to drain, but do not put any pressure upon them. Then put the liquor back into the boiler, and to every 7 pails liquor put 3 lb. hops; boil together for 2 hours, and then strain through the sieve. When cool work it with yeast, the same as other beer. The scum which rises should be removed before casking. Beetroot may be substituted for malt if deprived of the greater part of its juice by pressure, then dried and treated in the same manner as the grain intended for brewing. The beer made from beetroot has been found perfectly wholesome and palatable, and little inferior to that prepared from malt.

Bilberry Wine.—The fruit should be picked on a very dry day, when it is quite ripe. The leaves and stalks must be carefully removed from the berries and the fruit, then weighed. To 4 gal. fruit allow either 6 gal. cold water or 3 gal. water and 3 of cider, and 10 lb. good moist sugar; let all these ingredients ferment in an open tub until working is over; then add ½ gal. brandy, a handful of lavender and rosemary leaves mixed, 2 oz. powdered ginger, and 2 oz. powdered tartar; let the liquor rest after this addition for 48 hours, then strain very carefully through a hair sieve into a perfectly clean cask, laying the bung lightly on the bung-hole until the working is quite over, and no hissing sound is heard; then close down quite tightly, and bottle off at the end of 3 months; keep 6-8 months in bottle before

use.

Birch Wine.—(*a*) Take 11 gal. of the sap of a healthy birch tree, fresh as you can get it, boil it gently as long as any scum rises, which must be carefully taken off to avoid wasting it. Add to the clear liquor 25 lb. best loaf sugar, boil it again 20 minutes with the whites of 10 eggs beaten to a froth, and skim frequently until it is beautifully bright. Set it in a clean vessel to cool, and when at 96° F. put into it a toast well spread on both sides with thick fresh ale yeast, and keep it closely covered up, 6 or 7 days, stirring daily. Rinse a sweet 10 gal. cask with a pint of old raisin wine, filter the liquor into it, add the thin yellow rinds of 2 lemons and 3 Seville oranges, and 3 qt. French brandy, put in the bung, and secure it with paper and sand. Set it in a cool cellar, and bottle it in 2 years; fasten the corks down with wire, and seal with wax. A year later it will be in perfection.

(*b*) Boil 9 gal. healthy birch sap with 2 lb. clarified honey ½ hour, skimming it well. Beat 9 whites of eggs up with ½ oz. isinglass, dissolved in a cupful of cold water, and put in 20 lb. loaf sugar broken small. Mix this well with the liquor when cool, and boil it ½ hour longer, skimming and stirring until it is quite clear. Put it into a tub, and when milk warm stir well into it ¼ pint of strong yeast; let it work 3 days in the tub, then put it into your cask, add the rinds of 6 lemons and 2 lb. best raisins, and keep the bung out until the fermentation has ceased. Put to the wine a bottle of old Madeira and 1 qt. the best brandy; stop the cask up safely, and let it stand 6 months. Draw off the wine into a clean vessel as long as it runs clear, then filter the dregs through 3 folds of flannel, and put all back again into the same cask; fasten the

bung in well, and put clay over it. In 6 months you may bottle it; seal and wire the corks to prevent accidents, for it is a lively wine, and should be kept in a cool cellar. When it has been bottled 6 months it will be fit for use.

Bishop.—Make several incisions in the rind of a lemon; stick cloves in the holes and roast the lemon at a slow fire. Put small but equal quantities of cinnamon, cloves, mace, and allspice into a saucepan, with ½ pint of water; let it boil until it is reduced one-half. Boil a bottle of port wine; burn a portion of the spirit out of it by applying a lighted paper to the saucepan. Put the roasted lemon and spice into the wine; stir it up well, and let it stand near the fire 10 minutes. Rub a few knobs of sugar to taste on the rind of a lemon, put the sugar into a bowl or jug, with the juice of half a lemon (not roasted), pour the wine into it, grate some nutmeg into it, sweeten it to your taste, and serve it up with the lemon and spice floating in it. Oranges are sometimes introduced instead of lemons.

Blackberry Wine.—Mix 45 qt. ripe blackberries, well picked and pressed, with 10 lb. good honey, and 26 lb. strong, bright, moist sugar; boil it with 12 gal. soft water and the whites of 12 eggs, well beaten, until it is reduced to 10 gal., skimming it until perfectly clear. Strain it into a tub, and let it stand until the next day, then pour it clear off the lees, and boil it again ¾ hour, adding the lees filtered twice, and 2 oz. isinglass dissolved in 1 qt. water. Skim well, and put in 2 oz. Jamaica pepper, cloves, and best ginger, all bruised, and tied loosely in a piece of muslin. Put into your cooler the thin rinds of 6 Seville oranges and 1 pint lemon juice; strain the liquor upon them, stir well, and when cool enough,

work it with 1 pint fresh yeast stirred well into 1 gal. of the liquor. Cover it up close, and let it work 5 or 6 days, taking off the top scum and stirring twice daily; then strain, and filter it into the cask, put on the bung lightly, keep the cask well filled up, and when it has ceased fermenting, let a day elapse, and add 2 qt. French brandy, and 1½ oz. isinglass, dissolved in a little water, and mix with 1 gal. of the wine 10 minutes, 1 oz. bitter almonds blanched and slit, and 6 oz. sugar candy broken small. Stop up the bung, paste strong white paper over it, or coarse linen, and place plenty of sand over all, wetted a little. Keep it 2 years in a cool cellar, then bottle it; seal the corks, and keep in bottle 2 years; then use it. If allowed greater age, it will still improve.

Bucellas.—Press the pulp and juice out of 30 lb. Lisbon grapes, add 6 gal. cold soft water that has been well boiled; stir well, and covering the vessel close, let it stand 24 hours; add 30 lb. bright, strong, moist sugar, stir well until it is dissolved, and in 3 days more strain the liquor into your cask upon the thin rinds of 8 lemons and 1 oz. bitter almonds, blanched, and beaten with a spoonful of water in a stone mortar. When you have filled the cask, cover the bung-hole with a tile, and let the liquor work over; when it has ceased fermenting, pour in 3 pints French brandy and 4 oz. sugar candy, and stop it up for a year; then bottle it, seal the corks, and keep it 12 months.

Burgundy Cup.—(*a*) 1 bot. ordinary Burgundy, ½ gill ordinary brandy; 4 fresh black currant leaves or buds, steeped in the brandy 2 hours; sweeten with 1 oz. powdered sugar candy; when all well blended, strain the leaves; add bottle of aerated lemonade, and, just before serving, 1 lb. ice, in small lumps.

(*b*) Peel and juice of 2 lemons; 1 qt. seltzer water; 2 bot. Burgundy; sugar to taste; when well iced, draw out the peel and serve.

Buttered Jack.—Take a brass pan, put in ½ lb. lump sugar, 1 glass sherry, and 1 lb. fresh butter to melt; beat up 6 fresh eggs well with a little sherry, and having moderately cooled the pan with 2 bot. light dinner sherry, add the eggs while gently stirring, and place on the hob till quite hot, taking care not to let it boil; sweeten to taste. The pan must not be too hot when pouring in the eggs, or they will curdle.

Cardinal.—The same as Bishop. Substitute claret for port wine.

Chablis Cup.—(*a*) Dissolve 5 lumps sugar in 1 pint boiling water; add a little thin lemon peel; when cool, add wineglass of dry sherry, 1 bot. Chablis, and 1 lb. ice.

(*b*) Put 1 bot. Chablis and a liqueur glass of chartreuse, maraschino, or noyeau, into a jug embedded in ice; add a lump of ice; immediately before serving add a bottle of seltzer water.

Champagne Cup.—(*a*) 1 qt. bot. champagne, 2 bot. soda water, 1 liqueur glass of brandy or curaçao, 2 tablespoonfuls powdered sugar, 1 lb. pounded ice, and a sprig of green borage.

(*b*) 1 bot. champagne (iced); 1 gill Amontillado; liqueur glass of citronelle or maraschino; juice and paring of a Seville orange or lemon, rubbed on sugar; verbena and cucumber; sugar to taste; 1 bot. seltzer water.

(*c*) 1 bot. sparkling champagne (iced), 1 bot. soda water (iced), 2 oz. powdered loaf sugar, sprig of borage and balm, juice and thin peel of one lemon;

pour the champagne on the lemon, sugar, and herbs; cover the vessel, which is in ice, till the sugar is dissolved; add the soda water.

Cherry Brandy.—(*a*) Take ripe black geans (Scotch wild cherries); pick off the stalks, and pick over the fruit as for a tart, but do not wash them. Half fill large wide-mouthed bottles with layers of fruit and pounded white sugar, weight for weight; fill up with good French brandy; cork well, and the longer it stands the finer it is. Bruise a few of the fruit, so as to crack the stones. It is useless to attempt to make good liqueurs with anything but French brandy, and that of the best. If you cannot procure black geans, use fine Morella cherries, each of which must be wiped and pricked with a bone stiletto or knitting needle. In this case the cherries are a good dessert dish.

(*b*) Get the largest Morella cherries, cut off half the stalk, pricking each cherry with a needle, and putting them into a wide-mouthed bottle. Add ¾ of the weight of the cherries in white candy sugar bruised, between the layers of the cherries, until full; add a gill of noyeau, and then fill up with French brandy; cork tight, and tie a bladder over the bottle.

(*c*) Having cut off half the stalks of some Morella cherries, put them very gently in and ¾ fill a wide-mouthed glass bottle that contains 1 qt. Add 4 oz. white sugar candy finely powdered, fill close up with the best brandy, adding one clove, 2 dr. dried Seville orange peel, and 1 dr. cinnamon. The three last ingredients to be taken out in 14 days; then fill up the vacant space with brandy, and cork carefully.

Cider.—Bottling.—Cider or perry, when bottled in hot weather, should be left a day or two uncorked, that it may get flat; but if too flat in the cask, and

soon wanted for use, put into each bottle a small lump or two of sugar candy, or four or five raisins. Cider should be well corked and waxed, and the bottles put upright in a cool place.

Restoring Flavour.—(*a*) Cider, 1 hhd.; rum, weak flavoured, 2 gal.; alum, dissolved, 1 lb.; honey, or coarse sugar, 15 lb.; bitter almonds, ½ lb.; cloves, ½ lb. Mix, and after a few days fine it down with isinglass.

(*b*) To fine and improve the flavour of 1 hhd., take ½ oz. cochineal, 1 lb. alum, and 3 lb. sugar candy; bruise them all well in a mortar, and infuse them in 1 gal. good French brandy for a day or two; then mix the whole with the cider and stop it close for 5 or 6 months. After which, if fine, bottle it off.

Cider Cup.—(*a*) 1 bot. cider, 1 bot. soda water, 2 glasses sherry, powdered sugar, sprig of borage.

(*b*) 2 bot. sparkling cider, ½ gill curaçao, ½ gill brown brandy, ¼ lb. sugar; the juice, strained, and the peel of one lemon, rubbed on sugar; slice of cucumber; pour ½ pint boiling water on the sugar; when dissolved and cool, add the brandy, cucumber, liqueur, and juice; in a few minutes add the cider and 1 qt. shaven ice; use immediately.

(*c*) Grate into a cup some nutmeg and a little ginger; add a well-browned toast, a glass or two of sherry, sugar to taste; add a bottle of cider, poured on slowly. It may be drunk at once.

Claret Cup.—(*a*) 1 bot. claret, 1 bot. soda water, ½ lb. pounded ice, 4 tablespoonfuls powdered sugar, ¼ teaspoonful grated nutmeg, 1 liqueur glass maraschino, and a sprig of green borage.

(*b*) To 1 bot. ordinary claret add 1 bot. soda water,

a glass of sherry or curaçao, the peel of a lemon cut very thin, powdered sugar according to taste. Let the whole remain an hour or two before serving, and then add some lumps of clear ice.

(*c*) To (*b*) add a few slices of cucumber, or some sprigs of borage instead of the cucumber.

(*d*) As (*b*), except the lemon peel, for which substitute, when in season, a pint of ripe raspberries or 4 or 5 peaches or nectarines, cut in slices.

(*e*) 2 bot. claret, 1 of sparkling champagne, wine glass of maraschino or citronelle; borage, balm, and sugar to the flavour required; ice well, and before serving add 2 bot. seltzer water.

(*f*) 2 bot. claret, 1 pint dry sherry, ½ gill brandy, 1 bot. champagne (iced); ½ gill noyeau; infuse some borage and balm leaves in the sherry; when sufficiently herbed, strain; add this to the claret, sweeten to taste, add the noyeau and spirit, ice up; just before serving, add 2 bot. iced potash water, 1 pint shaven ice, and the champagne; serve immediately.

(*g*) Peel one lemon fine, cover with pounded sugar, pour over a glass of sherry; add 1 bot. claret, sprig of verbena, and bottle of iced soda water.

Clary Wine.—Mix 9 gal. cold soft water with 6 lb. honey, 30 lb. best loaf sugar, and the whites of 12 eggs beaten to a froth; boil 1½ hour, skimming and stirring nearly the whole time. Put the liquor into a cooler, and add 14 qt. clary tops in flower; work it at the proper temperature with good fresh ale yeast, keeping it closely covered, and stirred well. Pick, stone, and cut in pieces, 14 lb. good Malaga raisins, pour on them 3 gal. lukewarm water, that has been well boiled; stir well, and let steep 5 days; then press

the fruit in a hair bag, strain the liquor, and put it into a sweet 10 gal. cask; strain the liquor from the flowers, add to it the rinds of 10 lemons pared thin, and their juice strained, and put this into the cask, filling up, and keep it open 3 or 4 days, until the fermentation has entirely ceased. Then add 2 qt. French brandy, and stop it up for 3 months, after which rack it off into a clean vessel, filter the lees, and fill the same cask again, adding 6 oz. sugar candy bruised, and 1 oz. isinglass dissolved in 2 qt. of the wine. Stop it up securely, and keep it 18 months in a cool dry cellar; then bottle it, seal the corks, and in a year more it will be fit for use.

Coltsfoot Wine.—Boil 1 gal. water with 2½ lb. moist sugar and the beaten white of an egg, for ¾ hour; pour the boiling liquor on ¼ peck of fresh-gathered coltsfoot flowers and 1 lb. raisins stoned and cut small. Cover the vessel close, and let the ingredients infuse for 3 days, stirring thrice daily; then add a tablespoonful of yeast, keep it well mixed and covered close until it has worked freely; then strain into a cask upon ½ oz. best bruised ginger and the rind of half a Seville orange; let it remain open, covering the bung-hole with a tile until it has ceased fermenting; add a gill of French brandy, stop it up securely, and keep it for 12 months, then bottle it and use it 6 months later.

Corn Beer.—5 gal. water, 2 qt. molasses, 1 qt. sound corn. Put all into a keg and shake well; in a few days fermentation will have been brought on as nicely as with yeast. Keep it bunged tight. It may be flavoured with oil of lemon, &c. The corn will last five or six makings. If it gets too sour, add more molasses and water in the above proportions. This drink is cheap, healthy, and there is no better with

yeast.

Cottage Beer.-½ pint good wheat bran, 3 handfuls hops, 2 tablespoons yeast, 10 gal. water, 2 qt. molasses. Boil bran and hops in the water until both sink to the bottom; strain through a hair sieve; when lukewarm put in the molasses and stir till it is melted. Put in a cask; bung up, and it will be ready for use in a few days.

Cowslip Syrup.—Take of fresh cowslip flowers, 12 oz.; boiling water, 1 pint: infuse for 24 hours, strain, and then add ½ lb. white sugar; boil it gently until it attains the consistence of a syrup. The cowslip was at one time very highly celebrated for its narcotic virtues; and cowslip water and infusion of cowslip have been much recommended. The infusion is made in the following manner: ½ oz. dried cowslip flowers, or 1 oz. fresh, must be put to stand in a close vessel with 1½ pints boiling water for ½ hour, when it may be drunk in the same manner as tea.

Cowslip Wine.—(a) To 2 gal. water add 2½ lb. powdered sugar; boil them ½ hour, and take off the scum as it rises; then pour it into a tub to cool with the rinds of 2 lemons; when cold add 4 qt. cowslip flowers to the liquor with the juice of 2 lemons. Let it stand in the tub 2 days, stirring it every 2 or 3 hours, and then put it in the barrel. Let it stand a month; bottle it, and put a lump of sugar into each bottle. It makes the best wine to have only the tops of the peeps.

(*b*) To 6 gal. water add 21 lb. lump sugar and the whites of 2 eggs; boil it (taking off the scum as it rises) till it clears itself, which will be in about ½ hour; when nearly cold add 24 qt. cowslips, the rinds of 2 lemons, and a spoonful of brewers' yeast spread upon toast. Let it ferment for 3 days, stirring it twice

or thrice a day, and then put it into a barrel, adding 1 pint of brandy, and cork it tight. When it has done fermenting, which will be in about 3 weeks, put into the cask a syrup made of 6 lemons and 1½ lb. sugar, which has stood till cold. Let it stand 4 months, when you may bottle it for use. Take out the rinds of the lemons before you put it into the cask.

Cream Mead.—A very agreeable drink may be prepared for convalescents as follows:—Dissolve 3 lb. white sugar in ½ gal. boiling water, and while cold add 3 oz. tartaric acid previously dissolved in 1 pint cold water. Now add the whites of 3 eggs well beaten; flavour to taste, and bottle. When it is to be used, stir in a few grains of soda bicarbonate, and a delicious effervescing drink is the result.

Currant Wine.—Gather the currants on a fine day, and, when they are fully ripe, pick them from the stalks, and squeeze out all the juice through a clean muslin bag. To 1 gal. juice put 2 of cold water, and 2 tablespoonfuls yeast. Let it work 2 days, then strain through a hair sieve, and, to 1 gal. liquor, add 3 lb. powdered sugar; stir all well together, put it into a clean cask, and to every gallon add 1 wineglassful brandy. Close the cask, and let it stand 3 months, then bottle.

Damson Wine.—Boil 10½ gal. pure river water with 32 lb. strong moist sugar, and the whites of 10 eggs well beaten, for ½ hour, skimming well; then add 32 qt. ripe prune damsons well picked from the stalks, and stoned, and boil them ½ hour longer, skimming and stirring, until the liquor is beautifully bright. Strain it off the fruit in a fine hair-sieve into your cooler, and when at the proper temperature, work it with fresh yeast, spread on a toast, 3 or 4 days. Then draw it off the sediment, put it into the

cask, filter the lees, and fill up, letting it work out at the bung. When it has ceased hissing, put to it 1 qt. French brandy, and stop it up safely, pasting paper over the bung. Let it stand 6 months, then rack it off, filter the lees through flannel twice folded, and filling the cask again, add 1 oz. isinglass, dissolved in 2 qt. of the wine. Secure the bung well, and let it remain 2 years; then draw it off and bottle, sealing the corks. This being a rich wine should not be drunk until it has been bottled 2 years or more.

Dandelion Tea.—Pull up 6 or 8 dandelion roots, according to size, and cut off the leaves; well wash the roots and scrape off a little of the skin. Cut them up into small pieces and pour on 1 pint boiling water. Let them stand all night, then strain through muslin, and the tea is ready for use. It should be quite clear, and the colour of brown sherry. 1 wineglassful should be taken at a time. The decoction will not last good for more than 2-3 days, and therefore it must only be made in small quantities.

Egg Flip.—(*a*) Boil 3 qt. ale with a little nutmeg; beat 6 eggs and mix them with a little cold ale; then pour in some of the hot ale, and return it several times to prevent it curdling; stir it well, and add a piece of butter and a glass of brandy, with sugar, nutmeg, and ginger to taste. A few cloves are an improvement.

(*b*) Break 2 fresh eggs into a jug, to which add 4 teaspoonfuls sugar, a little grated nutmeg and ginger. Some put a little allspice. Beat the eggs, sugar, and spices well up with a fork. Place 1 qt. ale on the fire in a pan, and when warm pour a little of the ale into the jug, and again well beat the eggs, &c. Then pour all the ale out of the pan into the jug, and from the

jug into the pan, backwards and forwards several times, until the whole is well mixed. Heat the ale again if not hot enough, and sweeten to taste. It is best drunk warm. A little rum may be added for those who like it, and more than 2 eggs put in a quart of ale if desirable—say 3 or 4. Care must be taken not to let the ale boil, or it will be spoiled.

(*c*) Beat 2 eggs with a little water and 1½-2 oz. sugar; add a little grated nutmeg or allspice or cloves. Boil 1 pint sound ale, and when boiling pour it on the eggs, stirring the mixture the while; pour it backwards and forwards, and if it does not become thick, put it on the fire, carefully stirring until it does so.

(*d*) The yolks of 8 eggs well beaten up, powdered sugar, and a grated nutmeg; extract the juice from the rind of a lemon by rubbing loaf sugar upon it; put the sugar, a piece of cinnamon, and 1 qt. strong beer into a saucepan, take it off the fire when boiling, pour into it 1 glass cold beer, or a glass of gin if agreeable; put it into a jug, and pour it gradually among the yolks of the eggs, &c., stirring all the time; add sugar if required. Pour the mixture as swiftly as possible from one vessel to the other till a white froth is obtained.

Elderberry Wine.—(*a*) Gather your elderberries when quite ripe, bake them in an oven prepared for bread, then strain the juice; for every quart of juice take 1 gal. water, and boil in it ½ lb. moist sugar for 1 hour, skimming it carefully, and adding more water to make up for the evaporation, so as to leave at the end 1 gal. syrup. When cool, add the juice, spread a toast thickly with yeast, put it in, and let it ferment for a week in an open vessel; then pour it into a cask, with 1 lb. raisins, and 1 oz. each sugar

and allspice. Let it stand 3 months, strain and bottle, adding ½ pint brandy at the last moment.

(*b*) To 3 qt. of berries put 1 gal. water; boil the berries for 15 minutes, then strain; boil not quite 3 lb. of sugar to the gallon for 45 minutes; and then add some ginger and cloves according to taste.

Elder-flower Wine.—To 1 gal. water put 4 lb. white sugar, ½ pint elder flowers *loosely* packed, and one tablespoonful of yeast. Mix and put all in a barrel, stirring the whole every morning for a week; then stop it up close, and it will be ready to bottle in 6 weeks.

Ginger Beer.—(*a*) 1¼ lb. lump sugar, ¾ oz. ginger well pounded, the peel of 1 lemon cut very thin; put them into a pitcher, then add 11 pints boiling water; stir the whole, then cover it up. When cooled till only milk warm, put 2 spoonfuls of yeast on a piece of toast, hot from the fire; add the juice of the lemon. Let work 12 hours; strain through muslin and bottle. Will be fit to drink in 4 days.

(*b*) 2 lb. loaf sugar, 2 oz. bruised ginger, 1 lemon; put all together and pour 2 gal. boiling water on it; let stand one day, then strain, and put 2 spoonfuls of yeast to it; bottle.

(*c*) To 10 gal. water put 12 lb. sugar, 6 oz. bruised ginger (unbleached is the best). Boil 1 hour, put into a barrel with 1 oz. hops and 3 or 4 spoonfuls of yeast. Let stand 3 days; then close the barrel, putting in 1 oz. isinglass. In a week it is fit for use. Draw out in a jug and use as beer.

(*d*) The rinds of 3 lemons pared very thin, 1½ oz. cream of tartar, ¼ lb. ginger (bruised), 3½ lb. loaf sugar, 2½ gal. boiling water. Let all stand till milk warm; then add a dessertspoonful of yeast. Let

remain all night, then strain off, and add ½ pint brandy. Bottle in very clean half-pint glass bottles, and tie down the corks. It will be ready for drinking in a week's time. Lemon juice may be added, if desired.

(*e*) 18 gal. water, 24 lb. sugar, 24 lemons, whites of 18 eggs, 2 lb. ginger, 1 oz. isinglass, 3 tablespoonfuls yeast. Boil the water and sugar, add the whites of eggs; when coming to the boil, add the ginger; boil for ½ hour, then add the lemon peel and juice; boil for 10 minutes, strain into a tub, add the isinglass; when nearly cold, add the yeast; when done fermenting, close up. Let stand for a fortnight, then bottle.

(*f*) Put 4 lb. loaf sugar in a crock, also 6 lemons (sliced), 5 oz. cream of tartar, 4 oz. ground ginger, 24 cloves in a small bag; pour on the above 4 gal. boiling water; cover up close. When nearly cold, whisk in the whites of 3 eggs, then add 3 tablespoonful a good yeast on a slice of toast; ferment 24 hours, then strain and skim and bottle off. Lay the bottles on their sides for 24 hours.

(*g*) White sugar, 5 lb.; the juice and peel of 3 or 4 lemons; ginger (bruised), 5 oz.; Water, 4½ gal. Boil the ginger in 1 gal. of the water for ½ hour, with the peels of the lemon, then add the sugar, and lemon juice, with the remainder of the water at a boiling heat, and strain through a cloth; when cold, add the quarter of the white of an egg, beaten up with a small quantity of the liquid. Let the whole stand 4 days, and bottle. Will keep good many months.

(*h*) Crush 12 oz. best ginger, and put it in a large tub; boil 8 gal. water and pour thereon; add 5 lb. best white sugar, 1 oz. cream of tartar, and 1 oz. tartaric acid; stir the whole up with a stick till the

sugar is dissolved; allow it to stand till milk warm, then add 1 gill brewers' yeast; stir this in, let it stand for 12 hours, or until a scum forms on the top, then drain it off; clear by means of a tap about an inch from the bottom of the tub; whisk the white of an egg to a froth, and mix it with a teaspoonful of the essence of lemon; strain through a flannel cloth; bottle and tie down.

(*i*) 5 gal. water, ½ oz. tartaric acid, 4 lemons, sliced thin, 12 oz. ginger, ¾ oz. cream tartar, whites of 2 eggs, ½ oz. compressed yeast, 5 lb. sugar. Proceed as (*h*).

(*j*) 8 gal. boiling water, 5 lb. best white sugar, ½ oz. cream tartar, white of egg beaten to a froth, ½ lb. best ginger, 2 oz. tartaric acid, 1 teaspoonful essence lemon, 1 gill brewers' yeast. Leave to work 24 hours before bottling.

Ginger Brandy.—1 lb. raisins, the rind of one lemon, and ¾ oz. bruised ginger. Steep them in 1 qt. best French brandy, strain, and add 1 lb. powdered loaf sugar.

Ginger Wine.—(*a*) Boil together 3 gal. water and 10 lb. loaf sugar; then turn it out to cool, except 1 qt., in which boil for ½ hour the thin rind of 3 large lemons and 1 Seville orange, with 4 oz. pounded ginger, and 4 oz. raisins; when nearly cold, mix all together, adding the juice of the orange and lemons, 1 oz. isinglass, and 2 tablespoonfuls yeast; put into a cask, and stir daily for 2 days, or till the fermentation ceases; then close, and leave for 6 weeks; rack carefully into a clean cask, and leave for another month; then bottle. If required to be strong, you must add (after the fermentation ceases) 1 bot. brandy.

(*b*) 4 gal. water, 7 lb. sugar, boil ½ hour, skimming frequently; when the liquor is cold, squeeze in the juice of 2 lemons; then boil the peels with 2 oz. white ginger in 3 pints water, 1 hour; when cold put all into the cask, with 1 gill finings and 3 lb. Malaga raisins; bung; let it stand 2 months, then bottle. March is considered the proper time to make it, and it would be better if you were to add a little brandy to each bottle.

(*c*) To 7 gal. water put 19 lb. sugar, and boil it for ½ hour, removing the scum as it rises; then take a small quantity of the liquor, and add to it 9 oz. best ginger bruised. Put it all together, and when nearly cold, chop 9 lb. raisins very small, and put them into a 9 gal. cask; slice 4 lemons into the cask, after taking out the seeds, and pour the liquor over them, with ½ pint fresh yeast. Leave it unstopped for 3 weeks, keeping it filled up, and in about 6 or 9 weeks it will be fit for bottling.

(*d*) To 37 qt. water add 1¼ lb. best white ginger, well bruised, 27 lb. sugar, loaf or moist, and the rinds of 12 lemons thinly pared; boil together 1 hour, taking off the scum as it rises in the copper. Strain off when cool, ferment it with 2 tablespoonfuls of yeast and let remain until next morning, then put it into the cask with the rinds and the juice of the lemons (observe to strain the juice first), the ginger, and 3 lb. good raisins broken open. Stir once a day for 10 days, then add 1 oz. isinglass. Care must be taken not to bung the cask quite close until the fermentation has ceased; bottle in 6 or 8 weeks, and use. The rinds of the lemons are to be boiled, but *not* the juice: that is to be put into the cask *without* having been boiled.

Gin Sling.—Take a large tumbler or silver tankard,

put into it a liqueur glass of maraschino of noyeau or of plain syrup (made by dissolving in spring water as much pounded loaf sugar as it will possibly take up). Half fill the tankard with little blocks of ice, and put in a thin paring of the outer yellow skin of a lemon. Then add a sufficient quantity of unsweetened gin to suit the taste. Now empty into the tumbler the contents of a bottle of soda water, and stir well up with a tablespoon to amalgamate the whole. A sprig of borage with one blue flower may be added.

Gooseberry Wine.—(*a*) To 1 lb. gooseberries, when picked and bruised, put 1 qt. fresh cold spring water; let stand 3 days, stirring two or three times a day. To 1 gal. juice put 3 lb. loaf sugar in a barrel, and when it has done working, to every 20 qt. of liquor put 1 qt. brandy and a little isinglass. The gooseberries should be picked when they are just changing colour, and may be of any sort or kind. It should stand in the barrel 6 months. Taste frequently, and bottle when the sweetness is sufficiently gone off.

(*b*) To 10 gal. cold water take 10 gal. unripe large gooseberries, cut them in halves, and throw them into the water; let them lie 4 or 5 days, frequently stirring; strain off the liquor, and add 30 lb. white sugar; dissolve the sugar, strain the whole into a cask. It will probably remain in a state of fermentation for 2 months; when that has subsided, bottle.

Greengage Wine.—Take 40 qt. ripe greengage plums, stone them, and press the fruit in a tub; pour 10 gal. boiling water on, and let them lie till the following day. Boil them with the liquor and 25 lb. of good loaf sugar, ½ hour, skimming well, then add the whites of 8 eggs well beaten, and boil 20 minutes longer, skimming until the liquor is quite clear.

Break the stones, put the shells and kernels into the cooler, strain the liquor through a sieve upon them hot, cover close, and when properly cooled, add a toast well covered with thick fresh yeast, and let it ferment 4 or 5 days, stirring it twice each day. Let it settle, take off the scum, and put the clear liquor into the cask, upon 6 oz. of white sugar candy, the thin rinds of 4 Seville oranges and 4 lemons, and 6 lb. of Smyrna raisins stoned and cut in pieces. Filter the lees and add them to the rest, filling the cask; put paper and a tile over the bung-hole, and let it work out. When fermentation has ceased, add 3 pints of French brandy, and stop it up securely for 12 months; then rack it off, filter the lees, and fill the cask again, adding 1 oz. of best isinglass dissolved, and 4 or 5 oz. of white sugar candy bruised. Secure the bung well.

Hop Beer.—4 lb. sugar, water q.s., 6 oz. hops, 4 oz. ginger, bruised. Boil the hops for 3 hours with 5 qt. water, then strain; add 5 more qt. water and the ginger; boil a little longer, again strain, add the sugar, and when lukewarm add 1 pint yeast. After 24 hours it will be ready for bottling.

Horehound Beer.—To make 6 gal., make an infusion of 1½ oz. quassia with a dozen sprigs of horehound; boil with part of this liquid 24 cayenne pods for 20 minutes, then add 6 fl. oz. lime juice and 1½ oz. licorice (dissolved in cold water); strain the mixture and put with it 6 gal. cold water, with 2 lb. brown sugar, colouring with burnt sugar; allow the whole to work 4 days. Now take 2 qt. of it, warm it rather warmer than new milk, mix with this 8 tablespoonfuls good brewers' yeast, and stand in a warm place till in a brisk state of fermentation; mix it with the rest of the liquor, and in a few hours it

will be all in full work. Give it a stir twice a day for the first two days to promote fermentation; keep it from contact with cold air for the following two days, and skim the top off as it gets yeasty. The beer must be now drawn off as clear as possible into a clean vessel by passing it through a filtering bag. Clean the tub well, and return the liquid to it, and add ½ dr. pure dissolved isinglass; stir the whole well together, and put a cloth over the tub, and also a lid on it, to exclude the air as much as possible; in 30 hours the beer may be bottled off. In summer this will be ripe and fit to drink in 8 days. A superior quality may be made by putting a small piece of sugar into each bottle just before corking.

Imperial Pop.—(*a*) 1 oz. cream of tartar, ¼ lb. lump sugar, the juice and peel of 1 lemon or less, according to taste. Pour over this 4 qt. of boiling water, and drink when cold.

(*b*) 1½ gal. boiling water, 1½ lb. best white sugar, 1 oz. best ginger, 1 oz. lemon juice. When cool, strain and ferment with 1 oz. yeast, and bottle.

Lawn Sleeve.—The same as Bishop. Substitute Madeira or sherry for port, with 3 glasses hot calves'-foot jelly.

Lemonade.—(*a*) Can be used in powders, and carried when out shooting, fishing, &c.: soda bicarbonate, 20 gr.; citric or tartaric acid, 15 gr.; sugar to taste—the sugar and soda in one glass, and the acid in another; mix.

(*b*) Take lemon juice, sugar, and water only. About 1 lemon to 1 pint water, adding the peel cut very thin, and sugar to the palate.

Lemon Beer.—1 lb. sugar, 1 lemon sliced, 1 teacupful yeast, 1 gal. boiling water, 1 oz. ginger,

bruised. Let it stand 12 to 20 hours, after which it may be bottled.

Lemon Shrub.—The juice of 12 lemons, the thin rind of 2, 1 lb. sugar, the whites of 2 eggs well whisked, 1 pint water, ½ pint rum, and ½ pint brandy. Mix and strain.

Lemon Whey.—1 pint boiling milk, ½ pint lemon juice, sugar to taste. Mix and strain.

Linseed Tea.—Take 3 tablespoonfuls linseed, about 1 pint water, and boil for 10 minutes. Strain off the water, put in a jug with 2 lemons, cut in thin slices; put also some brown sugar. A wineglassful of wine is an improvement. This has been found most nourishing for invalids.

Loving Cup.—(*a*) ½ oz. cloves, allspice (whole), and cinnamon; mix them together with 1 pint water; boil till reduced to one-third, then strain it off. Add 2 bot. sherry, 2 Madeira, 1 port, 1 claret, the juice of 6 lemons, 1½ lb. loaf sugar, 2 nutmegs grated finely, 1 qt. water. Flavour with the spices according to taste. This is sufficient for 150 guests. Send round cold.

(*b*) Extract the juice from the peel of the lemon by rubbing sugar on it, cut 2 lemons into thin slices; add the rind of 1 lemon cut thin, ¼ lb. loaf sugar, and ½ pint brandy; put the whole into a large jug, mix it well together, and pour 1 qt. cold spring water upon it; grate a nutmeg into it, and add 1 pint Madeira, and 1 bot. cider; sweeten it to taste with capillaire or lump sugar; put (in summer) a handful of balm, and the same quantity of borage, in flower, into it, stalks downward; then put the jug containing the liquor into a tub of ice, and when it has remained there 1 hour it is fit for use. The balm and borage should be fresh gathered. In winter use ale instead of cider,

omit ice, and drink warm.

Mangold-wurzel Beer.—Wash the roots, scrape and pare them, cut them up as for sheep, fill the boiler with them and then pour as much water to them as it will hold. Let them boil about 6 hours, and then strain them through a basket, but do not press them. Measure the liquor back again into the boiler and to every 7 pails put 3 lb. hops, 6 lb. coarse brown sugar, and ½ lb. mustard-seed. Boil together for 2 hours, then strain through the brewing-sieve; when cool, work it with yeast the same as other beer. Before putting into the barrel the next day, skim off the dark-looking froth.

Marigold Wine.—Boil 25 lb. good loaf sugar and 4 lb. honey with 10 gal. soft water, and the whites of 8 eggs well beaten, 1 hour, skimming until quite clear; pour hot upon 3 pecks marigold flowers and 4 lb. good raisins, stoned and shredded, covering the vessel close. Next day stir the liquor continually 20 minutes, and let remain covered until the following morning. Then strain, and put into cask upon the rinds of 6 Seville oranges pared very thin, and 8 oz. sugar candy broken small, reserving 2 gal., which must be made nearly boiling hot, and stirred amongst the rest. Then work with 7 or 8 tablespoonfuls good fresh yeast, cover the bung-hole with a tile, and let it work over, filling it up every day as the liquor decreases. When it has ceased fermenting, put in 3 pints French brandy, and 1 oz. dissolved isinglass, and stop it up securely. It will be fine in 9 months, and fit to bottle, but will improve if kept longer. Let it remain in bottles well corked and sealed 12 months.

May Drink.—Put into a large glass mug or china bowl about 2 doz. black-currant leaves, a small

handful of woodruff, and a quantity, according to taste, of pounded lump sugar and lemon juice; pour in 2 bot. hock or Moselle, never mind how common. Stir the whole occasionally for ½ hour, and serve.

Mead.—(*a*) Dissolve 1 oz. cream of tartar in 5 gal. boiling water; pour the solution off clear upon 20 lb. fine honey, boil them together and remove the scum as it rises. Towards the end of the boiling add 1 oz. fine hops; about 10 minutes afterwards put the liquor into a tub to cool; when reduced to the temperature of 70° or 80° F. (rather less than the warmth of new milk), according to the season, add a slice of bread toasted and smeared over with a little yeast. The liquor should now stand in a warm room, and be stirred occasionally. As soon as it begins to carry a head, it should be tunned, and the cask filled up, from time to time, from the reserve, till the fermentation has nearly subsided. It should now be bunged down, leaving a small peg-hole; in a few days this also may be closed, and in about 12 months the wine will be fit to bottle.

(*b*) 10 gal. water, 2 lemons, cut in slices, 2 gal. honey, a handful dried ginger root. Mix all together, and boil ½ hour, carefully skimming all the time. While boiling add 2 oz. hops. Remove from the fire, and while the liquid is lukewarm add a strong yeast, and put into a cask to work about 3 weeks, when it is fit for use.

(*c*) 1 gal. water, 3 lb. strained honey. Boil about ½ hour, adding to it ½ oz. hops; skim carefully, and drain the skimmings through a hair sieve, returning what runs through. Remove from the fire, and when the liquid is lukewarm stir into it ½ pint yeast, which is sufficient for 9 gal. mead. Put into a cask and let it work over, filling it up until fermentation subsides.

Put a strong paper over the bung-hole. This mead may be flavoured with spices while boiling, and make a delicious summer drink.

Milk Lemonade.—Loaf sugar 1½ lb., dissolved in 1 qt. boiling water, with ½ pint lemon juice, and 1½ pint milk; this makes a capital summer beverage; ½ pint sherry added is a great improvement.

Milk Punch.—(*a*) Pare the rind off 12 lemons and 2 Seville oranges thinly; put them to steep in 6 pints rum, brandy, or whisky for 24 hours; then add 2 lb. refined sugar, 3 pints water, 2 nutmegs grated, and 1 pint lemon juice; stir it till the sugar is dissolved; then take 3 pints new milk, boiling hot, and pour on the ingredients; let stand 12 hours, closely covered; strain through a jelly-bag till quite clear; bottle.

(*b*) Pare 18 lemons very thin, infuse the peel in 1 qt. rum, and keep closely covered. The next day squeeze the juice of the 18 lemons over 4 lb. white sugar, and keep this also closely covered. The third day mix the above ingredients together, and add 3 qt. more rum (or 1 qt. rum and 2 qt. best cognac, which is preferred by some), and 5 qt. water that has been boiled, but is cold when added, also 2 qt. boiling milk; stir the whole mixture for about 10 minutes, cover close, and let it stand for about 3 hours, until quite cold; strain through a flannel bag 2 or 3 times, till quite clear. In bottling, care should be taken that the corks fit tight, and it will keep 3 or 4 years.

(*c*) The following is a celebrated Cambridge recipe for milk punch:—Beat up 4 new-laid eggs in the bowl in which you intend sending the punch to table; then add the following ingredients (recollecting always to put in the noyeau first), ½ pint noyeau, of rum, and of brandy, and then ½ pint noyeau, rum, and brandy

mixed in equal proportions. Have 2 qt. milk boiling, to which add ½ teacup sugar, and then pour it on to the spirit, putting a little nutmeg grated on the top.

Molasses Beer.—1 lb. brown sugar, 1 oz. bruised ginger, 1 lb. molasses, ½ oz. hops. Boil for a few minutes with 3 qt. water; strain and add 5 qt. water and a spoonful of yeast; let this work all night, and bottle in the morning.

Moselle Cup.—(*a*) To 1 bot. still or sparkling Moselle add 1 bot. soda-water, 1 glass sherry or brandy, 4 or 5 thin slices of pineapple, the peel of half a lemon cut very thin, and powdered sugar according to taste; let the whole stand about 1 hour, and before serving add some lumps of clear ice.

(*b*) As (*a*), except the pineapple, for which substitute 1 pint fresh strawberries, or 3 or 4 peaches or nectarines.

(*c*) As (*a*), but add, instead of fruit, some sprigs of woodruff. Woodruff is a herb much used on the Rhine for making May drink, its peculiar flavour being most powerful in May; it is to be found in forests in many parts of England also.

(*d*) When neither fruit nor woodruff can be obtained, add, instead of sherry or brandy, a glass or two of milk punch or essence of punch, and a little more of the lemon peel.

Mulled Ale.—To 1 qt. strong ale add 1 large wineglass gin or whisky. Pour it into a clean saucepan, and put it on a brisk fire until it creams, adding at the same time brown sugar, grated ginger, and nutmeg to taste; add cold ale until the whole is lukewarm. Serve in a brown earthenware two-handled cup, adding a thick piece of toasted bread. The toasted bread is covered with brown sugar, and

eaten with toasted cheese.

Nectar.—Citric acid, 1 dr.; potash bicarbonate, 1 scr.; White sugar, 1 oz. Fill a soda-water bottle nearly full of water; drop in the potash and sugar, and finally the crystals of citric acid. Quickly cork the bottle and shake. The crystals being dissolved, the nectar is fit for use.

Nettle Beer.—1 peck green nettles, 1 handful dandelion, 1 oz. ginger, 1 oz. yeast, 1 handful coltsfoot, 2 lb. brown sugar, 1 oz. cream tartar, 3 gal. boiling water. Infuse the herbs in the boiling water, and when cold strain the liquor. In it dissolve the cream of tartar and the sugar, adding the yeast and bruised ginger. Let the whole work about 12 hours, skim the liquor carefully, and put into champagne bottles. Close tightly with good corks softened in boiling water, and tie the corks down. After a few days the beer is ready for use.

Nettle Wine.—Boil 25 lb. best loaf sugar with 10 gal. river or rain water, and the whites of 8 eggs well beaten, 1 hour, skimming well; pour the hot liquor upon 5 pecks young tops of nettles previously bruised a little, and cover the vessel close with cloths. When at a proper temperature work it with 8 tablespoonfuls of good yeast, stirring well 3 days; then strain the liquor into the cask upon 8 oz. cream of tartar, 4 lb. Malaga raisins stoned, the rinds of 8 lemons pared very thin, and 6 oz. white sugar candy broken; leave out the bung, keeping the cask quite full until fermentation has ceased. Add 3 pints white French brandy, stop up the cask securely, and keep it in a cool cellar 10 months; bottle it, wire and seal the corks, and in 6 months it will be excellent.

Oatmeal Drink.—Mix ½ lb. oatmeal with 5 gal. cold water, boil it for ½ hour, and strain it through a

rather coarse gravy strainer; add brown sugar to taste while hot. It is very much improved by the addition of ½ oz. citric acid or 1 oz. tartaric acid. The thinly-cut rind of 2 or 3 lemons or oranges may be boiled in it; or a still cheaper flavouring is to add, before boiling, a bit of cinnamon stick or a few cloves. To be served cold.

Orange Wine.—The oranges must be perfectly ripe. Peel them and cut them in halves, crossways of the cells; squeeze into a tub. The press used must be so close that the seeds cannot pass into the must. Add 2 lb. white sugar to each gallon of sour orange juice, or 1 lb. each gallon of sweet orange juice, and 1 qt. water to each gallon of the mixed sugar and juice. Close fermentation is necessary. The resultant wine is amber-coloured, and tastes like dry hock, with the orange aroma. Vinegar can be made from the refuse, and extract from the peels.

Oxford Grace Cup.—Extract juice from peeling of a lemon, and cut the remainder into thin slices; put it into a jug or bowl, and pour on it 1½ pints strong beer, and a bottle of sherry; grate a nutmeg into it; sweeten it to taste; stir till the sugar is dissolved, and then add 3 or 4 slices bread toasted brown. Let stand 2 hours and strain off.

Oxford Mull.—Boil a small quantity of cinnamon, cloves, and mace in ½ pint water; pour into it a bottle of port wine, and when it is nearly boiling add 2 lemons thinly sliced; sweeten it to taste.

Oxford Punch.—Extract the juice from the rind of 3 lemons by rubbing loaf sugar on them; the peeling of 2 Seville oranges and 2 lemons cut very thin, the juice of 4 Seville oranges and 10 lemons, 6 glasses of calves'-foot jelly in a liquid state: put into a jug and stir well together. Pour 2 qt. boiling water on the

mixture, cover the jug closely, and place it near the fire for ¼ hour, then strain the liquid through a sieve into a punch-bowl or jug, sweeten it with a bottle of capillaire, and add ½ pint white wine, 1 pint French brandy, 1 pint Jamaica rum, and 1 bot. orange shrub. The mixture to be stirred as the spirits are poured in. If not sufficiently sweet, add loaf sugar, gradually, in small quantities, or a spoonful of capillaire. To be served hot or cold.

Parsnip Wine.—May be made by infusing 5 or 6 lb. of the chopped stem in 1 gal. hot water till cold; strain, and add to each gallon of the infusion 3 or 4 lb. white sugar, 1 oz. cream of tartar, and about 2 to 5 per cent. brandy. When well made and strong, this wine is of rich and excellent quality, especially after fermentation.

Parting Cup.—Put 2 or 3 slices of very brown toast in a bowl; grate over the same a little nutmeg; then pour in 1 qt. ale (mild preferable), and ⅔ bot. sherry; sweeten with syrup, and (immediately before drinking) add 1 bot. soda water; a little clove or cinnamon may be added, if approved of.

Primrose Wine.—Pick the flowers of fresh-gathered primroses from the stalks, and put 3 pecks of them and 1 peck cowslip pips into a clean vessel; boil 30 lb. good loaf sugar with 2 oz. best ginger bruised, and 10 gal. of river or rain water, ¾ hour, skimming it well; then add the whites of 10 eggs well beaten, boiling and skimming until it is perfectly clear; pour this boiling hot upon the flowers, stir well 10 minutes, and cover the vessel up closely for 3 days, adding 6 lb. Smyrna raisins cut small, and stoned, the juice of 10 lemons, and their rinds pared off very thin; let them infuse, stirring well twice daily, and on the fourth day warm the liquor, and work it at the

proper temperature with ½ pint good yeast; when it has fermented 3 days, strain well, and filter into the cask; cover the bung-hole with a tile, keep the cask full, and let it work out; when it has ceased fermenting, pour in 3 pints white French brandy and 1 oz. best isinglass dissolved in 1 qt. of the wine; stop up the cask, put sand on the bung, and keep it in a cool cellar 12 months; bottle it, and in 6 months more it will be ready.

Punch.—(*a*) Take the juice and thin rind of 1 lemon, juice of 2 sweet oranges, taking out the pips; pour on these 3 pints boiling water; add ½ lb. loaf sugar, and when the sugar is dissolved, add ½ pint old Jamaica rum, and ½ pint cognac. Let stand for 6 hours, and bottle.

(*b*) Rub ¼ lb. white lump sugar over 1 large lemon until it has absorbed all the yellow part of the skin; then put the sugar into your bowl, add the juice of the same lemon, and mix well together. Pour over them 1 pint boiling water, stirring well together; then add ½ pint rum, ½ pint brandy, and ½ teaspoonful nutmeg; again mix well together, and it is ready to serve. Great care should be taken that the ingredients are thoroughly incorporated.

(*c*) ½ pint rum, ½ pint brandy, ½ pint stout (made hot), 1 quartern of cloves, 1 quartern of shrub, 1 lemon sliced, and the juice of one, ¼ lb. loaf sugar, 1 qt. boiling water.

(*d*) 1 bot. rum, 1 of sherry, 1 pint brandy, the juice of 3 lemons and 3 Seville oranges, 1½ lb. lump sugar; rub the rinds of the lemon and oranges with some of the sugar; add 1 qt. new milk to these ingredients, not quite boiling. Let stand 24 hours covered close, strain through a jelly bag, and bottle close. It will keep many years.

Raisin Wine.—Pick the raisins from their stalks, and put them into a tub with 1 gal. spring water (which has been boiled and allowed to cool) to every 8 lb. fruit; stir it thoroughly every day, then strain it into a cask, and leave it until the fermentation has ceased; add a bottle of brandy, bung up the barrel tight, and leave it for 12 months. Then strain it again into a clean cask. It may be bottled after standing 2 years.

Rhenish Cup.—(*a*) Take with 1 bot. light hock about 1 doz. sprigs of woodruff, ¼ orange cut in small slices, and about 2 oz. powdered sugar. The herbs are to be removed after having been in the wine ½ hour or longer, according to taste. A bottle of sparkling wine, added to 4 or 5 bot. still hock, is a great improvement. A little ice is recommended.

(*b*) Instead of woodruff and orange, take to each bottle of hock about ½ pint highly flavoured strawberries. Sugar as above. The fruit to be taken with the wine after having been in it about 1 hour.

(*c*) Take some thin slices of pineapple instead of the strawberries.

(*d*) Take to each bottle of hock 2 highly flavoured peaches, peeled and cut in slices. Sugar as above.

Rhubarb Wine.—(*a*) The rhubarb must be quite ripe; to 1 gal. rain-water, boiling, cut 8 lb. rhubarb into thin slices, put into pan or tub, cover close with a thick cloth or blanket, and stir 3 times a day for a week; then strain through a cloth, and add 4 lb. loaf sugar, the juice of 2 lemons and the rind of 1. To fine it, take 1 oz. isinglass and 1 pint of the liquor, and melt it over the fire; be sure you do not add it to the rest of the liquor till quite cold; then cask it. When the fermentation is over, bung it down. Bottle in

March, and the following June it will be fit for use.

(*b*) To every 5 lb. rhubarb stalks, when sliced and bruised, put 1 gal. cold spring water; let stand 3 days, stir 2 or 3 times every day, then press and strain through a sieve, and to 1 gal. liquor put 30½ lb. loaf sugar, stir it well, and when melted barrel it; when it has done working, bung it up close, first suspending a muslin bag with isinglass from the bung into the barrel (say 2 oz. for 15 gal). In 6 months bottle it and wire the bottles; let them stand up for the first month, then lay 4 or 5 down lengthwise for a week, and if none burst all may be laid down. Should a large quantity be made it must remain longer in cask.

(*c*) Take 18 lb. rhubarb, cut it into small pieces, put them with 20 gal. soft water in a copper, and boil till soft; then strain through a sieve, add 5 or 6 handfuls balm, fresh or dried. To 1 gal. liquor put 3 lb. lump sugar and ½ lb. Malaga raisins, chopped; when lukewarm, put it into the barrel, and in 3 weeks stop it down. In 6 months, bottle. It will be fit to use in 3 months, or it will keep 20 years. You may make it pink colour by adding 1 pint damson juice.

(*d*) In the absence of a press to extract the juice, the stalks are boiled in a common stove boiler, using 2 qt. water to a boilerful of stalks. The stalks are very juicy, and after boiling require no pressing; they are merely left to drain; to 1 gal. juice add 2 lb. sugar, and place in a barrel to ferment; after fermenting, it should be corked tight.

(*e*) Cut up fruit into pieces, 2 in. long; to 1 gal. such add 1 gal. water and 3½ lb. loaf sugar. Fermentation will soon commence; stir up twice daily; when the pulp ceases to rise, wring out 1 qt. at a time in a piece of thin canvas; cork down in stone

bottle or cask. Ease the cork for a minute twice daily the first week, as an after fret (fermentation) may occur. Good to drink in about 6 months. To please fancy you may add a little cut up dandelion root (fresh) or a handful of the leaves per gallon: but it must be all put together at commencement. Nearly all other fruits may be treated in the same way.

Sarsaparilla Beer.—Take of compound syrup of sarsaparilla 1 pint; good pale ale 7 pints; use no yeast.

Sham Champagne.—1 oz. tartaric acid, 1 oz. ginger root, 2½ gal. water, 1 good-sized lemon, 1½ lb. white sugar, 1 gill yeast. Slice lemon, bruise ginger, and mix all, except the yeast; boil the water and pour on, letting stand till cooled to blood heat. Add the yeast and stand in the sun one day. Bottle at night, tying the corks. In 2 days it may be used.

Sherry Cobbler.—Procure some clean ice, slice it on an ice plane, or pound it with a hammer, putting the ice into a linen or paper bag; then half fill a tumbler with it, and add 1 or 2 glasses sherry, ½ tablespoonful lemon juice, and 1 spoonful powdered white sugar, more or less according to palate. Imbibe through a straw.

Smoker's Drink.—(*a*) In a large tumbler put a coffee-cup of hot (very strong) Mocha coffee, pure, a piece of sugar, according to taste (it ought not to be too sweet), a handsome dash of pure cognac; then fill up with pure cold water, and drink after stirring well up.

(*b*) Lemon and water, with or without sugar.

Spruce Beer.—(*a*) Take 10 gal. boiling water, 10 lb. sugar, 4 oz. essence of spruce, mix, and when nearly cold add ½ pint yeast. Next day bottle, and tie down

as ginger beer.

(*b*) 2 oz. hops, 10 gal. water, 2 oz. chip sassafras. Boil ½ hour, strain and add 7 lb. brown sugar. 1 oz. essence of ginger, 1 oz. essence of spruce, ½ oz. ground pimento. Put into a cask, and cool; add 1½ pints of yeast; let stand 24 hours, and bottle.

Still Lemonade.—The juice of 3 lemons, the peel of 1, ¼ lb. lump sugar, and 1 qt. cold water. Mix, digest for 5 hours, and strain.

Sulphuric Orangeade.—3 oz. dilute sulphuric acid, 3 oz. concentrated compound infusion of orange peel, 12 oz. simple syrup, and 4 gal. boiled filtered water. A wineglassful of this mixture is taken as a draught in as much boiled and filtered water as may be agreeable.

Summer Drinks.—(*a*) Cold tea flavoured with sliced lemon and dashed with cognac. The tea should be properly made—not allowed to stand until it becomes rank, but boiling water should be poured on the leaves, allowed to stand 5 minutes, then poured into a jug with slices of lemon at the bottom. A wineglass of good brandy added when cool.

(*b*) Mix together 2 qt. best bottled cider—old, if possible—sweeten to taste, taking care that the sugar is perfectly melted. Add ½ nutmeg grated, a little powdered ginger, a glass of brandy, a glass of noyeau; cut a lemon into it in moderately thin slices, and let them remain there. Make it 2 hours before wanted, and stand in some ice.

(*c*) Sherry, 6 tablespoonfuls; brandy, 2 tablespoonfuls; sugar, 1½ oz.; 2 or 3 shreds of fresh lemon peel, cut very thin. This is the stock. It will be found convenient, when a quantity is required, to make a syrup of the sugar (1 oz. water to 2 oz.

sugar), and to prepare the stock beforehand. The above quantity of stock should be added to 1 bot. claret and 1 bot. soda water. These should be kept in a cool place—a refrigerator, for instance—and only opened just before drinking. A lump of ice and a little borage are improvements; 2 bot. soda water instead of one can be used in summer.

(*d*) To 1½ pint good ale allow 1 bot. ginger beer. For this beverage the ginger beer must be in an effervescing state, and the beer not in the least turned or sour. Mix them together, and drink immediately.

(*e*) Get 3 pints water, 3 oz. tartaric acid, 3½ lb. lump sugar; mix and put to the fire to warm, not quite boil. While the above is getting hot, get the whites of 3 eggs and 4 teaspoonfuls wheaten flour, which well beat together, then mix by well stirring it with the water, acid, and sugar, then boil the whole 3 minutes. When cold, flavour with essence of lemon; bottle off. For use put a medium-sized spoonful of the liquor into a tumbler, fill up with water, and add a little soda carbonate; stir up and drink. A small quantity of brandy or sherry with the soda is a great improvement.

(*f*) Milk and whisky; quantity according to taste; the less spirit the better.

(*g*) Melt or dissolve by a gentle heat 1 oz. black currant jelly in ½ pint syrup; when cold add the same quantity of rum. In summer the above is best; for the winter months, do as follows: Pick fine dry black currants, put them into a stone jar, and then the jar into a saucepan of boiling water till the juice is extracted; strain, and to every pint add ½ lb. loaf sugar; give one boil and skim well; when cold add the same quantity of rum (or gin, if you prefer it),

shake well, and bottle.

(*h*) 8 or 10 drops sulphuric acid added to a glass of water make a very wholesome subacid refreshing drink, having tonic properties, and well adapted to check the tendency to diarrhœa that exists during sultry weather.

(*i*) Mix 1 oz. essence of ginger and 1 oz. essence of cloves; put 20-30 drops into a tumbler of water. This renders even tepid water good.

Syllabubs.—(*a*) Put 1 pint beer and 1 pint cider into a punchbowl, grate in a small nutmeg, and sweeten it to your taste. Put the bowl under a cow and milk in about 3 pints milk; wash and pick some currants, make them plump before the fire, and strew them over the syllabub. (*b*) Take 1 qt. cream, 3 gills white wine, the juice of 1 lemon and of 2 Seville oranges, add sugar to taste, beat it well, and fill up your glasses as the froth, rises. (*c*) Take ¼ lb. loaf sugar in one piece, and rub on it 2 lemons till you have got all the essence out of the rinds, then pour over the sugar 1 gill white wine, and when it is dissolved add the juice of the lemons and 1 pint cream, whip it well, or mill it with a chocolate mill. (*d*) Take ½ pint cream, ½ pint white wine, and the juice of a lemon, sweeten it to your taste with white sugar, put in a piece of the paring of the lemon and some powdered cinnamon, beat it well, and as it rises take up the froth with a spoon and lay it on a sieve to drain; fill your glasses half full with wine, sweeten it, and fill up with the whisked cream. (*e*) Put into a china bowl 1 pint port wine and 1 pint sherry, sugar to taste, milk the bowl nearly full, cover it with clotted cream, grate nutmeg over it.

Toast and Water.—(*a*) Hold a small piece of bread before the fire until it is the colour of mahogany, but

do not let it burn. Put it in a jug and pour boiling water upon it, cover it down close until cold. (*b*) The bread should be very slowly and thoroughly toasted, great care being taken to prevent its burning in the slightest degree; cold water should then be poured over it. It must stand some time before being used.

Wassail Bowl.—Put into a bowl ½ lb. Lisbon sugar; pour on it 1 pint warm beer; grate a nutmeg and some ginger into it; add 4 glasses sherry and 5 additional pints beer; stir well; sweeten to taste; let stand covered up 2 or 3 hours; then put 3 or 4 slices bread (cut thin and toasted brown) into it. Sometimes a couple or three slices of lemon, and a few lumps of loaf sugar rubbed in the peeling of a lemon, are introduced.

White Wine Negus.—Extract the juice from the peel of a lemon by rubbing loaf sugar on it, or cut the peel of a lemon very thin, and pound it in a mortar; cut 2 lemons into thin slices, add 4 glasses calves'-foot jelly in a liquid state, small quantities of cinnamon, mace, cloves, and allspice. Put the whole into a jug, pour 1 qt. boiling water upon it, cover the jug close, let stand ¼ hour, and then add 1 bot. boiling white wine; grate half a nutmeg into it, stir well together, sweeten to taste. In making port wine negus, omit the jelly. Negus is not confined to any particular sort of wine; if the jelly is omitted, it can be made with any or several sorts mixed together.

Wines, British.—There are many persons who would rather buy their drinks than have the trouble and expense of making them. Such will be glad to know that Beaufoy's British wines and non-alcoholic drinks are to be recommended before all others.

THE PANTRY.

Bread.—Household bread may be made with brewers' yeast (barm) or with German yeast.

(*a*) *With Brewers' Yeast.*—Take a small quantity—say 2 lb. flour. This should be perfectly dry, or the dough will not rise well. Put it into a bowl—a brown earthenware one glazed on the inside is best—which should also be perfectly dry, and in the winter slightly warmed. Stir in 1 teaspoonful salt, then make a hole about 1½ in. in depth in the centre of the flour. Have ready 1½ tablespoonful fresh brewers' yeast, mixed in 1 teaspoonful warm—not *hot*—water; pour this into the hole, and stir a handful of flour lightly into it with a wooden spoon. Then cover with flour again, lightly. Lay a thick cloth over the pan, taking care that it does not press on the flour, and stand it in a warm corner. When the flour at the top of the yeast begins to crack, and the "sponge"—i.e., fermented dough—runs through, which, if the yeast be perfectly fresh and good, it will do in about ½ hour; it is then fit to knead. Now the potatoes may be added, but they must first be finely mashed. A jug of warm water must be ready, and a small quantity at a time poured into a pan; this should be thoroughly mixed with the other ingredients—*not* with a spoon this time, but the hand. Continue pouring in water and mixing till the mass is perfectly free from lumps, and about the consistency of pastry for pies or puddings. Then turn it out of the pan on to a well-floured pastry board, and roll to and fro for about 3 minutes. Put it back into the pan, again covered with a thick cloth, and leave to rise. Another ½ hour or so will find it fit for the oven. This can easily be ascertained by pulling

the dough slightly apart; if it be close and heavy, it must remain a while longer; but if it looks spongy and rises again quickly after the pressure is removed, it is ready for the baking. If tins are to be used, they should be warmed, and a very little butter or dripping should be rubbed over the bottom and sides, to prevent the dough sticking. Many people prefer “cottage” or “batch” loaves as they are called in some countries, made something in the shape of a brioche cake; but a tyro in the art will find it safest to trust to the tins till she has by practice become light-fingered enough to manipulate the dough easily and quickly; for it must be borne in mind that dough, like pastry, becomes heavy by rough or too frequent handling. (Bessie Tremaine.)

Ovens and Baking.—With regard to the baking. The loaves must not be put into too hot an oven at first, or they will not rise; neither must the oven be too cool, or the bread will be underdone, and taste heavy and sodden. A good test is to sprinkle a little flour on the bottom of the oven, and shut the door; if in 5 minutes the flour is found to be coloured a golden brown, the bread may with safety be put in; if, on the contrary, the flour is a deep brown and smells burnt, the oven is too hot, and the fire should be slightly checked, also the oven door left open for a few minutes. The best way of regulating the temperature of the oven is to use a Bailey’s pyrometer (W. H. Bailey and Co., Albion Works, Salford, near Manchester), by which it is easy to see whether the fire should be urged or checked, ensuring the proper degree of heat without wasting fuel.

Bread is generally supposed to have a more pleasant flavour when baked in a brick oven. One

reason why this is so is because the brick oven (when there is one attached to a house) is generally so large and cumbrous, besides being troublesome to heat, that it is only used on baking days for bread or cake; so that there is no stale flavour of meat, game, or poultry hanging about it. This should be borne in mind when the baking is to be done in a kitchener, which should be thoroughly ventilated and washed out before the bread is put in. If this is attended to, the difference in the taste will be scarcely perceptible. (Bessie Tremaine.)

Mention may here be made of Perkins' Patent Steam Oven (Seaford Street, Gray's Inn Road), in which the baking is remarkably even and regular; and of the portable gas oven (J. Baker and Sons, 58 City Road). See also p. 1003.

Yeast.—(*a*) First get 6 good-sized potatoes, wash and pare them and boil them in 2 qt. water with a handful of hops (the latter in a small bag kept for the purpose). When quite soft take them out, mash fine, and pour upon them the water in which they were boiled, adding a little water for what may have boiled away, and also ½ cup salt and same of white sugar. When cooled down to a lukewarm temperature add 1 cup yeast to ferment it with. It does not rise, it works like beer, and having been covered closely and kept in a warm place, in the course of 5-6 hours the entire surface will be covered with fine bubbles, which indicate that it is ready for use. It should now be bottled and put in the cellar, where it will keep a long time. The bottles must not be corked tight at first, or they will be liable to burst. If the theory be true that some of the same kind must be used to start with, some difficulty may be encountered in introducing it where it is not used.

(*b*) Boil and mash 1 lb. potatoes, mix with them ¼ lb. coarse raw sugar and 1 teaspoonful salt, add 1 qt. tepid water, and let the mixture stand in a warm place for 24 hours; then boil a small handful of hops for 10 minutes in ½ pint water, strain, and add the liquor to the yeast. Again let it stand for 24 hours; if it does not then ferment, get a little brewers' yeast, and let it work for 24 hours; then strain it, and it is fit for use. When cold, put away the yeast in stone bottles, the cork tied down firmly. Keep in a cool dry place until wanted. About ½ pint yeast will be required to ferment 7 lb. flour.

(*c*) *With German Yeast.*—The one great point is to knead well. Not only should the dough be well kneaded, but the sponge, where it is placed to rise, should be well and rapidly beaten with a wooden spoon. The effect will be speedily seen, for the grain of the sponge becomes closer and finer, and, when put in a suitable place, will at once begin to rise in very fine bubbles. Potatoes much improve bread, and, in order to use them with a good effect, they must be steamed and beaten to a pulp, or, rather, to a cream; for a little water must be added to the pulp as soon as all the lumps have been beaten away, and this water should be in quantity just sufficient to give the potatoes the consistency of thick cream. This potato cream is to be put in the sponge before the beating commences—in fact, it is part of the sponge. It is advisable to put German yeast in water over night, and in the morning, when you are ready to lay your sponge, you must add to the yeast and water 2 lumps sugar. As the sugar assists the yeast to ferment, it must not be carelessly put in and left. As soon as it is dissolved the sponge should be mixed. Bread mixed with milk is much better than that made with water. Therefore, if you can procure it,

place some milk on the fire to boil, and when it has partly cooled it is ready for use. An easy mode of cooling milk that has boiled is to place the can containing it in a pail of cold water.

Never make bread with raw milk, for the chances are that the dough will become sour, and, although a little soda carbonate will counteract the acidity when in the sponge, it is impossible to remedy any such accident in the dough. It is a very difficult thing to tell anyone how much liquid to use to any given quantity of flour. American flour, which makes the finest bread, requires more liquid than English flour. The reason is obvious—the better the flour the drier, and American flour is very dry. Although commanding a higher price than English, it is in reality much more economical, as a stone of American flour will produce a much larger batch of bread than a stone of English flour will.

¼ lb. yeast will be found sufficient for an ordinary baking. It is a general rule to lay the sponge in the centre of the flour that you intend shall form the dough. This is a mistaken idea, and the better plan is to have a bowl about the size of a toilette basin. Warm it; do not quite half fill with flour. Have your yeast and sugar ready dissolved and smoothly mixed with cold water; have also in a jug at your left hand some milk that has been boiled and lost its scalding heat. Your bread will be improved if you provide yourself too with some warm creamed potatoes (you may with advantage have as much potato as flour in your sponge). It is quite out of the question to say when it will have risen—the weather affects it, and it will vary each time. The better way is to keep a watchful eye on it. It is fit to be taken when it has risen to a fine spongy mass, presenting the

appearance of froth.

Have a large bowl ready warmed, place in this as much flour as you judge will make the quantity of bread you desire; but do not more than half fill your bowl, or there will be no room for rising. Make a hole in the centre of the flour, and pour in the sponge, add a small quantity of salt, and proceed to knead it up, moistening from time to time with milk, or water, as the case may be. Do not have the dough too stiff. It is as well to use the right hand first, and keep the left free to add the liquid from the jug. The right hand has most power, and vigour is required in kneading bread. We have proof of this in the Italians, who knead their dough with such force as to produce corns on the knuckles of the hand. When you find you have sufficient liquid, let the left hand take its share in pounding and working the dough.

Draw the dough from the sides of the pan to the middle in kneading, and continue to do this until it ceases to stick either to the hands or bowl. Having arrived at this point, place the bread-bowl in a warm position, and cover with a cloth. When the dough is ready to be made into loaves it will be risen and cracked all over. The bread-tins must be rubbed inside with lard before using. Remember, when you cut your dough into loaves, that it is necessary to knead it up again before placing in the tins. It is a good plan to nearly ¾ fill the tins, prick through with a fork, and put to rise again. Stand your tins together, if possible, and place a clean light cloth over them, to keep any dust off, and also to prevent the surface of the dough from drying. The loaves must rise until they nearly reach the tops of the tins. Now place in an oven that has a moderately good heat, and do not open the door during the first 15

minutes. The middle shelf of an oven is the proper place for bread, and the tins should stand on rings; there is then no chance of burning the bottoms of the loaves. After the loaves have been in the oven ½ hour, change their positions. An hour should bake an ordinary loaf. During the last ½ hour the heat of the oven may be allowed to decrease.

As soon as your bread is baked, take the loaves out of the tins and wrap them in a clean old blanket kept especially for the purpose. The object is to prevent hard crust, and the blanket will absorb any moisture caused by the steam. When quite cold the bread may be placed in the bread-pan, which should be kept in a cold damp place. No bread will keep in a good state which is in a dry, warm situation. It is certain to dry, crack, and mould. It will be found a good plan to bake once a week during the winter, and twice during the summer months. Should any difficulty be experienced during very sultry weather, make the dough in the evening with quite cold water or milk, there will be no sponge to lay in this case; all must be kneaded up at once, and in the morning it will be ready for use. Bread made up in this way is excellent if well kneaded, but never has such delicate grain as that made by the above directions.

The only real enemy to success in bread-making is warm sultry weather. When the air is charged with electricity, the housewife may think of danger. Want of attention is, in the majority of cases, the real cause of mishaps. (Harriett Estill.)

The flour called “seconds” makes a more economical loaf for family use than the first quality; when, however, a very white light kind of bread is preferred, “best whites” must be used. German yeast should be perfectly fresh and sweet, in which state it

is nearly white and quite dry. Dissolve 1½ oz. in a few spoonfuls of cool water, and then stir into it 3½ pints tepid water; pour it rapidly over 5 lb. flour, in which 1 tablespoonful salt has been mixed; beat it up with the hand or a wooden spoon until well mixed, then gradually work in 2 lb. more of flour, kneading it well. When finished, the dough will be perfectly smooth, and not a particle will adhere to the hands or pan. Set the dough in a warm place to rise for an hour, then work it up with a handful of flour until it is stiff; divide it into 2 or 3 loaves, working them up into a compact shape. Put them on a floured baking sheet, and bake them in an oven as hot as it can be without burning the bread, as it will then keep its shape. In about 10 minutes the heat may be moderated and kept equal until the bread is finished. A 5 lb. loaf will take 1¼ hour to bake. A skewer may be thrust into the loaf, and if it comes out clean the bread is done enough, but generally the appearance of the loaf should indicate this to anyone having the least experience. (Mary Hooper.)

Biscuits, Cakes, and Fancy Breads.—Of these there is an endless variety, the majority being well adapted for making at home.

Abernethy Biscuits.—(*a*) Dissolve ¼ lb. butter in ½ pint warm milk, and with 4 lb. fine flour, a few caraways, and ½ lb. sugar, make a stiff but smooth paste; to render the biscuits short and light, add ½ dr. ammonia carbonate in powder. Roll out very thin; stamp the biscuits, pricking them with a fork, and bake in tins in a quick oven.

(*b*) Into 7 lb. flour rub 1 lb. butter; add 1 lb. moist sugar, powdered, and 2 oz. caraway seeds; make into smooth dough with 2½ pints water containing 4 oz.

sal volatile; roll into thin sheets; cut into biscuits, place on buttered tins, wash tops with white of egg, bake in quick oven.

Almond Bread.—8 oz. sweet almonds, 1 oz. bitter almonds blanched and dried; pound fine with 18 oz. loaf sugar in a mortar; pass through sieve; mix into soft batter with yolk of egg; grate off the peel of 1 lemon, and add it with 2 oz. flour; mix lightly as for sponge cake; pour the batter into square, flat, tin dishes, turned up about 2 in., and buttered inside; bake in cool oven.

Almond Cakes.—Cover 1 lb. sweet almonds with boiling water in a saucepan; when just boiling, strain off, and rub skins off; slice up 2 oz. of them; put remainder into a mortar with 2¼ lb. loaf sugar, 1 tablespoonful orange-flower water and white of 6 eggs, pound fine; spread wafer-paper on a tin, and drop on pieces of the paste as large as walnuts; sprinkle each with the shredded almonds; bake in slow oven.

Almond Savoy Cake.—Take 1 lb. blanched sweet almonds (4 oz. of them may be bitter), 2 lb. sugar, 1 pint yolk of egg, ½ pint whole eggs, 1 lb. flour, and the whites of 12 eggs beaten to a firm froth. Pound the almonds with the sugar in a mortar, and sift through a wire sieve, or grind in a mill, and mix with the sugar in the mortar. First mix the whole eggs well with the almonds and sugar, then add the yolks by degrees, stirring until quite light; then mix in the whites, and afterwards the flour lightly; prepare some moulds as for Savoy cakes, or only butter them. Fill the moulds ¾ full, and bake in a moderate oven.

American Biscuits.—Rub ½ lb. butter with 4 lb. flour; add 1 pint milk or water; mix well; break up the dough; bake in hot oven.

Apple Bread.—After having boiled 1 lb. peeled apples, bruise them while quite warm into 2 lb. flour, including the proper quantity of leaven, and knead the whole without water, the juice of the fruit being quite sufficient. When this mixture has acquired the consistency of paste, put it into a vessel, in which allow it to rise for about 12 hours. By this process you obtain a very sweet bread, extremely light.

Banbury Cake.—(*a*) 1½ lb. flour, 1 lb. butter; roll the butter in sheets in part of the flour; wet up the rest of the flour in nearly ½ pint water and a little German or brewers' yeast; make into a smooth paste, roll in a large sheet, and lay on the butter; double up, and roll out again; do this 5 times; cut into square pieces, about 1½ oz. each. Mix together currants, candied peel chopped fine, moist sugar, and a little brandy; put 2 teaspoonfuls of this mixture on each piece of paste; bring the two corners together in the middle, and close them up of an oval shape; turn the closing downwards; sift finely powdered loaf sugar over the tops; put on a cold tin; let stand awhile in the cold to prove; bake in rather a cool oven.

(*b*) 2 lb. currants, ½ oz. each ground allspice and powdered cinnamon; 4 oz. each candied orange and lemon peel; 8 oz. butter, 1 lb. moist sugar, 12 oz. flour; mix the whole well together; roll out a piece of puff paste; cut into oval shape; put a small quantity of composition into each, and double up in the shape of a puff; put on a board, flatten down with rolling-pin, and sift powdered sugar over; do not put too close together; bake on iron plates in a hot oven.

Bath Buns.—1 lb. flour, peel of 2 lemons grated fine, ½ lb. butter melted in teacup of cream, 1 teaspoonful yeast, 3 eggs; mix; add ½ lb. powdered

loaf sugar; mix well; let stand to rise; quantities will make about 3 dozen buns.

Bath Cake.—Roll 1¾ lb. moist sugar till fine; add ¾ pint water; let stand all night; into 4½ lb. flour rub 3 oz. butter; make a hole in it, and pour in the sugar and water with ½ pint honey water; roll thin; cut out, place on buttered tin, wash over with water, bake in quick oven.

Biscuit Powder.—Dry the biscuits in a slow oven; grind with a rolling-pin on a clean board till the powder is fine; sift through a fine hair-sieve, and it is fit for use.

Bordeaux Cake.—Make a mixture as for pound-cakes, leaving out the fruit, peel, and spices; bake in a round or oval hoop. When baked and cold, cut into slices ½ in. thick; spread each slice with jam or marmalade. The outside of the cake may be cut round, or fluted to form a star; and the centre of the cake is occasionally cut out to about 1½ in. from the edge, leaving the bottom slice whole: this may be filled with preserved wet or dry fruits, creams, or a trifle. The top is ornamented with piping, wet or dry fruits, and peels, or piped with jam and icing.

Brandy Snaps.—(*a*) Rub ¼ lb. butter into ½ lb. flour, add ½ lb. moist sugar, ½ oz. ground ginger, and the grated rind and juice of a lemon. Mix with a little treacle to a paste thin enough to spread on tins. Bake in a moderate oven, and when done enough cut it into strips whilst still on the tins, and then roll it round the fingers. When cold put in a tin at once, or they will lose their crispness. (*b*) Take 1 lb. flour, ½ lb. coarse brown sugar, ¼ lb. butter, 1 dessertspoonful allspice, 2 of ground ginger, the grated peel of half, and the juice of a whole lemon; mix altogether, adding ½ lb. treacle; beat it well;

butter some sheet tins, and spread the paste thinly over them, bake in rather a slow oven. When done cut it into squares, and roll each square round the finger as it is raised from the tin. (*c*) ½ lb. salt butter, ½ lb. moist sugar, ½ lb. treacle and flour (more treacle than flour), 1½ oz. finely-powdered ginger. The butter, treacle, and part of the sugar to be made boiling hot, and poured on the remainder of the ingredients well mixed. Spread it very thinly with a knife on a sheet tin which has been buttered, and bake. When done, to be taken off with a knife.

Breakfast Cake.—Mix ½ oz. German yeast with ½ pint warm milk in a pan; weigh 2 lb. flour and take sufficient of it to make the milk the consistence of batter. When this sponge has risen, take a little milk —melt in it 3 oz. butter; add a teaspoonful of salt, and the yolks of 8 eggs; mix well with the sponge, and make into a dough with the remaining portion of flour. Do not use more milk with the eggs than will make ½ pint, or the dough will be too soft. When the dough is proved, make it into cakes about 2 in. thick; put them into buttered hoops; lay the hoops on iron plates, and when they are lightly risen, bake them in a warm oven; cut into slices ½ in. thick and butter each.

Bride Cake.—Cleanse and dry 2½ lb. currants; stone ½ lb. muscatel raisins; pound ¼ oz. mace, ⅛ oz. cinnamon; scald ¼ lb. sweet almonds, remove skins, and shred; slice up 2 oz. each candied citron, lemon, and orange peel; break 8 new eggs into a basin; sift 1 lb. powdered loaf sugar into 1¼ lb. flour; in a warmed pan beat 1 lb. butter by hand till it melts, then add the sugar and beat again; add ⅕ of the flour, stir, and add nearly half the eggs; beat up, add more flour and remainder of eggs; beat again

and stir in rest of flour and currants; next add the raisins, almonds, candied peel, spices, and ½ gill brandy; thoroughly mix; double paper the tin, and bake in a very slow oven.

Brighton Biscuits.—Take 1¼ lb. good moist sugar; roll fine; mix with 2½ lb. flour, and sift through a flour sieve; rub in 2 oz. butter; make a hole in the middle, and strew in a few caraway seeds; pour in ½ pint each honey-water and milk; mix into dough, but do not work too much; roll out in thin sheets; cut into biscuits and put 2 in. apart on buttered tin; wash with milk; bake steadily.

Buttered Biscuits.—Rub 1 lb. butter into 7 lb. flour; wet up with 1 qt. warm water, and ½ pint good yeast; break smooth; prove; cut into biscuits; bake in strong heat.

Captain's Biscuits.—Rub 6 oz. butter into 7 lb. flour; wet up with 1 qt. water; break smooth; bake in good strong heat.

Chelsea Buns.—Take ½ or 1 quartern light bread dough; dust the dresser or table with flour, and roll out with a rolling-pin into a sheet about ¼ in. thick; over the surface put 4-6 oz. butter, in little bits, work up and roll out 2 or 3 times, the same as for making puff paste. The last time it is rolled out, spread thinly and evenly over the surface, either moist or powdered loaf sugar; moisten by sprinkling with water; cut into strips, ½-¾ in. wide; roll up so as to form a coil or roll of dough about 2 in. in diameter. Lay these pieces (when rolled up) on a clean baking-tin, with some butter rubbed over the surface, to prevent the buns adhering when baked. Place rather more than ¼ in. asunder, with one of the cut edges downward. Put in a warm place, covered with a cloth, to prove, or rise; bake in a moderately warm

oven. May be made richer by using more butter and sugar, and seeds or spice may be added at pleasure. When baked, some sugar may be sifted over the surface.

Cheese Cake.—Beat 4 oz. butter with the hand in a warm pan, till it comes to a fine cream; add 4 oz. powdered sugar; beat well; add yolks of 2 eggs; beat again; add a little milk; beat all well together, and mix in 4 oz. clean currants; lay puff paste in the patty-pans; fill half full; shake a little sugar over, and bake in a good heat.

Cinnamon Buns.—Same as saffron, omitting the caraway seeds and saffron, and substituting ground cinnamon.

Cinnamon, Currant, and Caraway Cake.—Rub 1 lb. butter into 3½ lb. flour; in a hole put 1 lb. powdered loaf sugar; then wet up with ½ pint each honey-water and milk. Divide the dough into 3 parts; add to one part a little powdered cinnamon; to another a few currants; to another a few caraway seeds. Roll in sheets to the thickness of the currants; cut to about the size of a penny; wash with a little milk, and bake in a steady heat.

Colchester Bread.—(*a*) Prepare dough as for Bath cakes; cut with a Colchester cutter to about the thickness of a penny; wash with milk; bake quick; wash with egg and milk while hot; when cold cut apart.

(*b*) Put ¾ lb. loaf sugar into a saucepan, with ¼ pint water over steady fire; stir till dissolved; beat 6 eggs with a whisk in a pan; when the sugar boils pour it gently on the eggs, beating till cold; stir in ¾ lb. fine sifted flour; paper frames; fill ¾ full with the batter; sift sugar over; bake in steady oven.

Cracknel Biscuits.—Rub 6 oz. butter into 3½ lb. flour; in a hole put 6 oz. powdered loaf sugar; wet up with 8 eggs and ¼ pint water; break dough smooth; make and dock like captain's biscuits; form on the reel; drop into a stew-pan of water boiling over the fire; when they swim, take out with a skimmer, and put into a pailful of cold water; let remain 2 hours before baking; drain in a cloth or sieve; bake on clean tins in a brisk oven.

Crumpets.—These are made of batter composed of flour, water (or milk), and a small quantity of yeast. To 1 lb. best wheaten flour add 3 tablespoonfuls yeast. A portion of the liquid paste, not too thin (after being suffered to rise), is poured on a heated iron plate, and baked, like pancakes in a pan.

Curd Cheese Cake.—Warm 1 pint new milk; stir in a little rennet; keep warm till a nice curd appears; break and strain the whey through a hair-sieve; put mixture prepared as for cheese-cakes, but without any currants, into sieve with curd; rub all through together; mix in currants; fill out, and bake in a good heat.

Derby Cake.—Rub 1 lb. butter in 2½ lb. flour; in a hole put 1 lb. powdered loaf sugar; beat 2 eggs with 3 tablespoonfuls honey-water, and milk to make up ½ pint; add ½ lb. currants; mix; bake in a steady oven.

Diet Bread.—Whisk the yolks of 12 and the whites of 6 eggs, together, so as just to break them; put ¼ pint water into a saucepan or small stew-pan, add 1 lb. loaf sugar, and put on the fire; take it off just before it boils; put in the eggs, and whisk well till cold; stir in lightly 1 lb. flour; put mixture into papered square tins; sift sugar over tops; bake in cool

oven till dry and firm on top.

Drop Biscuits.—Warm the pan; put in 1 lb. powdered loaf sugar and 8 eggs; beat with a whisk till milk warm; then beat till cold; stir in lightly 1 lb. sugar, 2 oz. fine sifted flour, ½ oz. caraway seeds; put batter into a bladder, drop through the pipe, in quantities about the size of a nutmeg, on wafer-paper; sift sugar over the top; bake in quick oven.

Drops.—Whisk ½ teacup water, 6 eggs, and 1 lb. sifted loaf sugar together till thick; add a few caraway seeds, and 18 oz. flour; mix lightly together; drop on wafer-paper, about the size of a small walnut; sift sugar over, and bake in a hot oven.

Filbert Biscuits.—Rub 1 lb. butter into 3½ lb. flour; make a hole, and put in 10 oz. powdered loaf sugar; wet up with 4 tablespoonfuls honey-water, 1 of orange-flower water, and ¾ pint milk; break dough smooth; mould as large as a nutmeg, and round; cut twice across the top each way, about half through, with a sharp knife; place on tin; bake in steady heat.

French Rolls.—Set a sponge with 1 qt. warm water, and ½ pint good small-beer yeast; let sponge rise and drop; melt 1 oz. butter in 1 pint warm milk, and 1 oz. salt; wet up about 7 lb. flour; let lie ½ hour; put on warm tins; prove well; bake in quick oven.

Ginger Cake.—Prepare dough as for Bath cakes; add as much ground ginger as will give a pleasant taste; cut as thick as a shilling and as large as a penny; wash with water; bake quick.

Hot Cross Buns.—Take 1 qt. milk, 12 oz. butter, 12 oz. sugar, ½ oz. mixed spice, 2 eggs, 2 oz. German yeast, or ½ teacupful of good thick small-beer yeast, and 4 lb. flour. If to be made with currants, add 1 or 1½ lb. currants, clean washed, picked, and dried.

Make the milk blood-warm; if the weather is cold, rather warmer; put it into a gallon pan, with half the sugar, 6 oz. of flour, the yeast and eggs; mix together, cover the pan, and put in a warm place. When this has risen with a high, frothy head, and again fallen and become nearly flat, it is ready for the remaining portion of the ingredients to be mixed with it; but while rising, the butter should be rubbed in with the flour between the hands, until reduced to small crumbles. Mix the whole together into a nice mellow dough. If the flour is not very good and strong, about 4-6 oz. more may be required to make the dough of the required consistence. Cover the pan; let remain in a warm place for about ½ hour, or until the dough has risen 4 in. Make into buns by moulding the dough up into small balls lightly under the hands, and place on warm tins, slightly rubbed over with butter, about 3-4 in. asunder. Half-prove, and cross; brush the tops over with milk, and finish proving; bake in a hot oven; when done, brush the tops over again with milk. The best method for proving is to put the tins on shelves in a warm cupboard near the fire. Place a pan with hot water at the bottom, but put no tin on the pan. Put a piece of heated iron or brick into the water in the pan occasionally, to cause a steam to ascend, which will keep the surface of the buns moist, when they will expand or prove to their full size, otherwise the surface will be hardened, and prevent expansion. Keep the cupboard door close shut until ready to bake.

Italian Bread.—Take 1 lb. butter, 1 lb. powdered loaf sugar, 18 oz. flour, 12 eggs, ½ lb. citron and lemon peel. Mix as for pound-cake. If the mixture begins to curdle, which is most likely from the

quantity of eggs, add a little of the flour. When the eggs are all used, and it is light, stir in the remainder of the flour lightly. Bake in long, narrow tins, either papered or buttered; first put in a layer of the mixture, and cover with the peel cut in large thin slices; proceed in this way until ¾ full, and bake in a moderate oven.

Lemon Biscuits.—Prepare dough as for filbert biscuits, but leave out orange-flower water and use 6 drops essence of lemon; cut out, dock with lemon docker; bake in good steady heat.

Lemon Cheese Cake.—Prepare as for common cheese-cakes; grate rind of fresh lemon; squeeze the juice, and mix.

Lord Mayor's Cake.—Whisk 1 lb. sifted loaf sugar and 8 eggs in a warm earthen pan for 15 minutes, or until quite thick; add a few caraway seeds and 1 lb. flour; mix lightly with a spoon, and drop on paper, about the size of a small teacup; place on iron plates; sift sugar or caraway seeds on top; bake in hot oven; when done, take off the papers, and stick two together.

Lunch or School Cake.—Mix ½ lb. moist sugar with 2 lb. flour; in a hole in the middle put 1 tablespoonful good thick yeast (not bitter); warm ½ pint milk rather more than blood warm, but not hot enough to scald the yeast; mix ⅓ with the yeast and a little of the flour; when it has risen (say ¾ hour if the yeast is good) melt ½ lb. butter in a little more milk; add 1½ lb. currants, a little candied peel, and grated rind of lemon, and 1 teaspoonful powdered allspice; mix; butter hoop or tin, put in, and set in warm place to rise; bake in warm oven. This cake should be mixed up rather softer than bread dough.

Macaroons.—Pound 1 lb. blanched and dried sweet almonds fine in a mortar; pass through wire sieve; make into softish batter, with whites of 5 or 6 eggs, and a spoonful or two of orange-flower water; beat well; lay on oval wafer-paper; dredge tops with powdered loaf sugar; bake in rather cool oven.

Madeira Cake.—Whisk 4 eggs very light, and, still whisking, throw in by slow degrees the following ingredients in the order named—6 oz. each sifted sugar and flour, 4 oz. butter, slightly dissolved but not heated, the rind of a fresh lemon, and ⅓ teaspoonful soda carbonate; beat well just before moulding; bake for 1 hour in moderate oven. Each portion of butter must be beaten into the mixture until no appearance of it remains, before the next is added.

Muffins.—These should be baked on a hot iron plate. To 1 peck flour add ¾ pint good small-beer yeast, 4 oz. of salt, and water (or milk) slightly warmed, sufficient to form a dough of rather soft consistency; when light, small portions of the dough are put into holes, made in a layer of flour about 2 in. thick, placed on a board; cover up with a blanket, and stand near a fire, to cause the dough to rise to a semi-globular shape; place on heated iron plate, and bake; when bottoms begin to acquire brownish colour, turn, and bake opposite side.

Naples Biscuits.—Take 6 oz. each moist and loaf sugar, ¼ pint water; proceed as for diet cake, with 6 eggs and ¾ lb. flour; have tins papered: fill nearly full of the batter; sugar the tops; bake in rather slow oven. These biscuits are diet-bread batter, fancifully dropped into tins, papered with white paper, and baked in a warm oven, with a little sugar sifted over the top.

Oatmeal Cakes.—These are composed of oatmeal and water; and the difficulties lie, first, in wetting, with sufficient quickness, the whole of the meal, without drenching any portion of it; secondly, in properly kneading and rolling out the cakes with dexterity and despatch; and, finally, in turning them while baking, or "firing." They are sometimes baked on a "girdle" or "griddle"—a flat piece of cast iron, placed over a bright fire; sometimes on a "toaster," which is similar to a hanger, with a sliding back, which supports the cake in front of the fire; and sometimes in an American oven.

The process of making is as follows:—Put 2 or 3 handfuls of meal into a 3 pint basin; stir while pouring in boiling water; when all is moistened, having scattered a handful of dry meal over the paste-board, turn out the "leaven" with a spoon or your hand, dusted with meal; take a piece, according to the size of cake required, and knead out, using the rolling-pin if wanted thin; shape with a knife or tin cutter 4-5 in. in diameter. As oatmeal swells and dries very rapidly, to have cakes that will stick together, and, at the same time, eat short or "free," this process cannot be done too expeditiously. Each of the three modes of baking gives a different flavour. For toasting let the cakes be 10 or 12 in. in diameter, nip up the edge all round, and cut them across twice, which makes a square edge for them to stand on. In this form they are called "farls." For turning, use a broad, supple knife, or a piece of tin plate. A little butter melted in the water is an improvement.

Parkin.—(*a*) 4 lb. oatmeal, 4 lb. treacle, 1 lb. sugar, 1 lb. butter, 2 oz. powdered ginger. Set a pan before the fire with the treacle and butter in it. When

dissolved, add the other ingredients, and stir it as stiff as you can with a knife, but do not knead it. Add 1 teacupful brandy (if liked), and bake it in a cool oven in dripping pans or flat dishes about 2 in. thick. Do not turn it out till quite cold, or it will break, but cut it across with a knife where you would like it divided. It must be baked in a cool oven. Some people make it in round cakes. (*b*) 1 lb. Yorkshire oatmeal, 1 lb. thick treacle (not golden syrup), ¼ lb. butter, ¼ lb. moist sugar, mixed spice and ginger to taste. Rub the butter into the meal with the sugar and spice, then add the treacle (melted, if too thick), mix all well together, and bake in flat tins, such as are used for Yorkshire puddings, in a slow oven, for 2 hours or more. Parkin is not fit for eating for 2-3 days, till it has become perfectly soft. (*c*) 7 lb. oatmeal, 1 lb. butter, 2 lb. treacle, 3 tablespoonfuls soda carbonate; to be baked in hoops the same as teacakes. The butter to be melted and mixed with the treacle warm. (*d*) 4 lb. oatmeal, ¾ lb. butter, ¾ lb. lard; currants, raisins (candied lemon peel if approved), ginger, and cayenne pepper to taste. Add sufficient treacle to make the whole into a soft paste. Bake in a slow oven. The treacle, butter, and lard should be warmed a little together. Butter and lard keep the cake moist longer than if only butter were used.

Plum Cake.—(*a*) Set a sponge with 1 lb. flour, ½ pint warm milk, and 3 tablespoonfuls good yeast; beat up 4 oz. butter, 4 oz. powdered sugar, 2 eggs, and 4 oz. flour as for pound cake; put in sponge, and beat all well together; add 1 lb. currants; bake without proving in a slow oven.

(*b*) Beat 1 lb. butter with your hand in a warm pan till it comes to a fine cream, add 1 lb. powdered loaf

sugar; beat together to a nice cream; have 1¼ lb. flour sifted, put in a little, and stir; add 4 eggs; beat well; add a little more flour and 4 more eggs; beat it well again; stir in remainder of flour; for small cakes, butter the tins; for large ones, paper; sugar over the top, and bake in moderate heat.

(*c*) Sift 1 lb. loaf sugar; add 1 lb. fresh butter, melted a little, and worked by hand to consistency of cream; beat together; while doing so, add 10 eggs; beat till well incorporated; mix 4 oz. candied orange or lemon peel, shred or cut small, a few currants and 1 lb. flour well together; put in a hoop; sift sugar on top; bake in warm oven.

Porridge.—Put on the fire a pan, of the size that will hold the quantity required, about ⅔ full of water; when the water is quick boiling take a handful of meal, and holding the hand over the pan—of course high enough to avoid being burned by the steam—let the meal slide slowly through the fingers into the water, the other hand stirring all the time with a wooden spoon, or what Scotch cooks call the "spurtle." Continue this till enough of meal is put into the water, then add salt to taste, and, allow the porridge to boil for 20-30 minutes, stirring occasionally lest it stick to the pan and scorch. Porridge is not good if boiled less than 20 minutes; but for children, or delicate stomachs it should be boiled the full ½ hour, by which time the meal is so well swelled and softened that it becomes a digestible and most nutritious article of food. Letting the meal slide slowly into the water is an important element in making good porridge. If it is thrown in too quickly, or the water allowed to cease boiling, it forms into lumps, and is not so good. It is not easy to give any rule as to the proportion of meal to water,

as the thickness of porridge is quite a matter of taste. Of course it must be still thin when one stops putting in the meal, as it swells to more than half as much again with the boiling.

Pound Cake.—The following table gives the ingredients necessary for rich pound-, Twelfth-, or bride-cakes of different prices:—

Ingredients.	10*s.*6*d.*	12*s.*	15*s.*	18*s.*	1*l.*1*s.*
	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.
Butter	0 11	0 13	1 1	1 4	1 6
Sugar	0 7	0 8	0 10	0 12	1 0
Currants	1 4	1 6	1 10	2 0	2 8
Orange, lemon, and citron (mixed)	0 6	0 7	0 8	0 10	0 12
Almonds	0 1½	0 2	0 2	0 3	0 3
Mixed spice*	0 0½		0 0¾		0 1
Flour	0 11	0 13	1 1	1 4	1 6
Eggs (number)	6	7	9	10	12
Brandy, or brandy and wine	Wine	glass	full		¼ pt.

* Nutmegs, mace, and cinnamon, of equal parts, in powder.

These proportions allow for the cake being iced. If more sugar is preferred, it may be the same as the butter; less is used that the cake may be light, and to allow for the sweet fruit. Double the quantity of almonds may be used. To make: warm a smooth pan, large enough for the mixture; put in the butter, and reduce it to a fine cream, by working it about the pan with your hand. In summer the pan need not be warmed; but in winter keep the mixture as warm as possible, without oiling the butter. Add the sugar and mix it well with the butter, until it becomes white and feels light in the hand. Break in 2 or 3 eggs at a

time, and work the mixture well before more is added. Continue doing this until all are used and it becomes light; then add the spirit, currants, peel, spice, and almonds, most of the almonds being previously cut in thin slices, and the peel into small thin strips and bits. When these are incorporated, mix in the flour lightly; put it in a hoop with paper over the bottom and round the sides, and place on a baking-plate. Large cakes require 3 or 4 pieces of stiff paper round the sides; and if the cake is very large, a pipe or funnel, made either of stiff paper or tin, and well buttered, should be put in the centre, and the mixture placed round it; this is to allow the middle of the cake to be well baked, otherwise the edge would be burnt 2 or 3 in. deep before it could be properly done. Place the tin plates containing the cake on another, the surface of which is covered 1 or 2 in. thick with sawdust or fine ashes to protect the bottom. Bake it in an oven at a moderate heat. The time required to bake it will depend on the state of the oven and the size of the cake. A guinea cake in an oven of a proper heat will take 4 to 5 hours. When the cake is cold proceed to ice it. Wedding-cakes have generally, first, a coating on the top of almond icing; when this is dry, the sides and top are covered with royal or white icing. Fix on gum paste or other ornaments while it is wet; and when dry, ornament with piping, orange-blossoms, ribbon, &c.; the surface and sides are often covered with small knobs of white sugar candy whilst the icing is wet. Twelfth-cakes are iced with white or coloured icing, and decorated with gum paste, plaster ornaments, piping-paste, rings, knots, and fancy papers, &c., and piped.

Prussian Cake.—Rub 4 oz. butter into 7 lb. flour; wet up with 1 qt. warm milk, 1 pint warm water, 4

yolks of eggs, and ½ pint good thick yeast; if obliged to take more yeast, leave out some of the water; let dough lie 10-20 minutes; mould up round, ½-¾ lb. each; place on tins, about 2 in. from each other; put in warm place, and prove well; bake in steady heat; melt a little butter and wash over when done.

Queen's Biscuits.—Rub 1 lb. butter into 2 lb. flour; add 1 lb. powdered sugar; make a hole and pour in ¼ pint milk, to mix it up with; add a few caraways, if you choose; roll the paste in sheets of the thickness of a halfpenny, cut into biscuits with a small round or oval cutter: place on clean tins, see that they do not quite touch; prick with a fork, and bake in a quick oven till they begin to change colour; when cold, they will be crisp.

Queen's Cake.—Warm 1 lb. butter a little in an earthen pan, and work it by hand to a smooth cream; add 1 lb. finely-powdered and sifted loaf sugar; stir well with the butter for 5 minutes; add 8 eggs and 2 spoonfuls water gradually, continuing the beating until the whole is well mixed: stir in lightly 20 oz. flour, and a handful of currants; fill some small round buttered tins; dust tops with powdered loaf sugar; bake in warm oven.

Queen's Drops.—Prepare as for pound cakes; add 2 oz. more flour, 1½ lb. currants; drop on whited brown paper, about the size of large nutmegs, about 2 inches from each other; put sheets on tins; bake in steady oven.

Queen's Gingerbread.—Take 2 lb. honey, 1¾ lb. moist sugar, 3 lb. flour, ½ lb. sweet almonds blanched, ½ lb. preserved orange peel cut in thin fillets, the yellow rinds of 2 lemons grated off, 1 oz. cinnamon, ½ oz. each cloves, mace, and cardamoms, mixed and powdered; put the honey into a pan over

the fire, with a wineglassful of water, and make quite hot; mix other ingredients together; make a bay, pour in the honey, and mix; let stand till next day; make into cakes, and bake; rub a little clarified sugar until it will blow into bubbles through a skimmer, and with a paste-brush rub over gingerbread when baked.

Rice Pound-cake.—Take 1 lb. butter, 1 lb. powdered loaf sugar, 12 oz. flour, ½ lb. ground rice, and 12 eggs. Mix as Italian bread, and bake in a papered hoop. If required with fruit, put 2 lb. currants, ¾ lb. peel, 1 grated nutmeg, and a little pounded mace.

Rout Biscuits.—Put 1 lb. powdered loaf sugar into a basin, with 3 gills milk, and let stand 2 hours, stirring occasionally; rub ½ lb. butter into 2 lb. flour; make a hole in it, add a little sal volatile pounded fine, and an egg, with the dissolved sugar; stir together, and mix into smooth dough; let lie 10 minutes; cut out; place on buttered tins; wash with milk; bake quickly.

Rout Cake.—Pound 1 lb. sweet almonds, blanched and dried, and 1 lb. loaf sugar in a mortar; sieve; put what will not pass into a mortar again, with 4 yolks of eggs, and the rind of a lemon; pound very fine, put in what has passed through sieve, and mix all together; make any shape; sprinkle lightly with a little water; sift sugar over, and put on tins that have been rubbed with a bit of butter, so as not to touch each other; bake in rather brisk oven till lightly coloured over; if coloured too deep at bottom, put cold tins under to finish baking.

(*c*) Take shape, butter it, sift sugar into it, and turn out all the sugar that does not stick to the butter; mix ½ lb. sifted sugar, and 6 oz. sifted flour; warm pan,

put in sugar, break in 4 whole eggs and 1 yolk; whisk till warm and then cold; stir in flour, turn batter into the shape, and bake in slow oven about 1 hour; when done, turn out bottom uppermost.

Rusks.—Put 1 qt. warm milk into a pan, with 1 oz. German yeast, 4 oz. moist sugar, and about 6 oz. flour; mix, and put aside in warm place to rise. Rub 6 oz. butter into 3½ lb. flour, and make into a dough with the ferment as soon as ready; prove a little, and divide in pieces of about 1½ lb. each; roll in long rolls about size of rolling-pin; place on buttered tins, 3-4 in. apart; flat down a little with the hand; prove well; bake in moderately heated oven; when cold, cut across in slices; place on tins, and brown off on both sides in brisk oven.

Saffron Buns.—Made with the same mixture as hot cross buns, but with the addition of 1 oz. caraway seeds, and colouring with saffron.

Sally Lunns.—Take flour, a little salt and butter, 2 or 3 eggs, a small quantity of yeast, and milk and water; make light dough; set to rise after kneading; make dough into cakes, large enough to slice into rounds for toasting; bake slightly and quickly in hot oven.

Savoy Biscuits.—Powder and sift 1 lb. loaf sugar; sift 1 lb. flour; warm a pan, and put in the sugar; break 1 lb. eggs upon it; beat both together with a whisk till warm; beat till cold; stir in your flour; have a bladder and pipe ready; put batter into the bladder, and force through on sheets of paper; sift sugar over, and bake in quick oven; when cold, turn up, and wet bottom of paper; turn back again, and in 5 minutes they will come off easily.

Savoy Cake.—(*a*) Hot Mixture.—Take 1 lb.

powdered loaf sugar, 1 pint good eggs, and 14 oz. flour. Warm a pan, free from grease, with the sugar in it, in the oven until you can scarcely bear your hand against it; then take out and pour in the eggs; whisk with a birch or wire whisk until quite light and cold, when it will be white and thick. If it should not whisk up well, warm again and beat as before; or it may be beat over the stove fire until it is of the warmth of new milk. When finished, sift the flour and stir it in lightly with a spoon, adding a few drops of essence of lemon to flavour it. Butter some tin or copper moulds regularly, with rather less on the top than the sides. Dust with loaf sugar sifted through a lawn sieve. Knock out all that does not adhere, and again dust with fine flour; turn out, and knock the mould on the board. Tie or pin a piece of buttered paper round the mould, so as to come 2 or 3 in. above the bottom. Fix the mould in a stand and nearly fill it. Bake in a moderate oven. When done, the top should be firm and dry. Try it by pushing in a small piece of stick or whisk, and if it comes out dry, it is done. The surface of the cake should be quite smooth. There is as much art in buttering the mould properly as in preparing the mixture.

(*b*) Cold Mixtures.—Separate the yolks from the whites when you break the eggs. Put the yolks into a clean pan with the sugar, and the whites in another by themselves. Let the pans be quite free from grease. If they are rubbed round with a little flour, it will take off any which may be left. Wipe out with a clean cloth. Beat up the yolks and sugar by themselves, with a wooden spoon, and afterwards whip up the whites to a very strong froth. If they should happen to be rather weak, a bit of powdered alum may be added. When the whites are whisked up firm, stir in the yolks and sugar. Sift the flour and

mix it lightly with the spatula, adding a little essence of lemon to flavour. Fill the moulds and bake as before. When cakes are made in this way, the eggs should be quite fresh and good, otherwise the whites cannot be whipped up. When weak, pickled eggs are used. A good method is to beat the eggs first by themselves, over a fire, until they are warm; then add the sugar, and whip it over the fire until again warm, or make as for hot mixtures, and heat twice.

Scones.—Warm fresh milk almost to boiling; stir in as much flour as will make a mass that will turn clean out of the bowl without leaving anything adhering to the sides, roll out thin; cut into rounds; bake lightly and quickly.

Seed Cake.—As for pound cakes, but instead of currants and candied lemon peel, substitute a few caraway seeds; omit sugar on top.

Short-Bread.—Rub 1 lb. butter into 3 lb. flour; add 1½ lb. powdered loaf sugar; wet up with ¼ pint each honey-water and milk, and 2 eggs; break in pieces about 1½ oz. each; roll oval or round to size of tea-saucer; pinch round edge; place 1 in. from each other on clean tins, not buttered; cut ½ lb. candied orange or lemon peel into pieces, and lay on top; bake in steady oven.

Shrewsbury Cake.—Mix ¾ lb. powdered loaf sugar with 1¼ lb. flour; rub ¾ lb. butter in with the flour and sugar; add 1 white and 3 yolks of eggs; mix together to a smooth paste; roll into thin sheets; cut out cakes about size of half-a-crown; place on clean tins; bake in slow oven till they begin to change colour.

Simnel Cake.—In some counties these are called “Mothering” cakes, it being the custom to have them

on mid-Lent or Mothering Sunday. A simnel cake is really neither more nor less than any other very rich plum cake, the only difference being that it is first boiled and then baked (very slowly) in a crust of flour and water, with which has been mixed some saffron to make it look yellow. To make the cake, beat up 1½ lb. butter with the hand till it becomes a cream, and whip the whites of 8 fresh eggs to a froth; mix these with the creamed butter, and afterwards add the 8 yolks well beaten; add 1 lb. castor sugar, 2 teaspoonfuls salt, 2 lb. well cleaned and dried currants, 1½ lb. flour, ½ lb. candied lemon peel, and the same of citron, cut very thin, ½ oz. pounded nutmeg, cinnamon and allspice, ½ lb. blanched almonds pounded, 6 large lumps of sugar rubbed on the rinds of 4 oranges and then pounded, beating each of the above ingredients into the flour before adding the next; also stir in 1 wineglassful brandy, continuing to beat the cake for more than ½ hour. Roll out the paste, made as directed, somewhat less than ½ in. thick; put a cloth wrung out of boiling water and floured into a large basin, over this put the rolled-out paste, and into the paste put the cake mixture when sufficiently beaten. Close the paste by folding it over, and then tie it up in the cloth. Remove it from the basin, which was merely to support the cake while tying it up, and put it on to boil for 3 hours. Remove the cloth, and place the cake on a baking tin the smooth side upwards. When nearly cold, brush it well over with egg, and put it to bake in a very slow oven until the crust is as hard as wood. The crust should be a light colour.

Soda Scones.—To 2 lb. flour add 1 oz. butter, ½ oz. soda bicarbonate, ¼ oz. tartaric acid, and 1 qt. milk or butter-milk; mix and bake as scones.

Spice Gingerbread.—Take 3 lb. flour, 1 lb. butter, 1 lb. moist sugar, 4 oz. candied lemon or orange peel cut small, 1 oz. powdered ginger, 2 oz. powdered allspice, ½ oz. powdered cinnamon, 1 oz. caraway seeds, and 3 lb. treacle; rub the butter with your hand into the flour; add the other ingredients, and mix it in the dough with the treacle; make into nuts or cakes; bake in cool oven.

Spice Nuts.—Take 7 lb. treacle; rub 1 lb. butter into 9 lb. flour; mix 4 oz. each ground allspice and ground ginger, 2 oz. each caraway and coriander seeds powdered, with butter, flour, and treacle; roll 1 lb. moist sugar, and strew over top; roll out in long rolls about size of finger; cut in pieces size of nutmeg; place on buttered tins; wash with water or small-beer; bake in steady oven.

Sponge Cake.—Into ¾ lb. powdered sugar, break ¾ lb. eggs in a warm pan; whisk till cold; stir in ½ lb. flour; have tins ready buttered and sugared; put about ¾ tablespoonful into each; sift sugar over; bake in moderately brisk oven.

Sweetmeat Nuts.—Take 7 lb. treacle; mix 4 oz. ground ginger, 6 oz. ground allspice, 8 oz. candied lemon and orange, cut small, with 9 lb. flour; wet up with treacle; beat in dough 4 lb. butter and 5 lb. moist sugar; lay off on buttered tins, about the size of walnuts, flat down, wash with water, and bake in slow oven.

Sweet Rusks.—Cut a diet-bread cake into thin long slices; lay on iron plates, and brown quickly in very hot oven; turn when of a light-brown colour; when of same colour on other side, they are done.

Tea Cake.—Break 8 eggs into a warm pan on 1 lb. pounded and sifted loaf sugar; beat together till thick

and whitish; stir in lightly 1 lb. sifted flour; with a bag and pipe, as for Savoy biscuits, form mixture into drops about size of half-a-crown, 1 in. apart, on sheets of whited brown paper; dust lightly with powdered loaf sugar; place on tins; bake in good heat till nicely coloured; remove from paper as Savoy biscuits.

Thick Gingerbread.—Take 7 lb. treacle; rub ¾ lb. butter into 12 lb. flour; mix 3 oz. caraway, 2 oz. ground coriander seeds, and 2 oz. ground allspice, with flour and treacle; mould; in a week make into cakes, on a mould or print; butter the sides, and place close together on buttered tins; put up-sets round, wash with milk, and bake in steady heat; when done, wash with egg and milk.

Tops and Bottoms.—Prepare as for rusks; make into small balls about the size of a large walnut; place on tins in straight rows just to touch; prove well; bake in a moderate heat; when cold, draw a sharp knife between rows; to cut balls out square turn on side, and cut through middle, one at a time: place close on tin, with cut part upwards; put in warm oven; done when nicely browned over.

Twelfth Cake.—Prepare as for plum or bride cake; or, if as for plain pound cake, take 3 lb. currants, 4 oz. candied orange and lemon peel, to every pound of sugar; make any size; when done, ice over, and lay on ornaments while ice is wet.

Venice Cake.—Cut a Savoy cake in slices ½ to ¾ in. thick, in a parallel direction from the bottom to the top; spread each slice with raspberry or apricot jam, or some of each alternately, or any other sort of preserve. Replace each piece in its original form: when completed, make an icing as directed for cakes, with 4 whites of eggs to 1 lb. sugar, which will make

it rather thin. It may be coloured with cochineal, &c.; spread it over the cake, which, being thin, will run into the flutes and mouldings of the cake, when it will appear of the same form as before. Let dry in the mouth of the oven, but be careful it does not get discoloured. When dry, ornament with piping. Savoy cakes are often done in the same manner, without being cut in slices, to ornament them; or they may be done without icing, and either piped, or ornamented with gum-paste borders, &c., which are fixed on with dissolved gum arabic. Volutes or high and projecting figures are supported with pieces of small wire.

Vienna Bread.—Add to 1 pint new milk, 2 oz. fresh German yeast, 6 oz. each best loaf sugar and good butter, and sufficient best Vienna flour to form a tight or stiff dough; shape into rolls, pointed at each end; bake rich brown colour in quick oven.

Wine Biscuits.—2 lb. flour, 1 lb. butter, 4 oz. sifted loaf sugar; rub the sugar and butter into the flour, and make into a stiff paste with milk; pound in a mortar; roll out thin, and cut into sizes or shapes to fancy; lay on buttered paper or iron plates: brush tops with milk; bake in warm oven; glaze by brushing over with a brush dipped in egg; caraway seeds may be added.

York Biscuits.—Prepare as for filbert biscuits; dock; bake in hot oven, and do not wash over.

Yorkshire Cake.—Rub 4 oz. butter into 7 lb. flour; wet up with 1 qt. warm milk, 1 pint warm water, and ½-¾ pint good yeast; prove about 20 minutes; make into cakes, and put on warm tins; when well proved, make a hole in the middle, size of finger; bake in hot oven; when done, wash with a little melted butter.

Yule Cakes.—Put 1 lb. sifted flour into a large basin, to which add 1 saltspoonful salt; dissolve ¼ oz. German yeast in ½ pint tepid water, and stir into the flour with a wooden spoon; cover it with a thick cloth, and let it stand in a warm place for an hour to rise, add ½ lb. butter beaten to a cream, ½ lb. moist sugar, ⅛ nutmeg (grated), ¾ lb. currants, 4 oz. candied peel (chopped), and 2 beaten eggs; mix well, and only half fill the tin into which you put it; bake in a moderate oven for 1¾-2 hours; turn it out of the tin to get cold.

THE KITCHEN.

This chapter may be divided into 3 sections, dealing respectively with (1) the Fittings, embracing the cooking range, pots, pans, &c.; (2) the Processes of Cookery; and (3) Recipes for the preparation of a great variety of dishes and their adjuncts, such as sauces, &c.

THE FITTINGS.

Ranges.—There is no subject more interesting to the housekeeper, or of more importance in the household, than the proper preparation of our food by cooking, and good results can only be obtained by two means, a fair knowledge of cookery, and

(absolutely necessary under any circumstances) an efficient cooking apparatus. There are stringent laws governing our sanitary arrangements, and it is to be regretted that equally stringent laws do not exist to govern the efficiency of the apparatus under discussion, for it must be acknowledged that if the latter is not fairly perfect, it interferes with the health and comfort of a household. A vast number of badly fixed and badly constructed ranges are in use at the present moment. The speculative builder, not being governed by any rules or laws, is apt to purchase and use a cheap range, provided its general appearance is pleasing, “brick-flue” ranges being invariably adopted. It is in the construction of these brick flues where the trouble generally arises, as the flues in question have to be made by the builders’ man or fixer, who is more or less experienced in range work (commonly less), and, as everyone knows, the flues are the most important part of the range. Their importance is so great that one small error or want of judgment will ruin the most costly brick-flue range made. Brick-flue ranges, wherever possible, should be fixed by the makers, and the same remark may be applied to “iron-flue” ranges. The difference between a brick-flue and an iron-flue range is, that in the former all the flues are built in brickwork by the person fixing the stove, and in the latter all the flues are made of iron by the range manufacturer. It is acknowledged that the latter are superior, but they are not generally adopted on account of increase in cost (not great). The superiority consists in the greater durability, never requiring re-setting, greater efficiency, and, most important, it being almost impossible for even an ignorant man to set them wrongly. Iron flues also are slower in becoming fouled and more easily cleaned.

But these flues should be of cast iron, and not less than ¼ in. substance. Brick flues have several failings as is known to almost everyone, for it is a very common saying that the range does not work because it is not set well, or wants re-setting. In the first place, a bricklayer, however skilled, cannot know the correct size of flues for certain ranges so well as the manufacturers, and secondly, on the first occasion that such a range is used, expansion takes place and, in cooling, the metal and the brickwork part company, causing leakage of draught, and so tending to spoil efficiency; and in time the unequal expansion and contraction make re-setting necessary, which should never arise with an iron-flue range. It may be here mentioned that immediately air or draught leaks into the flues from any cause whatever, the good results will be diminished, or, in other words, it will take a greater quantity of fuel to do a certain amount of work, apart from the inconvenience, worry, increased labour, &c. It will be noticed that the above remarks only apply to the comparatively modern close-fire ranges or kitcheners.

Open-fire Ranges.—The now old fashioned open range, although very often met with, is rapidly dying out, as its disadvantages are very great, and it is ill adapted for modern cookery (which may be correctly defined as hot-plate cookery). Its disadvantages may be summed up as follows:—dirtiness, as all the cooking vessels have to be put in contact with the fire; aptness for smoking, as under almost the best of circumstances, a “blower” is necessary; extravagance; intense heat radiated into the kitchen, and so necessitating the use of a screen (or what might be more properly termed a cook protector); and

irregularity in action, as unless the cook is careful or really skilful in attention, it cannot be relied upon one day to give the results it gave the previous day, and the chimney requires very frequent sweeping. It is a capital range for roasting in front, an advantage highly appreciated by many (but in England only).

Hot Plates.—A hot-plate consists very generally of a mass of brickwork surmounted by a strong cast-iron plate with several apertures in it, these apertures being provided with covers; a furnace or fire-place is situated at one end of the structure and at the opposite end is the chimney; between the furnace and the chimney a flue or passage for the flame and heat is provided, and this flue is situated immediately under the iron plate, so that when the fire is alight the plate quickly reaches a very high temperature, hence the term “hot-plate.”

A hot-plate, as will be understood, is adapted for boiling, stewing, &c. only, and it cannot be recommended as economical.

Baking Ovens.—These are made exactly like the ovens used by bakers but upon a smaller scale, suited for domestic requirements. They consist of an oven having a flue passing up each side of it, the fire or furnace being situated at the base. The results are very good, as the oven thus has an excess heat at bottom, which is so necessary for the baking of bread and pastry.

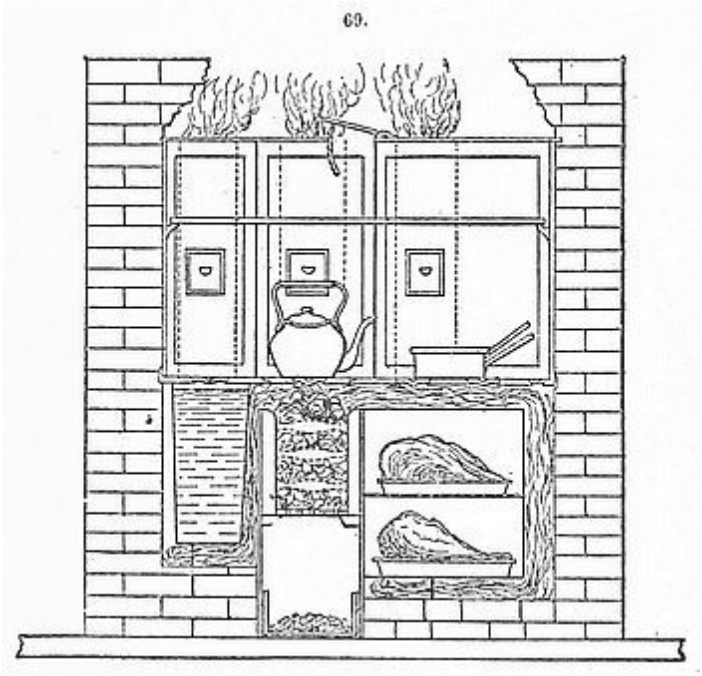
Close-fire Ranges or “Kitcheners.”—This is the form of cooking-ranges now in general favour, and under ordinary circumstances very satisfactory results are obtained both in efficiency and economy.

Close-fire ranges are made in various forms, the smaller and medium sizes generally having an oven

on one side and a boiler on the other, the fire being situated between. The larger sizes are also made like this if desired, but more generally they have one or more ovens On each side of the fire, the boiler (either high or low pressure, or steam) being placed at the back of the fire. This is the most economical arrangement, as the boiler then utilises the only space that cannot be used for anything else. The ovens of these ranges are invariably heated by means of flues; a flue is a passage by which the flame-heat and products of combustion pass from the fire to the chimney, and a flue is so constructed that the heat in passing is caused to impinge upon the under surface of the hot plate, upon the oven, and upon any part or surface where heat is needed. Fig. 69 (in section) will acquaint the reader with the general arrangement of a close-fire range, such as is at present in use. The oven, it will be noticed, is heated by means of a flue passing over down the outer side and under the oven, and an oven of this description is known as a "Leamington" oven, as it is the arrangement that was first introduced in what is known as the "Leamington range."

The Leamington range was first made (in Leamington) some 30 years ago, and with at the time such a vast improvement upon the cooking apparatus then in use that it has remained in favour up till the present day, and it will be noticed in the ranges that are described farther on that very little improvement has been made upon it, except in one or two instances. From the illustration it will be seen that the oven must necessarily have an excess heat at top and the least heat at bottom. This is the best arrangement for meat roasting, as the heat is not required under the roasting-pan; but for pastry, this arrangement is ruinous, as the oven is thus heated in

precisely an opposite manner to a baker’s oven, and this is its only objection. Every housekeeper knows that pastry requires a bottom heat to make it rise and be light. As the heat passes over the oven, it also heats the hot plate which forms the upper surface of the flue. It must now be explained why the flame, &c., passes around the oven when its natural tendency is of course to go upwards. The up-current of air or draught that exists in a chimney is treated and explained under Heating (see p. 79); this draught or up-current, as it rises, naturally causes fresh air to rush into the chimney to take the place of that which has risen. When a range is properly set the only opening through which this fresh supply of air can pass is through the fire, and thence by way of the flues into the chimney, this current is very rapid, and so carries all products from the fire with it, thus effectually distributing the heat as desired. When these products reach the bottom of the oven, they pass into a flue at the back, which is carried up and terminated in the chimney as shown.



69. Section of Close Range.

It will also be noticed from the illustration (and it is known to all who have used close ranges) that for the fire to be effectual it must be kept up, or in other words the flue-box must be kept *full* of fuel as *all the work is done from the top of the fire*. It cannot be comprehended why range-makers still insist upon making such deep fires; they average about 10-12 in. in depth (or height), whereas 5-6 in. will give as good results with decidedly less fuel, as can be proved by anyone by using a high false bottom (this cannot be done if a high-pressure boiler is at back of fire, as it will prevent the heat passing under the flue). The reason is that, as before stated, all the work is done from the top of the fire, the hot plate and the entrance to the flues being both situated

there; and it will be found that the fire-box, however deep, will not heat the oven or hot plate if it is only three-fourths full of fuel, as there will naturally be a space above the fuel where the air can pass through into the flues without being first heated, and will so tend to cool the ovens and hot plate most effectually. The only part of a range that still answers fairly when the fire-box is not full is the boiler at the back, as the flue of this is always at the bottom of the fire. *It is imperative with these ranges that all the air that passes into the chimney should first pass through the fire.*

The dampers are metal plates which slide through suitable slots into the flues that are carried up the back of the range, they have knobs or handles in front by which they are pushed in or drawn out as desired. When drawn fully out, they leave the flue clear and do not obstruct the draught; when pushed quite in, they close the flue and stop the draught. They can be put in any intermediate position; their object is to regulate the draught to the requirements; by regulating the draught the heat and the consumption of fuel are regulated also, and by means of the dampers the heat can be closed off or put on to the oven, or boiler, &c., as desired. It is to the mismanagement of these dampers that the extravagance in many instances is due; if the draught is good, they should never be pulled out fully, as this will cause the fire to “roar;” they should be pushed in (both for ovens and boilers) until a murmuring sound is heard; this is the correct speed for all purposes in general. It cannot be too strongly impressed upon housewives that a “roaring” fire gives really *less* result than a steadily burning one as described. Too fierce a fire has other serious results, viz., undue wear and tear to the range, overheating

the kitchen, increased labour in attention and stoking, and the probability of the ovens, &c., becoming too hot; in fact general inconvenience is experienced by this, irrespective of the great waste of fuel.

A good feature in a close-fire range is a means of making an open fire when no cooking or work is required to be done between meals, and in the evening.

An open fire is very slow burning as it is not affected by the draught; it will burn 2 hours without attention, and is thus very economical, saves labour, and if desired the cook can leave the kitchen for a considerable time without anxiety as to whether the fire wants replenishing. The closed fire is decidedly the best form for cooking purposes, but when no cooking is required it must be attended to frequently or be permitted to go out. An open fire is also a ventilator, is cheerful for those in the kitchen, and if a good fire is left open at night, the boiler will be found to contain fairly warm, if not hot water in the morning.

Ovens should always be provided with 2 ventilators, viz., an inlet and an outlet; there are very many ovens with even modern ranges that are only fitted with one ventilator, but a moment's consideration will show that one ventilator is useless, as you cannot get air to pass out of an oven unless there is a means for a corresponding volume of air to pass in to replace it, and *vice versâ*, and means should be provided to warm the air as it passes in, for reasons that are obvious. The use of the ventilators is to take off the excess heat, the steam, smells of cooking, &c., from the oven (the outlet ventilator opening into the flue), and by use of the ventilators

meat can be either roasted or baked in an oven, the distinction between roasting and baking being that to roast meat the air must have free access to the joint by opening the vents, whereas in baking meat the vents are closed and the meat is cooked in its own vapour, &c.

The former method has the greatest number of advocates, as the results are the same as if it was roasted in front of the fire, *provided it has the same attention in basting, &c.* It may be here mentioned that in oven-roasting, a water-pan should be used, as it prevents the oven becoming foul by the burning and splashing of fat, and has other advantages; this pan really consists of 2 pans, one fitting within the other, a space of about ½ in. existing between, and a properly constructed meat-stand fitting into the upper one. The joint is put in position on the stand, and the whole is placed in the oven, *after* which the space between the two is filled with water through an aperture provided for the purpose. These pans are very satisfactory in use, and are now in general favour.

The cleaning of flues should be done once weekly, if the chimney has a good draught, or with hard fuel this time may be exceeded; but it is desirable to say once weekly, as it is then done at regular periods on a certain day; with a very sluggish draught it is sometimes found necessary to clean them a little oftener, as the soot is then nearly all deposited in the flues, and as the fire is longer in becoming bright, more soot is naturally formed (with a bright fire scarcely a particle of soot is formed, the combustion being nearly perfect). The correct method to clean the flues of a kitchen (close fire) range is as follows:—First remove all small flue-doors, loose covers, &c.,

then draw out the dampers to their full extent, take the flue-brush and pass it first up and then down the flues that are carried up the back of the range, inserting the brush through the openings that are provided just below the dampers; then brush the soot from the tops of the ovens down the flues at the sides; brush down these side flues; and lastly carefully scrape and brush out all the soot that has now accumulated in the flues under the ovens. But it must not be forgotten that the *bottom* of the oven requires well brushing; this is often omitted, yet it is most important, as in many instances, as before explained, the utmost heat is needed at the bottom, and if it is coated with soot very little heat will pass through, as soot is a fairly good non-conductor of heat. After cleaning the flues, carefully replace all doors, covers, &c.; it cannot too strongly be impressed upon housewives that no opening must be left for the air to pass in, except first passing *through* the fire. Soot in flues produces two different ill effects, viz., reducing the draught by choking the flues, and preventing the heat coming in proper contact with the oven, as it is a very bad conductor.

The flue-brush for the average of flues should be about 4 in. in diameter at the hair, with a 3 ft. 6 in. or 4 ft. wire handle. Chimneys do not require sweeping nearly so often with close ranges as with open. With an entirely closed range it will with proper care go about 10 to 12 months; with a close range that can be opened (when not cooking) about 7-9 months, varying with different coals, &c. The management of a close-fire range has now been nearly all explained; it may be summed up as follows. At first lighting (after clearing the fire-box of ash, &c., in the usual way), draw out all dampness until the fire is established, after which push in

dampers to a more or less extent according to draught. Never permit the fire to make a roaring noise, whether for oven or boiler. If the range has a high-pressure boiler, direct the heat to this until the water is hot, or until the range is required in preparing breakfast. After this meal, the dampers must be pushed in as far as possible to slacken the fire down until it is required for the midday meal (unless the range is required for any other purpose between these times), and the same follows after this meal. There are, however, very many residences where cooking, to a more or less extent is going on all day, in which case the regulation of the dampers must be left to the discretion of the cook. Thoroughly clean the flues *at regular periods*; if a high-pressure boiler exists, clear the flue under it of cinders, &c., every morning. Thoroughly clean inside the ovens and the oven shelves of any grease, &c., as this is the very general cause of unpleasant smells that pervade the house. When cooking, keep the fire-box well filled with fuel, by feeding it moderately often but in small quantities, as the fire must not be permitted to get low. Do not permit the hot plate to become red-hot; should it do so, push in dampers to decrease the draught, as the fire is burning too fiercely.

Want of draught, which sometimes occurs, and causes an utter failure of the range is due to several causes, the chief of which are:—(*a*) Other flues running into the kitchen chimney, generally a copper flue, not provided with a damper to close it when not in use. (*b*) Leakage of air into the flues through some aperture, commonly around the range, caused by imperfect or hurried setting. This can be discovered by holding the flame of a candle near any likely spot, when the flame will be drawn through if any leakage exists. (*c*) Insufficient height of chimney; about 20 ft.

is sufficient for say a 4 ft. range, but the chimney top must be as high as any adjacent building, or impeded or down draught will occur. Suburban villas, &c., are frequently designed with the kitchen situated at the back, in an addition to the main building, this addition generally being lower, in which case, if the chimney is not carried up to the necessary height great inconvenience and annoyance will ensue. Impeded or down draught is sometimes caused by high trees being situated near the chimney. (*d*) Sooty flues, through want of regular cleaning, or failing to put one of the flue doors in position after cleaning.

The use of the door in the top covering-in plate of the range is, by partially opening it, to take off the objectionable smell when frying, &c.; to reduce the draught to the whole of the range; and for the sweep to operate through when sweeping the chimney.

When a range is newly fixed, it will not give its best results until it has had good use for 6-8 days, as everything around it, the brickwork, &c., is damp and cold. They will sometimes smoke at first lighting, and as ranges differ considerably, a new range requires a certain amount of getting used to. When a range is newly set, the workmen should, before leaving, clear the flues, but this is sometimes neglected, and careless workmen have been known to leave even their tools in the flues.

In instances where a strong draught exists, and the servants cannot be depended upon to regulate the dampers or open the door at top to decrease it, an excellent method is to cut a hole into the flue through the chimney breast above the mantelpiece and there insert a ventilator, but it must be a self-acting one. Arnott's patent is the best suited for this purpose, as it can be set to a nicety, so that, when

the draught is excessive, the valve opens and the chimney gets part of its air, without affecting the fire; this reduces the draught, and then the valve partially or wholly closes, and so it continues. The results are similar to those ensured by the governor on a steam engine, viz., giving uniform regularity to the work.

Fuels.—The ordinary coals of commerce, such as Wallsend, Silkstone, Derby Main, &c., &c., although in general use, are not best adapted for close-fire ranges, which are really furnaces on a small scale, and should be treated as such. Coals such as the above are too highly charged with bitumen (tar), the major portion of which distils off as smoke, fouling the flue, and, as every particle of smoke is unconsumed fuel, there is considerable waste. These coals have also too great a proportion of hydrogen (producing flame) for furnace purposes, as combustion is so rapid; it will be noticed that when burning these soft bituminous coals, upon feeding the fire, volumes of smoke are first given off, after which the fuel fuses into a soft and sometimes sticky mass: this then flames violently for a short period, after which it is time to replenish the fire again. It must not, however, be concluded that fuels entirely free from hydrogen, such as anthracite, coke, charcoal, &c., are well suited for this work, as a fuel free of hydrogen gas burns without flame, and it is found desirable to have some flame, for the heat has to travel some 6 ft. (3 sides of the oven) before its work is performed. It is found that coke and anthracite give an intense local heat (i.e. immediately in or near the fire); but this has an ill effect with the Leamington oven, as making the top of the oven of so much higher a temperature than the bottom, which is fatal to pastry. Where, however,

other fuels are not conveniently attainable, coke and anthracite can be used; but the results are not so satisfactory. Coke is almost always used on yachts, so that the sails, decks, &c., may be spotless; but a yacht range is of special make.

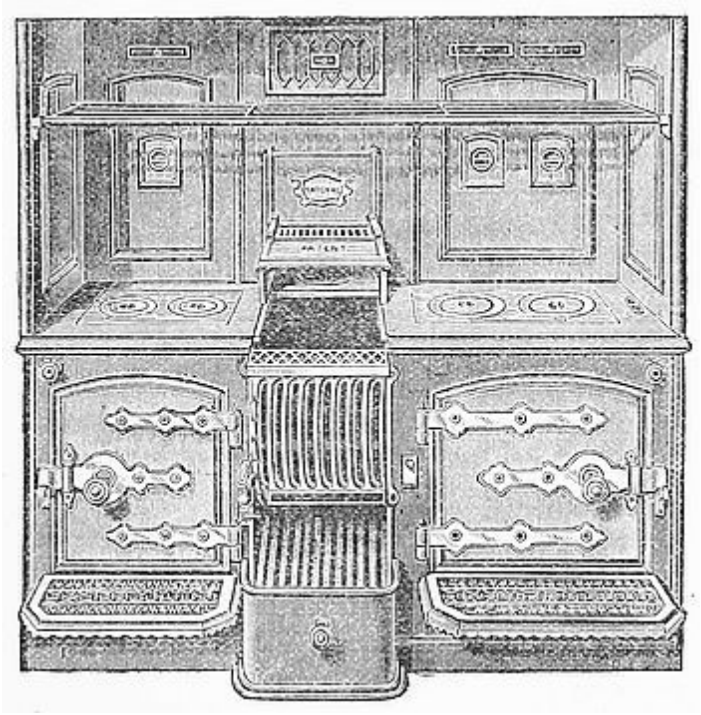
Coke, broken to the size of a large walnut, and ordinary coal, mixed in about equal proportions, is found very satisfactory; but the best fuel for close-fire (or the convertible close or open fire) ranges is what is commonly known as hard steam coal; this is not the technical appellation for it, but it is generally recognised by this name, and any good firm of coal merchants stock it, as it is much used for small furnace work. This coal has several advantages, viz., low price (about 16*s.* to 19*s.* per ton), much less smoke and soot, more intense heat evolved, and greater length of time in consumption. This is a coal bordering upon anthracite in its nature and composition, but has a moderate percentage of hydrogen; care must be exercised to see that the correct coal is obtained, as should a coal merchant not keep it, he might consider that the low price was the chief consideration and would send a cheap soft coal, which is very unsuitable. This coal has one disadvantage, which is that it cannot be burned in the ordinary open grates unless the grate is provided with a blower, or some means of causing a draught to pass through the fire at first lighting or when heavily fed; it is therefore necessary to have convenience for keeping two sorts of coal.

The best size of coal for these ranges is “nuts,” this is a size that will pass through a 2 in. hole (in a coal sieve) and not through a 1 in. hole. “Cobbles,” which is a 4 in. coal, is too large for this work. It is commonly understood that “nuts” and “cobbles”

indicate certain qualities of coal, but it is not so, they denote size only.

The kitchen range should be made to burn all the rubbish of the kitchen, provided it is combustible at all; but this should be done when the cooking of the day is finished.

The following are some ranges of modern and reliable make which have withstood the criticism of the public and the trade, and are all having a fair share of favour.



The "National" Patent Open and Close Fire Kitchener (GEORGE WRIGHT & SONS, 113 Queen Victoria Street, E.C.). This method of converting from a close

to an open fire, or *vice versâ*, is a great improvement on the ordinary arrangements for this purpose owing to its extreme simplicity, one movement only being required to effect the change, as will be seen by reference to the sectional diagrams, Figs. 70, 71. The well-known “Eagle” Patent Adjustable Bottom Grate, for regulating the fire, made under licence from the original patentees, being adapted to this range in combination with the above patent, establishes it as one of the most efficient and at the same time most economical ranges in the market, the slight extra initial cost of the range over that of an ordinary range being very soon covered by the great saving in fuel. Our illustration shows a high class range, but the same principles can be adapted to ranges of the cheaper class, though we do not advocate cheap ranges. Of all the fittings in a house, the kitchen range should be the first consideration, as so much of the comfort of a tenant depends upon its quality and efficiency. We cannot too highly recommend this range to the notice of our readers. *See advertisement in front of title page.*

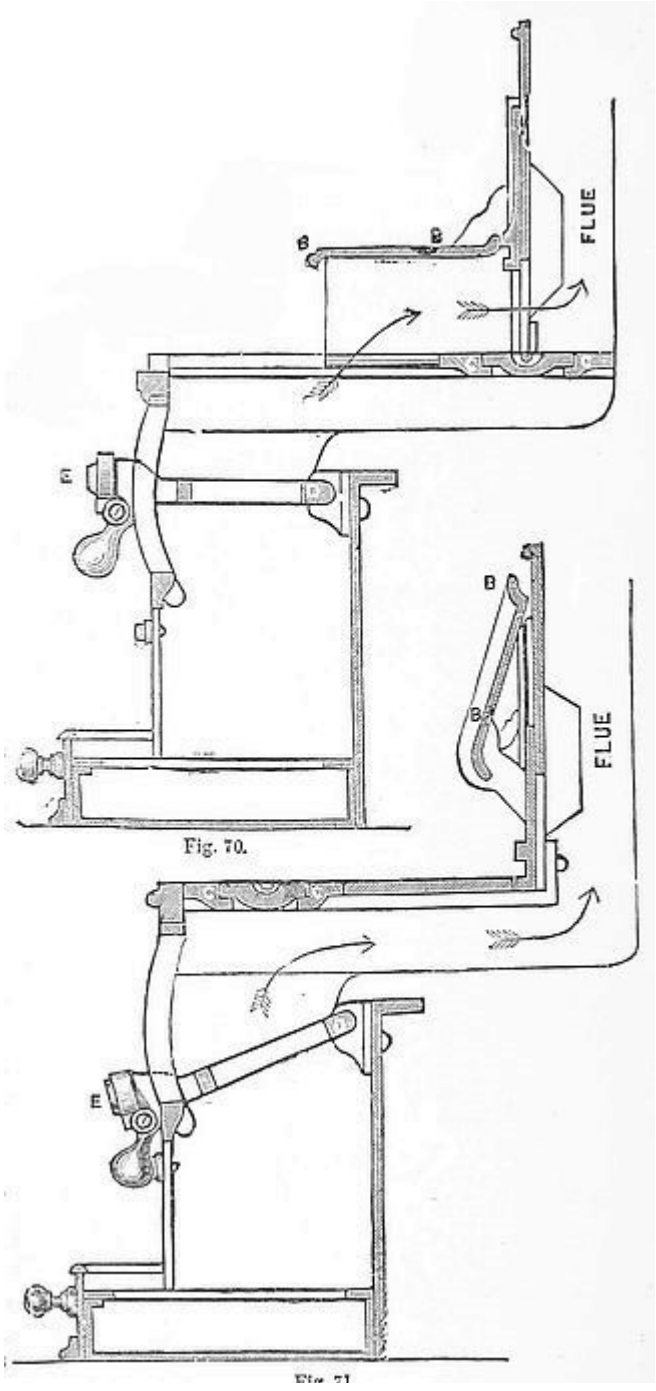


Fig. 70.

Fig. 71.

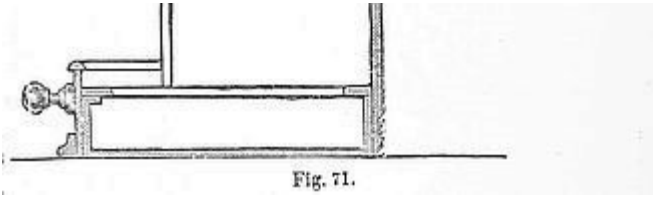


Fig. 70. Fig. 71.

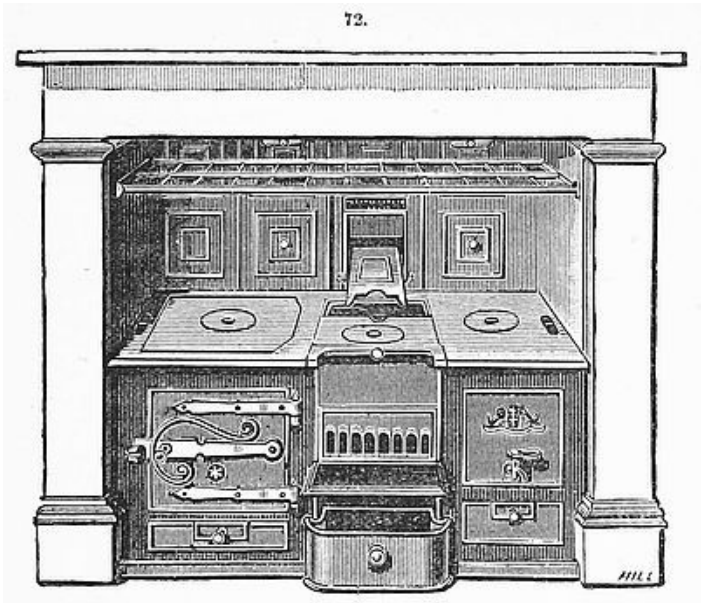
Fig. 70 is a sectional elevation through centre of fire from front to back when range is used as an open fire; the bottom grate being shown in a level position or half way up.

Fig. 71 is a sectional elevation on the same line as above, showing the position when in use as a close fire, and also shows the bottom grate in its lowest position.

To convert a close fire into an open fire, all that is necessary is to draw forward the top of the plate B, which then assumes a horizontal position, the same single movement opening the back, and forming a complete open hood or bonnet to convey the smoke from the fire into the chimney. The fire-cap C then slides back, the fall-bar turns down, and a complete open fire is formed. There are no wheels or cranks to get out of order, and there are no projections at back to interfere with back boiler or flues.

The "Eagle" Bottom Grate is so well known that it scarcely needs description, and when intelligently used is most economical. For heating the ovens or the hot plates a shallow fire only is necessary, and the consumption of fuel is thereby greatly reduced, and the deeper fire is only required for roasting or toasting, and even then the amount of fuel need not be greatly increased, as the bottom grate being worked on a pivot at back, when it is lowered to full extent in front, throws all the fuel to front of fire and the bars being vertical and slightly curved outwards, a large radiating surface is afforded, making a most

perfect fire for roasting in front. This arrangement does away entirely with the objectionable "false bottom" of the ordinary kitchener, which is always burning out and very frequently checks the proper action of the boiler. *See advertisement in front of title page.*

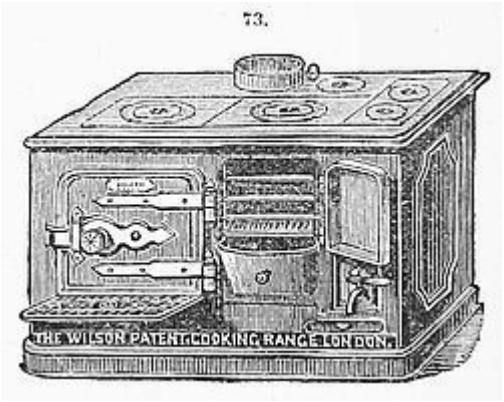


72. Underfed Smoke-consuming Kitchener.

Brown and Green's "Underfed Smoke-consuming Kitchener" (Brown & Green, 69 Finsbury Pavement, London), Fig. 72, is made in all sizes, from 8 ft. to 7 ft., with 1 to 4 ovens. The fire of this range is underfed, i.e. the fire is replenished at the bottom instead of at the top as usual, thus all gas, smoke, &c., are perfectly consumed, and the range is practically smokeless. This is an advantage of importance from an hygienic point of view, and greatly decreases the flue-cleaning, chimney-

sweeping, &c. The ovens of this range are of the Leamington type, and the flues have to be constructed in brickwork.

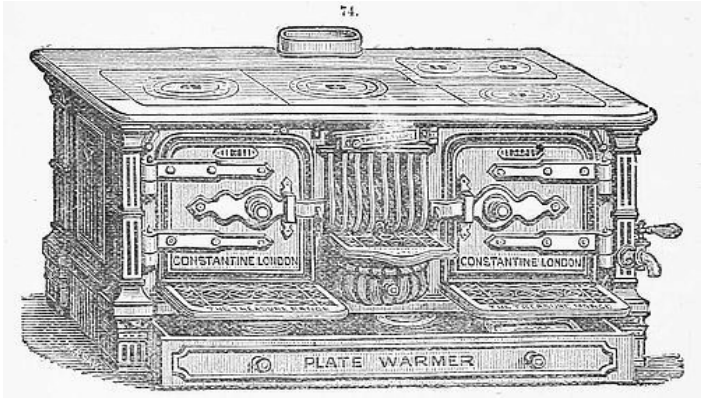
This firm also make the “Gem” cooking range, which is used as an auxiliary range, being quite portable, with iron flues, and requiring no brickwork whatever. It is made from 1 ft. 6 in. to 3 ft. wide.



73. Wilson Grate.

The “Wilson” range (Wilson Engineering Co., 227 High Holborn), Fig. 73, is a portable range requiring no brickwork, and made in all sizes from 2 ft. to 10 ft. The range is fitted with a means of consuming the major portion of the smoke. The fire-door and sides of fire-box are chambered in such a manner as to cause a swift current of superheated air to mingle with the smoke as it leaves the fire-box, and this causes combustion to take place, producing flame and very materially lessening the quantity of soot.

The ovens are upon the Leamington principle, but with a series of gills or heat collectors fitted at the bottom (in the flue), which equalises the heat at top and bottom (so necessary for pastry baking, &c.).

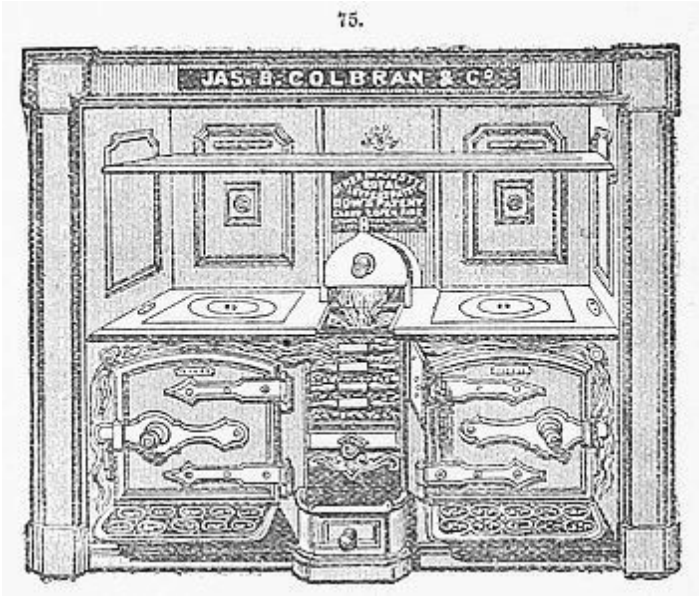


74. Treasure Range.

The “Treasure” range (T. J. Constantine, 61 Fleet Street, London), Fig. 74, is a portable range made in all sizes from 2 ft. upwards, and is similar in nearly every respect to the “Wilson” range last mentioned, excepting that the “Treasure” is now being made with an open-fronted fire for roasting, and with a movable bottom grating by which the size of fire can be increased or decreased at will. This range requires no brick-setting.

This firm make a tray to slide (upon rollers), and closely fit under the range, which is of great convenience for heating plates, dishes, &c.

The “Sine qua Non” range (Albion Iron Co., 175 Upper Thames Street, London) is made in all sizes, and has the following advantages. Closed or open fire (one movement only); the heat can be directed to the top or to the bottom of ovens at will, and an improved ventilating arrangement at the back of range lessens draught and takes off excess heat and objectionable smells, &c., created at the hot plate. This is a brick-flue range. Cooking operations can be carried on with this range when the fire is open.

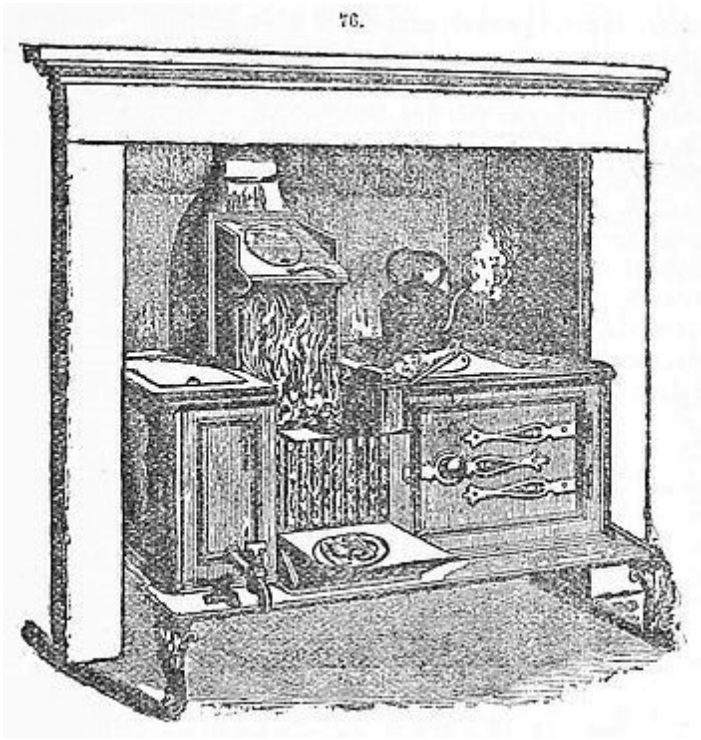


75. Dow's Patent Range.

"Dow's" patent range (J. B. Colbran & Co., 247 High Holborn, London), Fig. 75, is made in all sizes. It is a closed or open fire (one movement only), and the heat can be directed to the top or bottom of the oven at will. It is a brick-flue range, and cooking operations can be carried on when the fire is open.

The "Mistress" range (Smith and Welstood, Ludgate Circus, London), Fig. 76, is a portable range, made in various sizes, with one or two ovens and boiler. This is what is commonly known as an "American" range. This term originated with ranges made for the use of American settlers, being quite portable, very compact, and provided with a complete set of utensils. They were then made light for convenience of transit, and being provided with rather high legs they could be stood down anywhere, and worked safely at a moment's notice after

attaching a few feet of flue-pipe.



76. Mistress Range.

The “Mistress” is made with a convertible open and closed fire, and can be had with doors, forming a hot closet for plates, &c., underneath (between the legs). The fire of this range is suited for roasting in front, and every range is fitted with a set of cooking utensils. The ovens are upon the Leamington principle. This firm also make many other patterns of this type of range suited for various requirements.

The “Yorkshire” range (so named as it is the pattern in general use in that county) is made to suit many purposes. It is a range especially adapted for

bread, cake, and pastry baking, the ovens invariably having an excess heat at bottom; the flues are ascending, and the range therefore works with less draught. The range consists of a fire-box situated in the usual position, and the flues are carried from the top of the fire to the right or left, as in the Leamington range, but the bottom of the oven or ovens forms the upper surface of this first flue instead of the hot plate, i.e. the bottom of the oven is on a level with the top of the fire-box; the flue passes from the fire under the bottom of the ovens, then up the further side, and lastly across the top into the chimney, the results being like those obtained with the "Thorncliffe" range, but the only available hot-plate is that immediately over the fire and on top of the ovens. The space under the ovens (where the ovens of a Leamington pattern range would exist) is sometimes entirely closed, but more usually occupied by hot closets, which are heated by the fire that passes across the top of them, similar to the "Thorncliffe" before mentioned. This description of range is not commonly met with in the south of England, but any range maker is prepared to supply it.

There is a combination of the Yorkshire and Leamington ranges made with an ordinary Leamington oven on one side with hot plate above it, and a Yorkshire oven on the other side with hot closet below it. This is a good and useful combination, but the hot plate is necessarily contracted. This and the Yorkshire range require brick flues.

It must be understood that the ranges mentioned are but a few well-known patterns that possess certain improvements upon the Leamington range.

There are numberless other makes equally good, but it would occupy the major portion of this work to treat them all; and although those mentioned possess improvements upon the Leamington pattern, we must leave it to the intending purchaser to say whether the improvements are to his advantage. It must be said in favour of the Leamington range, that for general good results and simplicity in working and cleaning, it has always met with general approval, and probably no other make of range will remain in favour without interruption for upwards of 30 years as this has done.

Although certain makes of ranges have been specified, as having brick flues, yet the majority, if not all of them, can be had with iron flues at a proportionate extra expense, if so ordered, and this extra expense is a good investment if permanency is desired.

A most useful arrangement is to have a small portable range fixed in the scullery, or any other convenient position, to act as an auxiliary to the large range. The convenience of this arrangement is especially felt when the large range, during some repair, or the periodical boiler cleaning, cannot be used; or when company increase the requirements, or in summer, when only a small amount of cooking is needed, the small range will do the necessary work, and this also applies when only servants are remaining in the house.

This auxiliary range can be connected into a copper flue, or into the large range flue, but it must be seen that the damper of this small range is tightly closed when it is not in use, otherwise it will seriously interfere with the efficiency of whatever else is being worked by the flue.

With the old-fashioned open ranges there is a common complaint of the chimney smoking. This will be found in probably every instance to be effectually cured by the adoption of a close-fire range or “kitchener.”

Fire-bricks.—This is a subject upon which much misunderstanding has often arisen between manufacturers and users of kitchen ranges, as it is unfortunately no rare occurrence for the fire-bricks of quite a new range to be found cracked, after, say 2-3 months’ wear, whereas another set of bricks of exactly the same make and the same clay, in the same range, will last 2-3 years, or even longer. This may be sometimes caused by negligence. For instance, if fire-bricks are fitted tightly, they will, when heated, crack, as no room is left for expansion; but, what is more commonly the cause of failure, is firstly, the influence of the poker, and secondly the practice of putting out the fire (at night) with water. This rapid cooling and contraction causes a fracture, the same as putting cold water into a hot empty boiler.

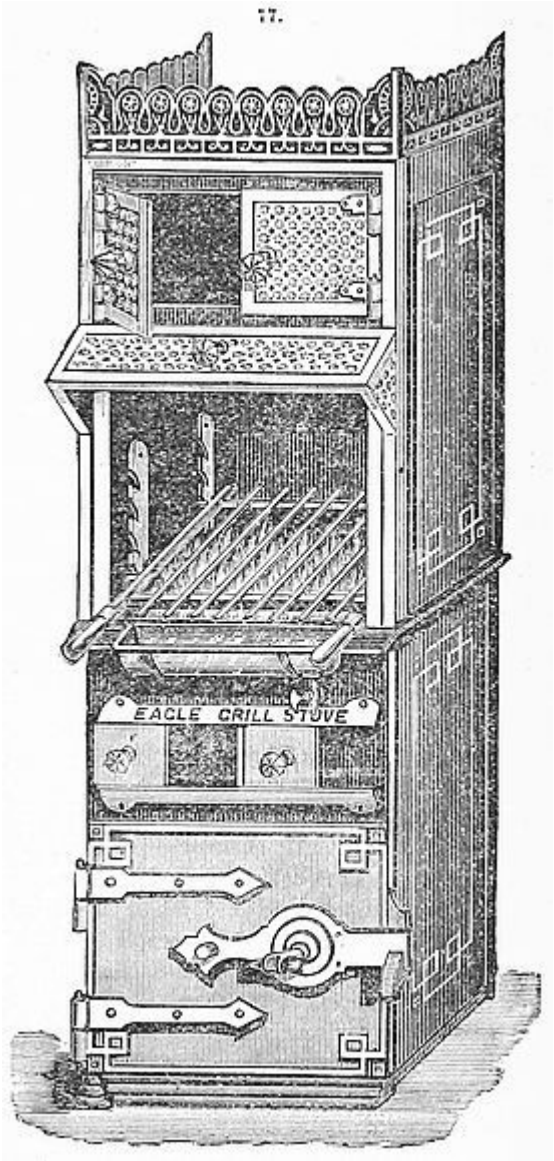
Most makers are now making iron cheeks of suitable construction to take the place of fire-bricks, and the results are said to be satisfactory, though quite contrary to the principles already laid down as to a minimum use of iron in grates.

There is a rather general idea that fire-bricks assist in heating the ovens. This, however, is incorrect; the object of fire-bricks is to protect the oven sides from the direct action of the fire, as this would in a short time injure them.

There are now to be obtained several makes of fire-resisting cement. This material is gaining favour, and will no doubt come into general use for the

purposes for which it is intended. It is a clay-like material, and is used for repairing cracked fire-bricks or the interior lining of any description of furnace or fire-box; for rendering the joints of stoves and ranges air-tight; and it is also successful in temporarily repairing cracked boilers as it adheres to an iron surface as well as to any other material.

After cementing up the crack or damaged part, a fire is immediately made, and in 10 minutes the cement will be found to have set as hard as the iron itself, and it has a valuable property in not shrinking as it dries. This material is also used for lining the fire-boxes of kitchen ranges in place of fire-bricks, as it is much more lasting; its applications are very numerous, it being suitable for any and every purpose where heat is to be resisted. There are a few directions that must be followed to make the application successful, but these are provided by the manufacturers. Two of the best makes that have had considerable trial and are now in favour are the “Etna” cement (Verity Bros., 98 High Holborn), and the “Purimacos.”



77. Eagle Grill Stove.

Grills.—Grilling stoves, for coke or charcoal fuel, invariably take the form of an open-topped shallow

furnace, above which is suspended the gridiron; Fig. 77 shows the general details. The furnace is sometimes supported on legs, but more generally the space underneath is utilised as a hot closet for plates, &c., and in some instances a hot closet is fitted above (as illustrated). The gridiron, which is made with fluted or grooved bars, is suspended at such an angle as to cause the gravy to run down freely into the pan in front provided to receive it. The method of suspending the grid permits of its being raised or lowered as the heat dictates. All grills are constructed to work with a down draught, i.e. the air that passes into the chimney has to first pass *downwards* through the fire and then up the flue provided behind. By this means, all products of combustion are carried away, and the fire may be said to be burning upside down.

Grills are also made to work with a series of Bunsen (atmospheric) burners in place of fuel beneath the gridiron.

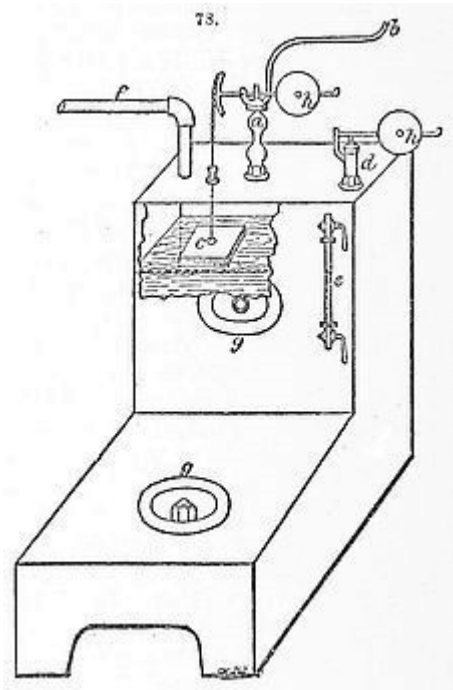
Grills are made in various sizes for domestic or business requirements. The one illustrated in Fig. 77 is made by the Eagle Range & Foundry Co., 76 Regent Street, London, but they can be obtained of all range merchants and manufacturers.

Steam.—It has been long anticipated by many competent authorities that steam cooking would come into general favour, to the prejudice of cooking ranges, and although this has not come to pass, any description of food cooked by steam (in a proper manner) is by many considered superior to that cooked by any other method. But it may be here mentioned that to gain good results the steam must be dry, i.e. there must be a moderate pressure developed in the boiler and the steam should not be

permitted to condense too quickly; if the steam pipe is of any length it should be felted, or covered with some non-conducting material. Steam at no pressure (atmospheric pressure only), although a gas, may be said to be saturated with moisture, whereas if a little pressure is developed it becomes dry, and may be compared to hot air. Steam without pressure has the further disadvantage of condensing very rapidly, and the moisture is objectionable for several reasons.

One advantage possessed by steam cooking is that the kitchen does not become over heated, as the boiler, if desired, can be placed in a basement or elsewhere, provided it is convenient for stoking; and there is, of course, economy of space.

Steam can be economically used for every description of cooking purpose, and for heating water, by placing a coil of steam pipe in the water that is to be heated.



78. Steam Boiler.

Fig. 78 represents a steam boiler which requires to be fixed in brickwork. They are also made cylindrical (vertical) in shape with the furnace within them, and so require no setting, except connection with the chimney. A description of a steam boiler will be found under “motors,” the boiler and fittings in each case being nearly identical, except that a pressure-gauge is not always used with a boiler for cooking purposes, and a different means is provided for water supply generally, as illustrated. The reference letters indicate:—*a*, inlet valve, regulated by stone float *c* and balance-weight *h*; *b*, cold supply-pipe from main; *d*, safety-valve; *e*, water gauge; *f*, steam delivery pipe; *g*, manlids.

In many instances, especially when the boiler is in

a kitchen range, a steam chest is used. This is a square wrought-iron box, of nearly the same capacity as the boiler, and situated somewhere near but in a more conveniently accessible position.

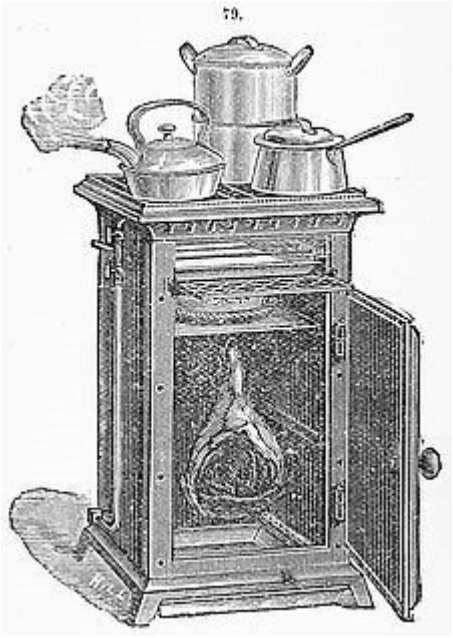
All the fittings are attached to this chest, which is connected to the boiler by 2 pipes one above and one below water level (2 pipes being necessary to equalise the pressure). The chest is of service when the boiler is not easily accessible, as the fittings should always be situated where they can have regular attention, cleaning, &c., and it is very necessary to see that the water inlet valve and safety valve are in proper working order.

Sometimes in small steam boilers in kitchen ranges the inlet valve is dispensed with, and an ordinary cast-iron supply cistern is used, with a ball valve in the usual way; but the cistern must have a lid that can be secured, and the pipe between the cistern and boiler must have a deep syphon to prevent the water being blown back by the steam. This system, however, cannot be recommended, as it is not reliable. When this system is adopted it is generally where the boiler is also used for hot-water supply, and only when comparatively no pressure of steam is required for 1-3 small kettles. See also p. 1004.

Gas.—Gas cooking stoves are now growing in favour, as being very convenient and cleanly, instantaneously lighted and extinguished, and producing no smoke, soot, or ashes. They are portable, and the cost of fixing is generally small; but, as with all gas contrivances, they can only be adopted where gas is to be obtained. The makers claim economy over coal-burning ranges, greater simplicity in working and cleaning, less attention, unvarying heat, &c. There are, however, drawbacks

in not having means of working a high-pressure boiler for bath supply, &c. (this, however, is now being overcome), and there are sometimes complaints of waste of gas, as servants cannot always be relied upon to turn off or lower the gas at intervals when it is not required.

Gas ranges have now attained a high degree of perfection, and the results are very satisfactory. There is no obnoxious taste commonly associated with meat cooked by this means, and it has been proved that no difference can be discerned even by the most fastidious between joints cooked in gas and coal-burning ranges. Gas ranges are made in numberless sizes and shapes to meet every requirement, from the small “Workman’s Friend,” which is large enough to cook a steak and boil a quart of water, to those that are used in large institutions, hospitals, &c., to cook for hundreds daily.

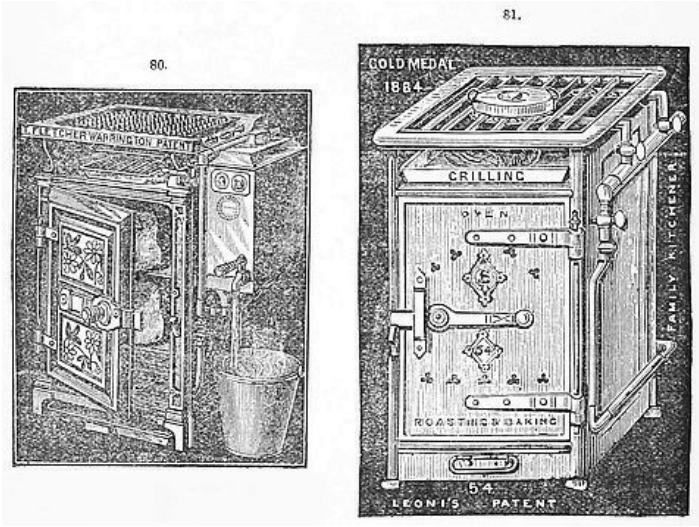


79. Eureka Gas Cooker.

Ordinary gas is sometimes used, but more generally it is “atmospheric gas,” which is a mixture of gas and air burnt by a “Bunsen” burner, giving a blue flame. In lighting an atmospheric burner, it should be turned on full for a ¼ minute before the match is applied, otherwise it will light back in the air chamber of the burner, which will also happen if the burner is not turned on full when lighting. If necessary, the gas can be turned down immediately after it is lighted. When one of these burners lights back, it will be found to be burning the ordinary gas as it issues from the nozzle in the air chamber. This of course gives no heat where it is required, and if allowed to burn for a short time it will choke the burner with soot. There is a little objection experienced at first in lighting an atmospheric burner, as it lights violently with a slight explosion,

but one quickly gets used to this.

Fig. 79 is the “Eureka” gas cooker (John Wright & Co., 155A Upper Thames Street, London). This range is double cased and jacketed on the sides, back, and door with a non-conducting material to prevent loss of heat. The top of the oven is formed of fire-brick, over which the waste heat passes, heating it to a high temperature, and adding to the efficiency. The oven interior can be had either galvanised or enamelled by a new process which the makers highly recommend, and the oven fittings are so made that they can be removed wholly for cleaning purposes and leave no ledges inside where grease could accumulate. The hot plate is formed of loose wrought-iron bars, which can be removed for cleaning purposes. This range is made in all sizes, with from 1-4 ovens, and boilers are fitted when desired. Hoods can be fitted to these (and to any other make) to carry away any objectionable smell and vapour from the hot plate, the hood being connected with a flue. A hood is of course not necessary when the range stands in an opening under a chimney.

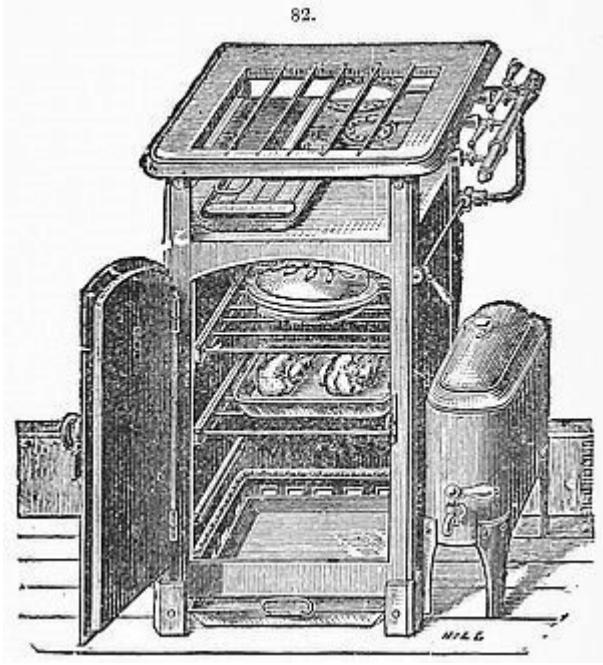


80. Fletcher's Cellular Cast-iron Cooker. 81. Leoni's Nonpareil Gas Kitchener.

Fig. 80 is a Fletcher's cellular cast-iron cooker (Thos. Fletcher & Co., 83 Upper Thames Street, London). This cooker is jacketed with slagwool, to prevent loss of heat; the whole is constructed of cast iron, the interior being in panels to prevent cracking. This range is also made in all sizes, with every convenience, and is of very strong construction. It will be noticed with gas ranges that they are especially well adapted for pastry and bread baking, as the ovens have a perfect bottom heat.

Fig. 81 is Leoni's "Nonpareil" gas kitchener (General Gas Apparatus Company, 74 Strand, London). These cookers are greatly patronized for large works, institutions, &c. They are fitted at W. Whiteley's where they cook for 3000 persons daily. They are also made in small and medium sizes for domestic requirements. This and other makes of gas ranges are provided with means of grilling by

deflected heat, which is very successful.



82. Metropolitan Gas Kitchener.

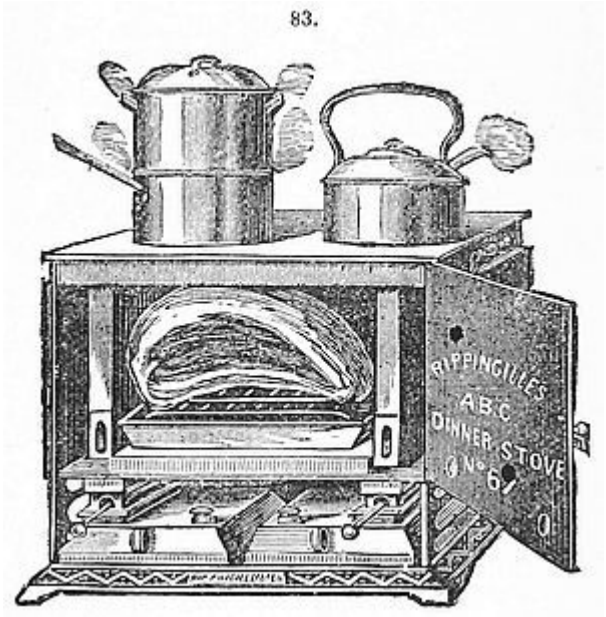
Fig. 82 is the “Metropolitan gas kitchener” (H. and C. Davis & Co., 198 and 200, Camberwell Road, London). This is constructed of wrought iron, the whole of the top, sides, door, and back being jacketed with a non-conductor. The outer casing is of galvanized iron, the inner casing is not galvanized, but is treated with a preparation to prevent rust. These are made in all sizes.

The ovens of gas ranges are ventilated upon the same principle as the ovens of other ranges, but as there are no flues to discharge the steam and smell into, a hood, as just spoken of, must be provided, otherwise the smell may pervade the house.

These are but a few of the many makes of gas stoves.

In addition to ranges many other forms of gas apparatus adapted for cooking are made, such as hot-closets, hot-plates, salamanders, grills, coffee roasters, &c., &c. Gas ranges can now be obtained upon hire from nearly all gas companies at very low charges, in fact, the charges can but barely cover first cost, but the reason for this low charge is obvious. See also p. 1004.

Oil.—Oil cooking stoves are to be recommended for their convenience where gas and the more bulky fuel, coal, are not attainable. They are especially well adapted for camping out, picnics, &c., and in many instances they can be recommended for domestic use. With ordinary care, they may be said to be odourless and smokeless, very cleanly, and the makers assert that they are very economical. They are so constructed that neither the oil nor products of combustion in any way come in contact with whatever is being cooked, and consequently there is no faint or objectionable flavour. They can be stood upon a table or in almost any position with perfect safety, and as will be seen from the illustration (Fig. 83), every part is easily accessible.



83. Rippingille's A B C Oil Kitchener.

Fig. 83 is Rippingille's "A B C Oil Kitchener" (Holborn Lamp and Stove Company, 118 Holborn, London), with oven, boiler, and hot-plate, price 3*l.* 18*s.* 6*d.* These stoves are made in sizes from the breakfast-cooker (15*s.*) to those with 2 ovens, and suitable for a family, costing about 5*l.* They are also made for boiling only, in different sizes, and even fitted with a small hot-water circulating apparatus for heating.

Pots and Pans.—Iron is cheap, and lasts. It is all very well so long as it is kept clean; but that seldom happens. Buy a saucepan brush and silver sand, and see that it is used. See that your iron saucepans are lined with tin, and not with brown rust and dirt, and know once for all that an iron saucepan 6 months old should be as bright inside as it was on the day when it was bought. Understand yourself, and then try to

explain to others, that a saucepan, whether of tin, iron, or anything else, must be scrubbed both outside and in. How common it is to see a saucepan crusted outside with soot, which no one has ever attempted to remove. It gets red hot, and burns the saucepan as well as its contents, and the bill of the ironmonger grows apace, and the soup is burnt and spoilt, and every one blames the cook, while no one thinks of the scrubber. There are not a few cooks, old enough to know better, who direct that the scrubbing of saucepans should be done by the hand. Why the hand is to be hardened and the nails to be ground down to the quick, in order to do slowly what a 6*d.* saucepan-brush would do quickly, is hard to say. Another excellent saucepan scrubber, though not so common or so cheap as the brush, is a small square piece of steel chainwork—a piece of chain armour, in fact. A bunch of twigs or a wisp of straw, though better than nothing generally, leaves something to be desired in the way of brightness. When the soot disappears from the outside, and the dirt from inside, half the faults of iron saucepans disappear also. For beef tea, however, some recommend glass or earthenware—a soda-water bottle or a jampot, if there is nothing better—to be set inside the saucepan of boiling water, however bright it may be; for invalids are fastidious, and beef tea always tastes of the saucepan if possible. Tin saucepans, especially the low-priced ones, are by no means cheap. They are often met with in the homes of the poor, and in poor localities in towns ironmongers underbid each other until the cost of a saucepan only reaches a few pence. How dear these saucepans are in the long run, no one knows who has not used them on the open fireplace, upon which in these poor homes they are generally placed. It is impossible to fry in them

without risk of losing the bottom; it is difficult to stew, because the heat passes through very rapidly. Tin is little trouble to clean, so there is no excuse for dirt or dulness, outside or in. The fault often lies in leaving the lid on after cleaning is done, and the result is damp and rust. All saucepans should be kept in a dry place, bottom upwards, and without their lids; if they are dried before the fire so much the better. A clean tin saucepan may be used for many purposes where iron is inadmissible; but "clean" is not to be interpreted as meaning a saucepan carelessly wiped out with a greasy cloth, and left to dry or to rust as chance may befall. Rust and dirt are not flavourless articles of cookery. Suppose clear soup or jelly is to be made. In an iron pan it will be not clear, but thick; in a clean tin pan or even a fish-kettle it will be not the fault of the pan, but of the cook, if the jelly be not as clear as glass. The least speck of rust, the smallest remainder of yesterday's cooking will spoil either jelly or soup. Why, indeed, should not tin serve all purposes, since it is with tin that all copper pans are (or should be) lined? And copper pans are the *ne plus ultra* of culinary furniture. The grand difference lies in the fact that tin pans are thin, the heat penetrates them quickly, and therefore they are apt to burn, while copper is thick and a slow conductor of heat. Perhaps something may also be said on the score of shape. There is an ugly seam round the bottom of tin pans, where rust is likely to collect; and the best block-tin saucepans are generally made with sides sloping in towards the top, as if for the express purpose of producing lumps in all gravies and rust in all weathers. Why this form ever was or continues to be fashionable, it is not easy to say. There is, however, another argument in favour of copper stewpans,

namely this—that cooks will take the trouble to clean them, while they think half the time and labour wasted on tin, which can be replaced at small cost. Let us grant, as readily as you please, that copper is the best material; still it is certain that its cost will always place it out of reach of modest housewives; therefore the first substitute is plenty of soap, sand, and labour expended on iron or tin. The next substitute and a more common one, is enamel-lined iron. The difficulties here are two. First, the enamel is apt to chip, when all the defects of the native iron appear; secondly, the heat quickly penetrates, and is not quickly evaporated. An enamelled pan keeps its contents at boiling heat for some time after it is removed from the fire. It very often boils over, and it needs careful watching to prevent burning. An enamelled pan is not one to be selected for slow stewing. The substitute in many ways best of all is but little used in England. Earthenware pots have the many advantages of being cheap to buy, easy to clean, slow to burn, giving no unpleasant flavour to anything cooked. Perhaps the reason of their unpopularity is to be sought in the prevalence of open fires, and the fact that not all earthenware will stand any closer proximity to the fire than the top of an iron stove. Those delicate brown porcelain cooking utensils lined with white are excellent for delicate cookery on a close stove, but they are not suited to the rough wear and tear of an every-day kitchen, and considering their fragility, one cannot call them cheap. What we want is good strong brown earthenware, glazed inside, hardy enough to be set on an open fire, strong enough to withstand a few taps, and withal cheap enough to be readily replaced. That such a thing may be had, every one knows who has travelled out of England

and kept their eyes open. They are common enough in Switzerland, in many parts of Germany, and our grandmothers would have said they were common in this country, as indeed they were 50 years ago. Though not common now, they are still to be bought, in price ranging from a few pence to 2*s.* One purpose for which they are particularly suited is the making of broth or stock out of odds and ends. Earthenware may be kept on the fire day after day, and finally lifted off the fire to grow cold with its contents; no draining or trouble is necessary, and no sour or metallic flavour will remain to shock the most fastidious palate. You may make by turns jelly and oatmeal porridge, and the same pot serves equally well for both—good for slow stewing on the hob, but perfectly serviceable on an open fire. There is perhaps no cooking material for common use to equal earthenware.

Copper must be lined with tin, for unlined copper, whether clean-scoured or not, is extremely unwholesome. Upon this point much indecision prevails in the public mind, and it is well to speak positively, as many cases of poisoning from copper saucepans are on record. Turning to frying-pans, there is for the impecunious householder no refuge from iron and tin. A copper frying or sauté pan is not found in many houses. Nevertheless, there is no occasion to burn the outside of cutlets; and if the inside is raw, the cook is to blame, not the metal. “Once burnt will burn again.” A new pan does not burn; therefore, why should an old one? No frying-pan should be washed or scoured; it should be wiped while hot with a cloth. But this rule presupposes no scraps left on the edges, no burning on the bottom; it assumes, in fact, that the frying be well done. If the pan be burnt, you must scrub and scour it until it is

bright, for nothing so effectually spoils both the flavour and the appearance of cooking as the black bits that detach themselves from the sides of dirty pans. For omelets, copper, enamel, tin, are all used effectually by a careful cook; while no one of the three will serve the purpose with unskilful fingers. But every housewife who wishes first-class omelets served on her table will do well to invest in a copper pan, since there are few dishes to which the utensils at command of the cook make so great a difference. Then, again, porcelain and earthenware might be used with great advantage. The great art in making omelets is that they shall not be cooked so slowly as to be tough, nor yet so quickly as to be over-coloured; and the happy medium is difficult to attain when cooking with metal that, like iron, is a very rapid conductor of heat. English middle-class kitchens are often furnished with a strange mixture of niggardliness and extravagance. Any one accustomed to foreign customs will have been struck with the modest but well-chosen *batterie de cuisine* commonly seen abroad in houses of the lower middle classes. There the mistress selects her own stock by the light of her own experience; here an order is given to some ironmonger, who furnishes the kitchen according to precedent, and in sublime indifference as to the first principles of cookery. The general absence of so trifling a luxury as wooden spoons may account for the quality of the unpleasant mixture commonly known as melted butter. And the extreme reluctance of mistresses to invest in such an article as a frying-basket, while they waste double its cost every week by bad frying without it, may be cited as another example of ignorant saving (E. A. B. in the *Queen*.)

An extensive catalogue might here be given of the

various appliances used in the kitchen, such as mincing, cutting, slicing, whisking, mixing, knife-cleaning, bread-making, and other domestic machines, but it could serve no useful purpose. All ordinary requisites can be purchased at any ironmonger's, in all degrees of size and quality. Sundry new and ingenious implements are introduced to public notice every year, and a great many may be found in the price lists of the large firms, such as Mappin and Webb, 18 to 22 Poultry; Farrow and Jackson, 8 Haymarket; Spong, 226 High Holborn; Kent, 199 High Holborn; J. Baker and Sons, 58 City Road; Wilson and Son, King William Street, Strand; and several others. In the *Ironmonger* for May and June, 1885, appeared an account of an ingenious machine for washing crockery, adapted to the needs of large establishments. See also p. 1006.

THE PROCESSES OF COOKERY.

Much useful information is to be derived from Prof. Mattieu Williams's Cantor Lectures on the Scientific Basis of Cookery, from which some of the following paragraphs are borrowed.

Roasting.—Williams shows that "in roasting a joint before the fire without any screen, the radiant heat from the coal is only used; the meat is heated only on one side, that next to the fire, and, as it turns round, is radiating its heat away from the other side to the wall, &c., of the kitchen. If a meat screen of polished metal is placed behind the meat, the rays of heat not intercepted by the meat itself are received upon the screen, and reflected back towards the meat, and thus both sides are heated."

There is an old rule well known all over the world of cookery, and that is, "white meats well done,

black meats underdone;" this applies to all meats of the four as well as of the two-legged sort, but then it means properly well done, and properly underdone. To attain this end the first thing which demands attention is the making up of the fire. It should be regulated according to the size and the nature of the article which is to be roasted, and should be so managed as to last all-aglow the whole length of time which the roasting will take. In the case of joints of meat the following are the main points to be attended to. The joint should be trimmed neatly; cut off the end or flaps of a sirloin of beef (this makes a very good stew for the kitchen dinner, or maybe used to make stock with greater advantage than roasting it with the joint in the point of view both of economy and of taste), a piece of buttered paper should be tied on with string over the fat, and not removed until just before the joint is done. If it can possibly be avoided do not use skewers to fix up the joints, but use string instead; and when practicable perpendicular roasting is preferable to horizontal, as not requiring the use of the spit. Place the meat at first 18 in. from the fire, or even farther off if it be a large joint and the fire greater in proportion. When the meat is well warmed, gradually bring it nearer, and from that time never cease basting the joint at regular intervals, but this you must not overdo. The time that meat takes to roast is usually set down at 15-20 minutes for every lb. the joint weighs, but this is a very broad rule, so many circumstances tending to modify it. The quality of the meat, the age of it, whether it be fresh killed or not, the season of the year, the nature of the fire, and the position of it as regards currents of air in the kitchen, must all be taken into consideration. One thing only is certain, and that is, that when the joint begins to smoke it is

nearly if not quite done, and at this stage 2-3 minutes more or less at the fire will make or mar the success of the joint as a piece of artistic roasting. (The G. C.)

In Ovens.—"The oven is an apparatus for cooking by radiation. In this case the meat or other object of cookery receives radiant heat from the heated walls of the oven. If this chamber, with radiant walls, be so arranged that the heat shall be radiated equally on all sides, and is capable of regulation, it becomes a roaster, which theoretically does its work more perfectly than an open fire, even when aided by a screen." (Williams.)

Williams has "not the slightest hesitation in affirming that moderate-sized joints properly roasted in a closed chamber, are far better than similar joints cooked with the utmost skill in front of a fire. The smaller the joint, the greater the advantage of the closed chamber."

Roasting-ovens are now attached to all the best forms of kitcheners.

On one point in the philosophy of roasting, Williams differs from Rumford. He thinks "it desirable—and has tested this theory experimentally—to begin at a temperature above that which is to be maintained throughout the roasting. The object of this is to produce a crust on the surface of the meat that shall partially seal it, and keep in the juices as much as possible. Then the temperature may fall to the average, which should be well kept up, and rather raised towards the last. This comes about automatically in the ordinary course of cooking with a roasting-oven."

He adds that "sealing is more demanded by a joint

of beef than by one of mutton of given size, because in the beef there is more of cut surface, exposing the ends of the fibres of the meat. In a leg of mutton, for example, this exposure is only at one end, the rest is partially protected by the skin of the leg."

Basting.—"The *rationale* of basting appears to be that it assists in the sealing, and diminishes the evaporation of the juices of the meat, the chief difference between well-roasted and ill-roasted meat depending upon this." In roasting, "the meat is stewed in its own juices. The flavour depends on this: no water being used, these juices are not diluted—they are, on the contrary, more or less concentrated by evaporation; but if this evaporation be carried too far, a drying-up occurs, and this desiccation is accompanied with toughness and indigestibility, as well as sacrifice of flavour. The smaller the joint, the greater the risk of such desiccation."

Grilling.—"This principle brings us at once to grilling, which is another kind of roasting, i.e. of cooking by radiation. A beef steak or mutton chop is not roasted by turning it round and round in front of the fire, because so large a surface is exposed in proportion to the mass, and such treatment would evaporate from that large surface too much of the juices. Rapidity is the primary condition of success in grilling. When a large and specially-constructed grill, placed over a large coke or charcoal fire, is available, the heat radiated on the exposed surface of the meat rapidly browns or carbonises the exposed surface, and partially seals its pores."

Boiling.—"When water is heated in a glass vessel over a flame where the action may be watched, bubbles are first seen growing on the sides of the glass, gradually detaching themselves, and rising to

the surface. These are merely bubbles of air that was dissolved in the water. After this, other and larger bubbles form on the bottom just above the flame. At first they are flat, and continually collapsing. Presently they become hemispherical, but still they collapse; then they become more and more nearly spherical, and afterwards quite spherical; afterwards they detach themselves, and start upwards, but perish in the attempt, by collapsing somewhere on the way. At last they reach the surface, and break there, ejecting themselves as steam into the air. Now the water boils, and a thermometer dipped into it registers 212° F. After this, it matters not whether the boiling is very violent or only the gentlest simmering, no further rise of the thermometer is perceptible, showing that the simmering temperature and the 'galloping' temperature are the same."

"The actual cooking temperature for animal food is considerably below the boiling point of water, and is regulated by the coagulation of albumen, which commences at rather below 160° F., i.e. more than 50° below the boiling point of water."

To "apply this practically to the boiling of an egg for breakfast. By the ordinary method of the 3 minutes' immersion in continually boiling water, the white becomes hard and indigestible before the yolk is fairly warmed, and ½ minute too much, or ½ minute too little, will nearly ruin the operation."

"The proper mode is to place the egg in boiling water, and then remove the saucepan from the fire altogether, and leave the egg in the water from 10 minutes to ¼ hour. About ½ pint for 1 egg, ¾ pint for 2 eggs, or 1 pint for 4 eggs, is the quantity demanded if the saucepan is well covered."

Stewing.—"The prevailing idea in England is that

stewed meat only differs from boiled meat by being kept in the water for a longer time—that stewing is simply protracted boiling. I venture, nevertheless, to declare the total fallacy of this, and to assert that, so far as flesh food is concerned, boiling and stewing are diametrically opposite, as regards the special objects to be attained. In boiling a joint—say, a leg of mutton—the best efforts of the cook should be directed to retaining the juices within the meat, and allowing the smallest possible quantity to come out into the water. In stewing, the business is to get as much as possible out of the meat, to separate the juices from the meat and convey them to the water. This is the case, whether the French practice of serving the liquid *potage* or *bouillon* as a separate dish, and the stewed meat or *bouilli* as another, or the English and Irish fashion of serving the stewed meat in its own juices or gravy, as in the case of stewed steak, Irish stew, &c.

"The poor French peasant does more with 1 lb. of meat, in the way of stewing, than the English cook with three or four. The little bit of meat, and the large supply of vegetables are placed in a pot, and this in another vessel containing water—the *bain-marie* or water bath. This stands on the embers of a poor little wood fire, and is left there till dinner-time, under conditions that render boiling impossible, and demand little or no further attention from the cook; consequently, the meat, when removed, has parted with its juices to the *potage*, but is not curled up by the contraction of the hardened albumen, nor reduced to stringy fibres. It is tender, eatable, and enjoyable, that is, when the proper supply of saline juices of the meat *plus* the saline juices of the vegetables, have been taken into the system.

"Whether the *potage* and the meat should thus be separated, or whether they should be stewed together, as in an Irish stew, &c., is merely a matter of taste and custom; but that a stew should never be boiled, nor placed in a position on the fire where boiling or 'simmering' is possible, should be regarded as a primary axiom in cooking where stewing is concerned."

Braising.—This takes its name from the French word *braise*, the red embers of a wood fire being so called. There are proper pans sold for this kind of cooking, called braising-pans; they are rather shallower than ordinary stewpans, and they have the edges of the lid turned up to hold live coals, it being necessary to have heat from above as well as below in braising. It is also necessary as much as possible to exclude the air. Should there be no braising-pan in the house it is possible to do it, but less well, in an ordinary stewpan, which will have to be put into the oven.

Frying.—"Frying ranks with boiling and stewing, rather than with grilling. When properly conducted, it is one of the processes in which the heat is communicated by convection, the medium being hot fat instead of the hot water used in the so-called, and mis-called 'boiling' of meat. I say 'when properly conducted,' because it is too often very improperly conducted in domestic kitchens. This is the case whenever fish, cutlets, &c., are fried on a merely greased plate of metal, such as a common frying-pan. Pancakes or omelettes may be thus fried, but no kind of fish or meat. These should be immersed in a bath of fat sufficiently deep to cover them completely. To those who have not reasoned out the subject, such complete immersion in so large a quantity of fat may

appear likely to produce a very greasy result. The contrary is the case.

"Let us take, as an example, the frying of a sole. On immersing this in a bath of fat raised to a temperature above that of boiling water, a violent hissing and crackling noise ('frizzling') is heard. This is caused by a series of small explosions due to the sudden conversion of water into steam. The water was originally on the surface and between and within the fibres of the flesh of the sole. The continual expansion of this water into vapour, and its outbursting, prevent the fat from penetrating the fish, so long as the temperature is maintained above 212° F., and thus the substance of the sole is cooked by the steam of its own juices, and its outside is browned by the superheated fat.

"Now, let us suppose that a merely greased plate, like the bottom of a frying-pan, is used. Only one side of the sole is cooked at first—the side in contact with the pan—therefore it must be turned to cook the other side. When thus turned, the side first cooked with its adhering fat is cooling; its steam is condensing between its fibres, and the fat is gradually entering to supply the place of steam, while the other side is cooking. Thus it is more greasy than if rapidly withdrawn from the bath of hot fat, and then allowed to drain before the steam commences to condense. A stew-pan, or any other suitable kind of kettle, may be used, if provided with a wire basket for lifting; or a frying-pan of the ordinary kind, if deep enough."

To fry rissoles, or anything which requires to be fried all over at one time, a wire basket must be used, a stewpan large enough round to receive the basket, and deep enough to hold a sufficient quantity

of melted fat to completely cover whatever is to be fried. Place the rissoles in the basket, set the stewpan containing the fat on the fire, and when the fat is boiling, at once plunge the basket into it and hold it there until they are sufficiently cooked, which will be when they have attained a delicate golden colour. The greatest care will be necessary in watching for the moment of boiling, this will be when the fat ceases to bubble and splutter; it will then become perfectly silent, and almost immediately a light blue steam will rise from it, which is the sign of boiling, the frying must then instantly commence, for it will soon after begin to smoke, and if put into the fat while in this condition the rissoles would be quite spoilt, both in colour and flavour. For cutlets, soles, or anything flat, you may use a cutlet-pan or frying-pan and fry one side at a time. Lard, butter, and sweet oil are all used, and for very delicate frying they are necessary. Whitebait must be done in oil, omelettes in butter, as also cutlets if you wish them to be particularly nice; but for most things and for all ordinary occasions there is nothing better than good well-clarified dripping.

Kitchen odours.—All "greens," to use a familiar expression, especially cabbage, as we know, have a horrible tendency to create noxious vapours; whilst onions, it need not be said, permeate the remotest recesses of a building, not only while they are cooking, but while they are being prepared for the saucepan or the frying-pan. To thoroughly deodorise the boiling cabbage or the frying onion is next door to impossible, but the effluvium may be mitigated. A large piece of bread is sometimes put upon the knife's point whilst onions are being peeled, in order to prevent the tearful effect which the pungent esculent produces on the eyes; and we have lately

been told in a popular cookery book that the offensive results of cabbage boiling may be well nigh got rid of, by wrapping up in a piece of clean white linen rag a large lump of bread, and putting it in the saucepanful of water in which the cabbage is being cooked. The same plan, no doubt, would be equally effective in the case of broccoli, which, if possible, is a greater offender than cabbage in emitting offensive fumes. The obnoxious reek is mitigated, we are told, by some cooks, by boiling broccoli in two waters—parboiling them to begin with; then taking them out of the saucepan, straining them, allowing cold water to run over them for a few minutes, and placing them in a fresh pot of boiling water. What applies here may be extended, no doubt, with beneficial results to most greenery, not forgetting the cauliflower—another marked offender in the way of creating bad odour. It is, however, very frequently the careless manner in which the water used in the boiling of vegetables is thrown away, which produces the worst stench of which the kitchen is guilty. Nothing is so detestable as this smell of "green water," and the cook who allows it to get the upper hand of her is either very careless or very incompetent. If the water be thrown recklessly down the sink, and no means are adopted to deodorise it, hours will elapse ere the fumes can be dissipated, during which they will have found their way all over the house. Where the drainage and such like appliances are in perfect order (or, indeed, where they are not more particularly), it should be held as an essential part of the scullery-maid's duty to pour gallons of fresh water, both boiling and cold, down the sink immediately after the cabbage water. If this be done freely, and a liberal sprinkling of Sanitas Powder or other inoffensive deodoriser be then

distributed about the sink or drain trap, we need not be troubled, as we constantly are, by bad smells when dinner is over.

RECIPES FOR DISHES.

In the presence of such a number of cookery books as already exist, it is obviously impossible to offer a selection of original recipes. Every known dish has been subjected to variations till the list is practically endless. The idea which has guided the writer of this section is general utility. Many of the recipes are gleaned from the replies of experienced housewives in the correspondence columns of recent numbers of the 'Queen' newspaper; than this, no more valuable and inexhaustible source of current information exists, and the reader in quest of additional recipes or instructions cannot do better than consult the weekly pages of that pre-eminent "ladies'" newspaper.

Soups.—The foundation of all soups is or should be found in the stockpot, an institution that is too often neglected, especially in small households where economy is most necessary. As the nutritive elements of all foods, both animal and vegetable, are readily extracted by the prolonged application of hot water, it follows that much feeding material which is of too coarse or rough a character to be brought to table can be made useful by simmering till all its virtue is exhausted. Hence the value of the stockpot. If the odds and ends accumulated in the kitchen do not suffice to make the quantity of stock required, they must be supplemented by stock prepared specially. The following recipes for making stock are sufficient for all ordinary needs.

Common Stock.—(*a*) 6 lb. shin of beef, 6 qt. water.

Cut all the meat off the bones, and cut the meat across and across, and sprinkle a teaspoonful of salt over it and put it at once into the 6 qt. water in an earthen vessel, while you do as follows: wash and cut up 2 carrots and 2 turnips and leave them in clear water; then put at the bottom of your soup pot (the digesters are the best) 2 slices of bacon, a piece of butter as large as 2 walnuts, a Spanish onion stuck all over with cloves, another cut up in rings, 2 large lumps of white sugar, a few peppercorns, a small bunch of marjoram and thyme tied up in muslin, as much grated lemon peel as would cover sixpence, and then put in the carrots and turnips. Let these all be browned at the bottom of the stockpot, stirring all the time, until the bacon looks well enough done to be eaten, then put in the meat and the water it has stood in, and the bones broken; leave the lid off at first, so that you may watch for the rising of the scum, which must be instantly removed, or the colour of your soup will be spoiled; when you have carefully skimmed it, and no more rises, put the lid tightly on the digester, and leave your soup to simmer gently and evenly for 5 hours. Do not throw away the scum; it is not dirty, provided you have wiped the shin of beef clean before you cut it up; and this scum, although it would spoil the clearness of your soup, is really beef-tea, and worth using in the stockpot. When the 5 hours are nearly elapsed, have ready a large kettle of quite boiling water, then strain the soup through a close sieve into a perfectly clean earthen jar, and immediately put back into the digester all the contents of the sieve, and pour the kettle of boiling water upon them, and let this stew all night. The next morning strain it into another earthen jar, and leave it to set. The first stock is now ready to scrape every atom of fat from the top of it,

then wipe the top with a clean soft cloth, and all the edges of the jar, then turn it upside down on a large dish, and scrape the fat and sediment from the other side. Wash the earthen jar, and dry well before the fire, and then put your stock back, and you will have a perfectly clean soup with a delicious flavour, and without requiring any clearing with whites of eggs, which always impoverishes the soup. To colour it, take pieces of bread, toasted very brown, and put into the stock when you warm it: and before sending to table put a teaspoonful of sherry at the bottom of the tureen, and pour the almost boiling soup upon it. Of course, it must be strained, to prevent the pieces of toast going in; and you can either use it plain, or with cut vegetables in it. Those sold in tins are best; but they require washing in water, and then warming in some inferior stock, and must be well strained, and then put with the wine at the bottom of the tureen, before you pour your soup into it. The next day scrape and wipe your second stock, and do just the same with it, and it comes in for gravies, for entrées, or for thick soups, and sometimes is as clear as the first stock.

(*b*) Slack's patent digester is the most useful and economical of stockpots. Its management is quite simple, but care must be taken when filling it to leave sufficient room for the steam to pass away through the hole in the cover. A sheep's milt is a good foundation for stock.

(*c*) Procure from a heel shop a cowheel that has been boiled, crack it up and simmer for several hours in salt and water; when done, strain, and there will be about a gallon of good jelly. If the heel is uncooked, boil till half done, then throw the first water away, or the jelly will be too rancid for soup.

(*d*) Take about 3 lb. shin of beef, seeing that the butcher does not send it all bone; put this into the stockpot with 2 large onions well fried, 2 raw onions, 2 large carrots cut down the centre, a head of celery, and a few sprigs of sweet herbs; add to this 3-4 qt. cold water, and set it on the fire to boil; let it remain boiling for 3-4 hours, draw it to the side, and let it simmer for the rest of the day; in the evening strain the liquor through a sieve into a large basin, put the rest on a dish, set both in the larder, and have the stockpot well washed out before putting away for the night. The next morning take the meat from the bones to use for potted meat, put the bones and vegetables into the stockpot, together with any bones, whether large or small, left from the previous day, trimmings of meat, cooked or uncooked, gristle, skin, &c.: bones from poultry and game of any kind should be used with the rest, and a ham or bacon bone, or trimmings from a tongue, all help to improve the flavour of the stock. Carefully skim the fat from the stock made yesterday, measure off as much as may be required for soup, gravies, &c., during the day, and pour the remainder into the stockpot, filling it up with cold water (one which holds about 4 qt. is a useful size for a moderate-sized family); freshly fried onion, well browned, must be added every day, and every second or third day the vegetables must be changed for fresh ones. Every morning the bones, &c., must be looked over, taking away those in which no goodness remains as others are added; and every now and then, when there happens to be a good supply of fresh bones, such as perhaps a ham bone and those from a sirloin of beef (which will be none the worse for having been previously broiled for breakfast), it will be as well to get rid of all which have been already used, and start

afresh as before. The water in which rice has been boiled, or in which bread has been soaked for puddings, should all go into the stockpot, and of course that which has been used in boiling fresh meat or poultry. Rabbit bones do not improve stock, and those from a hare should be used by themselves.

Clear Stock (Consommé).—Put 2 lb. lean beef cut in small pieces, and a fowl half roasted, and also cut in pieces, bones and all, into a saucepan, which fill up with common stock or broth (cold). Set the saucepan on the fire, and when the contents get hot skim the liquor carefully, then add salt to taste, and the following vegetables cut up in small pieces; 2 or 3 carrots, 2 onions, a head of celery (a pinch of celery seed will do as well if no celery is procurable), one tomato (fresh or dried), and a handful of parsley. Also add in due proportions, and according to taste, chervil, marjoram, thyme, cloves allspice, whole pepper, mace, and bay leaf. This done, set the saucepan by the side of the fire to simmer very gently for at least 4 hours; then strain the liquor through a cloth, free it absolutely from fat, and clarify with white of egg or raw meat.

Fish Stock.—(*a*) Take 2 lb. any kind of fish, such as skate, plaice, flounders, small eels, or the trimmings of soles that have been filleted, pack them into a saucepan with a head of parsley including the root, a head of celery, 2 blades of mace, a few cloves, some white pepper, salt to taste, and a bay leaf; put in as much cold water as will cover the contents of the saucepan, and set it to simmer gently for 2 hours, then strain off the liquor and it is ready. A small onion may be put in with the other vegetables. (The G. C.)

(*b*) Put the bones, trimmings, and skin of any fish

you may have into the liquor in which fish has boiled, with a suitable assortment of vegetables and flavouring herbs, a few peppercorns, a little spice, and boil the whole for 2 hours. Strain it off, add to each quart 1 oz. boiled rice, a teacupful of milk, and half a teaspoonful of finely chopped parsley. Serve at once. Small pieces of cooked fish improve the soup. If it is intended to make this soup, the liquor must not be made very salt, nor acid with vinegar. This is a slight drawback, for these expedients both have the effect of making the flesh firm and flaky. It is said that fish is never so good as when boiled in sea water, and whether that be true or not, it certainly is a good plan to make the water decidedly brackish to boil white fish like cod.

Gravy Stock.—Place a layer of slices of onion in a saucepan, holding a gallon, over this a layer of fat bacon, and over all about 2 lb. shin of beef chopped up in small pieces; 1 pint common stock, or even water, being poured on the whole, set the saucepan on the fire for 1 hour, or until the liquor is almost evaporated—what is called reduced to a "glaze"—then add sufficient cold common stock or cold water to cover the contents of the saucepan, and 2 or 3 carrots cut in slices, a leek, a head of celery (when in season), or some celery seed, a handful of parsley, half a clove of garlic, a sprig of marjoram and thyme, a bay leaf, 4 or 5 cloves, white pepper and salt to taste. After boiling about 3 hours, strain off the liquor, and, being absolutely freed from fat, it is ready for use.

Veal or White Stock.—Toss 2 onions sliced and 1 lb. lean veal cut in small pieces in a saucepan with some butter until they assume a light colour, then add ½ lb. ham chopped up small, and moisten with a pint

of common stock cold and perfectly free from fat. Let the liquor reduce almost to a glaze, but not quite; then add 2 qt. cold common stock, a knuckle of veal or 2 calves' feet chopped up, 2 carrots, a head of celery, parsley, bay leaf, thyme, mace, pepper, and salt, all in due proportions. After 2-3 hours' boiling, strain free from fat, and it is ready.

Vegetable Stock.—Take some carrots, turnips, onions, leeks, and celery, in equal quantities; cut them up into small pieces, and toss them in plenty of butter for ½ hour; then add 2 heads of lettuce shred fine, some parsley, and chervil, a little thyme, marjoram, and tarragon, in judicious proportions; toss them a little longer, and then add as much water as you want stock; pepper, salt, cloves, mace to taste, and a pinch of sugar; let the whole stew gently for some hours, then strain the liquor through a cloth. A couple of tomatoes (either from a tin or fresh), or 2 or 3 spoonfuls of *conserve de tomates*, is a great improvement.

White Stock.—See Veal Stock.

Clarifying Stock.—(*a*) For 1 qt. take the white of an egg, beat it up with a cupful of soup (cold), then add the rest, and beat it on the fire with an egg whisk; when it boils, strain through a piece of tammy.

(*b*) For same quantity, mince, not too finely, 1 oz. lean raw beef, add it to the liquor and set it on the fire in a saucepan; when it boils, strain it as above. Liver may be used instead of beef, and the white of egg may be used in addition to either. If the soup does not turn out clear enough, the operation of clarifying must be repeated.

With stock as a basis, a great variety of soups are made, and generally named from the particular

vegetable or dainty employed to give the desired flavour. Following are some recipes.

Apple Soup.—Boil apples with their cores until quite soft with slices of bread and some lemon peel in sufficient water. Strain through a sieve, add sugar, a glass of wine and some powdered cinnamon or nutmeg. Stir in yolks of eggs or cream, if approved.

Apple and Currant Soup.—Proceed with apples, bread, and the lemon peel as in last recipe. After straining, boil again with currants, a cup of milk, and the requisite sugar, with a small teaspoonful of aniseeds, if approved. A few cloves with the first boiling is an improvement. Another way is to leave out the spice, and when the soup is ready for serving, stir in some pounded sweet and bitter almonds.

Artichoke Soup (d'artichauts).—Boil 3 lb. Jerusalem artichokes in 1 qt. milk, adding to it about a teacupful of water. When the artichokes have become very soft, rub them through a sieve, and add a little pepper and salt and a few grains of cayenne. Just before serving, stir in ¼ pint cream; if not thick enough, add a little flour and butter. Serve with bread cut in small dice and fried in butter, to be handed round with the soup.

Asparagus Soup (d'asperges).—Take 50 asparagus heads (called sprue asparagus), boil it in a saucepan with 3 pints stock free from fat. When done, remove the asparagus, pound in a mortar, and pass through a hair sieve. Melt about 1½ oz. butter in a saucepan on the fire, and mix with it 2 tablespoonfuls flour; add a little sugar, pepper, and salt, the asparagus pulp, and all the stock in which the asparagus was boiled. Let the whole boil up, adding as much more stock as will make the soup of the right consistency. Then put in a little spinach greening, and lastly a small pat of fresh

butter, or stir in ½ gill cream. Serve over small dice of bread fried in butter.

Barley Soup (d'orge).—Cut up in small pieces carrots, turnips, onions, leeks, and celery in equal quantities; toss them in plenty of butter for ½ hour; add 2 heads of lettuce finely shredded, parsley, chervil, a sprig of marjoram; put in 2 qt. boiling water, pepper, salt, a few cloves, and a pinch of sugar; let the whole simmer for 2 hours, then strain the liquor through a cloth. Boil 1 pint pearl barley in 1 qt. of this stock till it is reduced to a pulp, pass it through a hair sieve, and add as much more stock as will be required to make the purée of the consistency of cream; put the soup on the fire, when it boils stir into it, off the fire, the yolk of an egg beaten up with a gill of cream; add ½ pat of fresh butter, and serve with small dice of bread fried in butter.

Batter-cream Soup.—Mix 2-3 tablespoonfuls flour with water enough to make as thick a batter as you can stir, then add as many eggs as there are spoonfuls of flour, and stir well. Have ready some boiling broth which has been seasoned and strained; pour it into the batter, stirring all the while; set it over the fire to boil a few minutes, and serve.

Bean Soup.—See Haricot.

Beer Soup.—Simmer together 2 qt. beer, not bitter, a stick of cinnamon, a few cloves, the thin rind of a lemon, and sugar to taste. Beat in a tureen or bowl the yolks of 6 eggs and ½ pint cream. Strain on these the scalding beer, stirring all to a foam with the wire whisk. Serve hot, with toast.

Birds'-nests Soup.—One bird's nest is needed for each person; soak for 12 hours in fresh water; drain and wipe, separating the fibres, and carefully

removing all feathers &c., by washing through several waters, until the nests are perfectly clean. Put them in a saucepan, cover with chicken broth, place the saucepan in a bain-marie, and cook very gently for 2 hours in the broth. At the moment of serving, place the nests in a soup dish, and cover with enough very rich, clear, hot chicken broth for the number of guests. Add pepper and salt to taste, and serve at once.

Bone Soup.—Take a good quantity of bones of any kind, cover with water, add carrots, celery, a bunch of all kinds of herbs, a little parsley, onions, a blade or two of mace, and a few cloves, according to the quantity. Make it boil up quick, then pour in a little cold water to make the scum rise, and skim just as you would clear soup. Boil for several hours, then strain off and let it stand till next day. Take off the grease, whip up the whites of 2 eggs in a little cold water, add the shells, and beat all well together in the soup; set it on the fire to boil for ½ hour, till it looks clear, and strain off. Do not let it boil too fast.

Bonne Femme Soup.—Cut up a good-sized onion into very thin rounds, and place these in a saucepan with a good allowance of butter. Take care not to let the onion get brown, and when it is half done throw in 2-3 handfuls of sorrel, 1 lettuce, and a small quantity of chervil, all finely cut; add pepper, salt, a little nutmeg, and keep stirring until the vegetables are nearly done. Then put in 1 tablespoonful pounded loaf sugar, and half a cupful of stock or broth free from fat. Let the mixture reduce nearly to a glaze, when about 1 qt. of stock or broth of the same kind as that used before should be added, and, after the soup has given one boil, it can be put aside until the time of serving. Meanwhile prepare about

18 very thin slices of bread, about 1 in. wide and 2 in. long, taking care that they have a crust along one of their sides. Dry these slices in the oven. When it is time to send up the soup, first remove the superfluous fat from it, then set it to boil, and when it boils take it off the fire and stir into it the yolks of 2 or 3 eggs beaten up with ¼ pint of cream or milk. Pour the soup over the slices of bread, and serve in 3 minutes. (The G. C.)

Brunoise Soup.—Take equal parts of carrots, turnips, onions, and celery; cut them all in the shape of very small dice. Put a good piece of butter in a saucepan, with a little pepper and salt, and a teaspoonful of powdered lump sugar. Toss the carrots in this till they begin to take colour; then put in the celery, after a little time the turnips, and then the onions. When all the vegetables are equally coloured, add as much stock as you want soup, and set the saucepan by the side of the fire to simmer gently for 2 hours. Then skim, and serve. (The G. C.)

Calf's Head Soup.—Having well washed and soaked the head, put it on the fire in cold water, and simmer it 2½ hours from the time of its coming to a scalding heat. When quite done, take it out. Cut the meat off in neat slices; slice the tongue also, and take out the brains. Throw back the bones into the soup. Dry a pinch of saffron, rub it to powder, put it in the soup, with a small wineglassful of pale vinegar, a tablespoonful of sugar, a little nutmeg, and salt to taste. Shred parsley may be added if approved. The brains, divided into small pieces, must be put into the tureen, with 3 or 4 yolks of eggs beaten, and the scalding soup poured on them. Dip the slices of meat in egg and breadcrumbs, fry them a delicate brown in butter, and serve them after the soup, with any

white vegetable.

Carrot Soup (Crécy, Nivernaise).—Fry a large onion a nice brown colour without burning it, scrape, wash, and well dry 2 or 3 large carrots, cutting out all specks; cut them into thin slices and put them into a stewpan with about 3 pints of stock, let them cook gently over the fire until quite tender, then strain them from the soup, rub them through a tammy with the fried onion back into the soup, warm it again, and season with a very little pepper and salt. Serve with fried croutons on a napkin in a plate to hand round with it. This soup should be made the day before or early in the day on which it is to be used; this gives the fat in which the onions have been fried time to rise to the top, and it can easily be removed when cold. If a very nice colour is wished, only the red parts of the carrots should be used, of course more carrots will then be required; it should be of about the consistency of pea soup. Almost any other vegetable suitable for a purée may be used in the same way, such as turnip, parsnip, vegetable marrow, or potato; or if the stock chance not to be particularly good, it may be thickened either with semolina, tapioca, or sago in the proportion of about three ounces to a quart of stock. For semolina, drop it into the stock when boiling, keep stirring it, and let it simmer gently for about ½ hour. Sago should be washed in boiling water, and added gradually to the boiling stock, stirring and simmering until perfectly soft and transparent. Tapioca must be put into the stock while cold, and must be allowed to boil gradually, it must then be simmered gently till quite soft as for sago; but even greater care will be necessary to keep stirring, or the tapioca will cling together and be lumpy. Should there not be likely to be any sufficiently good stock

for next day's dinner, an excellent soup, as well as a most useful cold dish for family use, may be made by stewing a piece of the thick brisket of beef the day before the soup is wanted. To 6 lb. of beef allow 3 large onions, 2 medium-sized carrots, 12 cloves, a sprig or two of parsley, and a tiny bunch of sweet herbs tied in muslin. Fry one of the onions a dark brown, without burning it, slice up one of the carrots and the remaining onions into a large stewpan, adding the second carrot, merely cut into 2 or 3 pieces, add a small piece of sweet dripping, and set the stewpan on the fire, stirring the vegetables until they are about half cooked, and are slightly browned; then take out half the vegetables; to those remaining in the stewpan add half the fried onion, 6 of the cloves, the bunch of herbs, and the parsley; slightly rub the beef with a small quantity of salt, place it above the vegetables, adding those that were taken from the stewpan, the other half of the fried onion, and 6 cloves, to rest on the top of the beef. Pour in as much of any stock you may happen to have as will well cover the beef, or, if you have no stock, use cold water; set it on the fire, which should not be a very fierce one, and let it remain till it begins to bubble; then remove it to the side, and let it remain simmering for 4-5 hours, or until done enough to be able to draw out the bones; it will require watching to ascertain this, as, when once tender enough for this, it should not cook any more. When the bones are removed, set the beef in a cool place between 2 dishes, with a heavy weight on the top; the next day it will be ready to trim and glaze, and serve as pressed beef. The soup and vegetables should be poured into a basin to stand all night; in the morning remove the fat which has risen to the top, warm the soup, and strain the vegetables from it. Trim off the

outer discoloured parts of the larger pieces of carrot and cut them into thin slips, putting them back into the soup to be served in it; the rest of the vegetables may go into the stockpot, as there will still be much goodness in them. A slight shake of pepper will complete the soup, which should be a dark brown gravy soup of excellent flavour. If preferred to the carrots, a small quantity of Naples macaroni may be served in it; boil it in water till tender, then strain it and cut it into fine rings and add it to the soup.

Cauliflower Soup.—Make a clear white soup of mutton, or veal, properly seasoned with salt and white pepper. Mix 2 or 3 spoonfuls of flour in milk to thicken the soup to the consistence of cream. Break up a cauliflower into small tufts; boil them in salted water; drain carefully, and add them unbroken to the soup when about to serve. If extra richness is desired, add the yolks of 2 or 3 eggs, with a little cream beaten up.

Celery Soup.—Put into a saucepan the carcase and other remnants of a roast fowl, with a piece of ham or bacon, and a couple of heads of celery (reserving a few of the best pieces to be sliced finely, boiled in stock, and served in the soup). Fill up with stock and let it simmer 2-3 hours, then strain, clarify with white of egg or a little raw meat, and serve with celery.

Cheap Soups.—These are given more especially for the benefit of those who have charge of soup kitchens for the poor in winter. Many hints, however, may be gained from them, and some are well adapted for households with small means.

(*a*) Take the liquor of meat boiled the day before, with the bones of leg and shin of beef, add to the liquor as much water as will make it 130 qt. and also

the meat of 10 stone of leg and shin of beef and 2 ox heads cut into pieces, add 2 bunches of carrots, 4 bunches of turnips, 2 bunches of leeks, ½ peck of onions, a bunch of celery, ½ lb. pepper, and some salt. To be boiled for 6 hours. Either oatmeal, barley, or peas may be put in to thicken it if necessary.

(*b*) Wash 1 qt. Scotch barley or split peas, put them into a large saucepan or fish-kettle with 3 gal. water, add 3 large Portugal or Spanish onions cut into quarters, 6 large carrots, 6 or 8 turnips, herbs, pepper, salt, and allspice according to taste, one ox heel well divided, 7 lb. shin of beef; boil all together for 8-10 hours. It can be made cheaper and equally good by substituting for the shin of beef a 4 lb. tin of Australian beef or mutton, but this must be added only so as to mix in at the last with the other ingredients. Being thoroughly cooked in Australia, and free from bone, skin, and gristle, it is spoiled if it is cooked more than enough to make it hot for use. This beef or mutton is enveloped in its own jelly.

(*c*) Be most particular that the kitchen maid keeps every drop of water in which any meat is boiled; put this in the boiler, and fill up with water. When this boils, put in a few pieces of meat, 10 lb. to the 20 gal. (get 30 lb. of neck and shoulder pieces of beef once a week for it, and slightly salt them), some salt, and either pearl barley, groats, or oatmeal; whilst these are boiling, cut up some turnips and carrots in small pieces, say ½ in. square, cabbage and leeks, not cut too fine. These add to the soup, and boil all for 2 hours. The outer stalks of celery, if kept, make a great addition. Then take out the meat, and cut it up into small portions, putting one or two pieces into the can with the soup, when given to the poor.

(*d*) Put 2 oz. dripping into a saucepan capable of

holding 2 gal. water, with ¼ lb. leg of beef, without bones, cut into square pieces about ½ in., and two middling-sized onions peeled and sliced; set the saucepan on the fire, and stir the contents round for a few minutes until fried lightly brown; then add (ready washed) the peelings of 2 turnips, 15 green leaves or tops of celery, and the green part of 2 leeks —the whole of which are usually thrown away; cut the above vegetables in small pieces and throw them into the saucepan with the other ingredients, stirring them occasionally; then add ½ lb. common flour (any farinaceous substance would do), ½ lb. pearl or Scotch barley, mixing all well together; then add 2 gal. water seasoned with 3 oz. salt and ¼ oz. brown sugar; stir it occasionally until boiling, and then allow it to simmer for 3 hours gently. You may use all kinds of vegetables cut aslant.

Cherry Soup.—Use black cherries, and proceed as for plum soup. Put a few cloves in at first; 1 lb. cherries to 1 qt. water will be found very good. After straining, break some of the stones, and put the kernels into the soup. Add also a few whole cherries towards the last, only long enough to soften them.

Chestnut Soup (de marrons).—Boil ½-1 lb. chestnuts until they will peel easily. Put them in a stewpan, sprinkle with salt, and leave to steam soft and mealy. Work through a wire sieve; put butter half the size of an egg in a stewpan, and when it is melted add a small finely minced onion and a few mushrooms. Dredge in a tablespoonful of flour, put in the chestnuts, and stir in enough white or brown soup to give it the consistency of a creamy batter; let it boil up. Serve with sippets of toast or any other soup accompaniment. As a thickening or purée for any kind of good white soup, chestnuts are very delicate.

They take less time to cook if the outer rind is peeled off first, and when they have had a scald scrape off the inner peel, boil, and steam them dry; then pass them through a sieve. About a pint will thicken a soup for a small pastry.

Chicken Soup (Sévigné, de volaille, à la reine).—(*a*) Cut some carrots in slices, and with a column cut out of these a number of discs ¼ in. diameter. Cut similar discs out of some leeks, celery, and sorrel leaves; make an equal quantity (about a wineglassful) of each, and parboil them separately in salted water, leaving the leeks and sorrel discs in the water until wanted. Take 3 pints white stock made with poultry and quite free from grease; when boiling hot put the vegetables into it, then a few tarragon leaves cut small, and a little chervil picked out leaf by leaf. Beat up the strained yolks of 4 eggs with ½ gill cream, stir into them a little of the soup, and then quickly stir in the whole into the soup off the fire, and serve.

(*b*) See Poultry Soup.

Clear Soup (Consommé).—Order in 7 lb. shin of beef (the bones must be broken), and 2 lb. veal, prepare about 8 large onions, 6 carrots, thyme, parsley, cloves, and bay leaves, head or stick of celery, 6 peppercorns. Order your meat, &c., the day before, so that you have it in the house early. First cut up the meat, dividing it from the bones, and casting away all gristle, veins, and fat, then well wash the whole in a basin of cold water. Put aside 1 lb. of the best of the beef, and the whole of the veal; keep them for clearing the soup. Put a little butter, size of a walnut, into a large saucepan to fry the onions in, cutting up and casting in, when the butter has melted, 8 small or 1 large onion. Let them fry till

quite brown. While this is doing take out the meat from the basin of water (which beforehand must be washed well with the hand, so as to remove all grease and impurity), take a clean cloth and dry the meat carefully piece by piece; separate it from the bones. First, put the bits of meat (without any water) in, and let them stew for ½ hour, then add to them the bones, and let them stew for ½ hour; remember every few minutes to stir with a wooden spoon, or it will burn at the bottom of the saucepan. Then put the water, 16 tumblers, 1 pint water to 1 lb. meat. This for the best soup, for a dinner party, or for strengthening an invalid. Skim as long as the scum rises; do not keep the lid on. After it is thoroughly skimmed, put in a bunch made of a little thyme, parsley, and bay leaves, a stick of celery (or, if out of season, a muslin bag of seed), also throw in 4 good-sized onions, one of which stick with 4 cloves; then for eleven hours let it simmer, then take it off the fire (a good bright fire must be kept up all day), and strain it through a hair sieve, letting it remain all night. Next morning remove all fat from the surface with a spoon; if, as sometimes happens in hot weather, small bits of fat stick to the surface, take kitchen paper and quickly press it on the places; the fat in this way is easily removed. After this take a clean cloth dipped in boiling water, and wipe the top of the stock over, and the sides of the basin. When all the fat is removed put it into a saucepan (there is always a dark sediment at the bottom of the basin, which must be cast away; care must therefore be taken when spooning out the stock not to disturb this). Put the saucepan on the fire and let it get nearly to a boil; it must never boil till the very last; then put in the raw beef and veal, which must be prepared carefully, as much depends on how this is

done. In hot weather keep the clearing meat till wanted in a cool place in salt and water, so as to keep fresh overnight. Take 3 eggs and break them (putting away the yolks, of which soup custard can be made afterwards), and mix the whites in a basin with the shells, and if possible collect beforehand other eggshells. Wash the shells in hot water, mash them, and put them into the basin. Chop up finely 1 large onion, 2 carrots, and with a tablespoonful of water mix all these together in the basin with the hands till all are well mixed; when it comes to a froth move the soup close to the fire, and when just on the boil watch it carefully, so that it does not boil too rapidly; take a whisk, and gradually pour in all that is in the basin with one hand, while whisking the soup briskly with the other, as if not whisked all the time the whites of egg set, and it does not clear. Remove it again, so as only to simmer. Put in 2 drops of colouring; go on whisking till it just comes to the boil after putting in the raw beef, &c.; remove it now off the fire, and let it simmer gently for an hour. Take the soup now off the fire altogether, and bring in a large basin. Take a clean napkin (the finer the better; it is always better than a tammy, as it is much finer), and be careful before using to wash it well in hot water, thereby removing all starch and soap, as often a small neglect in these details, after no end of previous trouble, is the cause of the soup not being perfectly clear. Lay the napkin over the top of the basin, and bring the saucepan to its side, and ladle out with a cup the soup into the basin, keeping the napkin from sinking; some one must hold it while the soup is being put in. Take care not to ladle out too fast, as it then does not give full time to strain gradually. When all is strained through, raise the napkin—in which, of course, there is still a quantity

of stock—tie the ends on a hook, placing the basin below, and for several hours, till all is removed, let it drop in.—Hints: Time for making, 24 hours. First, say, begin at 11 A.M., and remove at 10 at night; strain all night. Next day at 11 put on soup, preparing beforehand the raw beef and veal, &c.; take it off at 1 o'clock. No salt or turnip while making; turnips always turn the stock sour. Put salt in just before serving, and so also macaroni and vegetables. They must be boiled by themselves in a small saucepan; when done plunge them into cold water to remove all scum, and have ready a basin of clear boiling water in which to put them again; after which, the last thing, take them out and lay them at the bottom of the tureen, pouring the soup on the top and adding the salt. From the meat and bones of the first day's straining, excellent thin soup can be made called seconds, and, though not half so strong, it is very good. With the yolks of the eggs before mentioned, soup custard can be made as follows: Take the yolks of 3 eggs, mix them with a little stock, pepper and salt, and put the whole into a mould, cover it over with a piece of paper, and let it steam for about five minutes; then take it out and let it cool. Then cut it into small squares evenly, and, the last thing after the soup is hotted, drop them in.

Clear Soup with Custard (Royale).—Mix the yolks of 6 eggs with rather less than 1 gill cold water and a pinch of salt; strain the mixture, and divide it into 3 equal parts; colour one with some cochineal, the other with spinach greening, and leave the third plain. Put them into 3 small plain moulds, previously buttered, and set these in a pan of hot water, which place on the fire to boil just long enough to set the mixture. When the water in the saucepan has become quite cold, turn out the contents of each mould on to

a wet napkin, and you will have 3 small cakes of firm custard, respectively green, red, and yellow. Cut them into small dice, and, handling them in the gentlest possible manner, spread them out on a plate to be kept till wanted. At the time of serving put a clear and well-flavoured consommé into the soup tureen; slip in carefully the custard dice, and serve at once.

Clear Soup with Poached Eggs (aux œufs pochés).—Cut up in small pieces 1 lb. lean veal, put it into a saucepan with a couple of onions, 2 or 3 carrots, a head of celery, all cut in small pieces, and a large piece of butter. Shake the saucepan on the fire until the contents have taken a colour, moisten with ½ pint common stock (hot) and keep on stirring over the fire for some time longer, adding during the process ½ lb. of ham cut up small. Then take the saucepan off the fire, and when the contents are cold pile up on them a small knuckle of veal chopped up, bones and all, into small pieces; fill up the saucepan with common stock (cold), and add parsley, sweet herbs, spices, pepper and salt, in due proportions. Set the saucepan to simmer gently by the side of the fire for about 3 hours, then strain the liquor. When cold free it absolutely from fat, and to every quart of liquor add the white of an egg whisked to froth, keep on beating the liquor on the fire at intervals, and as soon as it boils strain it through a fine tammy or a napkin. Put into a shallow sauté pan some water salted to taste, a little vinegar, a few peppercorns, and a few leaves of parsley. As soon as the water approaches boiling point (it should never be allowed to boil), poach some eggs (one for each person and one over) in it, just long enough to set the yolk slightly. Take out each egg with a slice, brush it clean with a paste brush, and cut it with a round

fluted paste cutter, about 2 in. in diameter, so as to get all the eggs a uniform shape, and leave neither too much nor too little white round them. Turn the egg over carefully, brush it clean, and lay it in the soup tureen ready filled with boiling-hot clear soup. Add a few leaves of tarragon and chervil, and serve.

Clear Soup with Quenelles.—Put into a saucepan 1 gill water, a pinch of salt, and a small piece of butter; when the water boils stir in as much flour as will form a paste, put the mixture away to get cold. Take ½ lb. lean veal, cut it into small pieces, and pound it in a mortar; add 3 oz. butter and 2 oz. the paste, and thoroughly mix the whole in the mortar, adding during the process the yolks of 2 and the white of 1 egg, salt, pepper, and grated nutmeg to taste; pass the mixture through a sieve, work a little cream into it, and, by means of 2 teaspoons, shape it in pieces the size of pigeons' eggs; lay these carefully in a saucepan, pour in at the side sufficient boiling stock to cover them, and let them cook gently for a few minutes. Have the tureen ready filled with well-flavoured clear stock, boiling hot; slip the quenelles into it (with or without the stock they are boiled in), and serve.

Cock-a-Leekie Soup.—Wash well 2 or 3 bunches of leeks (if old scald them in boiling water), take off the roots and part of the heads, and cut them into lengths of about 1 in. Put half the quantity into a pot with 5 qt. stock, and a fowl trussed for boiling, and allow them to simmer gently. In ½ hour add the remaining leeks, and let all simmer for 3 or 4 hours longer. It must be carefully skimmed and seasoned to taste. To serve the fowl carve neatly, placing the pieces in the tureen, and pouring over them the soup. This is sufficient for 10 persons.

Cockle Soup (de clovisses).—Cockles require a good deal of care in cleansing. They must be well scrubbed in 2 or 3 waters until the shells are quite clean, and must then soak for some hours in salt and water. After this put a little hot water at the bottom of a large saucepan, place the cockles in it, and cover them over with a clean cloth; set it on a moderate fire, or rather, hold the saucepan over the fire, for it must be kept moving constantly or the cockles will burn. Keep looking at them, and as each shell opens remove it from the pan. When all are open, remove the fish from the shells, straining the liquor from them. Having trimmed the cockles, put the delicate parts into the soup tureen. Put the trimmings into the liquor. Put into another stewpan a ¼ lb. butter, let it melt over the fire, add 6 oz. flour, stirring it in, still holding it over the fire, but taking care to keep the mixture quite white; let this stand until cool, then add the liquor and trimmings of the cockles, 1 qt. milk, and 2 qt. white stock. Stir this over the fire until it boils, then add a tablespoonful of Harvey sauce, a dessertspoonful of essence of anchovy, a blade of mace, 6 peppercorns, and a teaspoonful of salt. Let this boil quickly for 10 minutes, skim well, and just before serving add 1 gill cream; strain through a hair sieve over the cockles, and serve. About 4 dozen cockles will be required or 6 if very small.

Coconut Soup.—This is a favourite soup in India, and might be more frequently tasted in England than it is, especially by vegetarians. It is made thus: Scrape or grate fine the inside of 2 well-ripened coconuts, put the scrapings into a saucepan with 2 qt. milk, add a blade of mace; let it simmer very gently for about ½ hour, then strain it through a fine sieve; have ready beaten the yolks of 4 eggs with a

little milk and sufficient ground rice to thicken the soup; mix into a very smooth batter, which add by degrees to the soup; allow to simmer, and stir carefully until ready; season with salt and white pepper. Do not allow to boil, or it will curdle and be spoilt. If eggs are scarce, cream (½ pint) can be used instead. This soup is made in India with white stock instead of milk, but is equally good as a white soup if made as above. Boiled rice, the grains dry and quite distinct, should be served with it. (Eliot-James.)

Crayfish Soup (d'écrevisses).—20-50 crayfish, according to the quantity of soup required, should be thrown into boiling water and left to boil ¼ hour. Pick out the tails and rest of the fish, cover the meat, and set it aside. Pound the shells and small claws, adding, by degrees, 3 or 4 oz. butter. Put this mass into a small stewpan, and stir over the fire until the butter is red. Add then 1 pint clear white soup and let it stew slowly ½ hour; then strain it off and add to it sufficient well-seasoned white soup, which, however, must have no strong or prominent flavour. Put in the tails and the pickings of the fish, make the soup quite hot; beat up the yolks of 2 or 3 eggs in the tureen, pour in the scalding soup, and serve with toasted roll.

Conger-eel Soup.—Boil 2 lb. conger-eel in 3 pints water, with a little salt, for 1 hour over a slow fire. Then strain it, and put again upon a slow fire with ½ pint young peas. When they have boiled a short time add some parsley, thyme, borage, leek, and chives chopped fine, and marigold flowers (the petals of the flower). Let it boil again for 5 minutes; then mix together 2 spoonfuls flour, and 1 tablespoonful butter, with a little of the broth. When well mixed add 1 pint new milk, doing it with care so as not to

curdle it. Let boil 5 minutes, and serve it up with a slice or two of bread cut very thin, in the tureen. When peas are not in season, cabbage shred very fine, or vegetable marrow chopped small, or asparagus heads, are each good as a substitute. It can be greatly enriched by increasing the quantity of butter and milk.

Crust Soup (Croûte au pot).—Cut off the bottom crust of a quartern loaf, leaving the same thickness of crumb as there is crust. Cut it out in rounds the size of a sixpence. Soak the rounds in broth; put them (in a tin with some butter) into the oven, and let them be until they are quite dried up (*gratinés*). Then lay them in the soup tureen with rounds of carrots, turnips, leeks, or cabbages boiled in stock, and cut the same size, pour some well-flavoured clear stock over, and after the lapse of 3 or 4 minutes serve. (The G. C.)

Custard Soup.—See Clear soup with custard.

Flemish Soup.—Boil equal parts of potatoes and turnips in water, with one onion and a head of celery, adding pepper and salt to taste. When the vegetables are quite done, pass the whole through a hair sieve. Put the soup in a saucepan on the fire, and as soon as it boils, add a pat of fresh butter, and plenty of chervil, a pinch of parsley, and a few tarragon leaves, all finely minced; then pour it over slices of toast, and serve.

French Soup.—Take one sheep's head, remove the brains, and steep it. Put it into a saucepan with 3 qt. water, one teacupful pearl barley, 6 onions, 1 turnip, 1 carrot, a bunch of sweet herbs, and a few cloves. Let it simmer gently for about 5 hours, then remove the head; strain and rub the vegetables through a sieve, or leave them whole, according to taste. Let it

stand all night, and when cold take off every particle of fat; cut up the meat from the head into small pieces, and warm it up in the soup. Season to taste, add a wineglass of white wine, a little mushroom ketchup, and thicken with butter and flour. Very little inferior to mock turtle soup.

Fried Soup.—3 potatoes, 3 turnips, 3 parsnips, 3 onions, 3 heads of celery, thinly sliced and fried; stew for some hours in weak stock. When quite tender, keep some pieces of each vegetable to put in the soup; pass all the rest through the sieve, and add a good cupful of pea soup, or soaked and boiled peas, to thicken the purée. Season to taste; warm it up; add the fried pieces to it at the last.

Game Soup (de Gibier).—Take the remnants of any kind of game not high, put them in a saucepan with an onion or carrot, 2 or 3 cloves, a small piece of mace, a bay leaf, some parsley, whole pepper and salt to taste. Cover the whole with veal or poultry stock, and set the saucepan to boil gently for 2 hours. Strain off the soup and set it to boil again, then throw in 1 oz. raw beef or liver coarsely chopped, let it give one boil, and strain the soup through a napkin. If not quite clear, the clarifying process must be repeated. A very small quantity of sherry may be put in before clarifying.

Giblet Soup (gibelette).—This is generally a favourite soup, is very nutritious, and if flavoured simply, need not be unwholesome. Prepare the giblets as usual. Brown a slice of lean ham in a pan, adding a little water occasionally to collect the brown gravy from it; put this with the ham, giblets, and a teaspoonful of pearl barley, into a stewpan with enough cold water to cover them well; simmer gently until the gizzards are perfectly tender. Take

them out, and stew the remainder of the giblets, with a clove or two, celery leaves, and any flavourings considered suitable, until the meat is quite done to rags. If necessary, add a little hot water now and then to keep the giblets covered. Strain off the stock, and allow it to become cold, when every particle of fat must be removed. To ensure this, not only skim, but wipe the surface with a soft cloth dipped into hot water. Mix with this an equal quantity of stock; flavour with a little wine and mushroom ketchup, or the latter only; cut up the gizzards into convenient pieces, and simmer them in the soup for a few minutes. Serve with this a slice of French roll or whole-meal bread as preferred. If salt meat be objected to, brown the soup with a little Liebig instead of the ham. To avoid richness, the gizzards are the only part of the giblets that should be served in the soup, and these are said to be particularly nourishing.

Gniocchi Soup.—Put 1 oz. butter into a saucepan with 1 pint water and a pinch of salt; when the water boils, stir with a spoon (and throw in gradually with the other hand) as much flour as will make a stiff paste that will not stick to the spoon; then add 2 oz. grated Parmesan cheese, mix well, and, removing the saucepan from the fire, work into it 2 or 3 eggs. Next put the paste into a biscuit forcer, and as it is forced out cut it off in even lengths of 1 in., letting them drop into some well-flavoured stock boiling on the fire. A few minutes' poaching will cook the gniocchi, but expedition is necessary, so that the first that is cut off may not be overdone by the time the last is cut off. The knife used should be dipped now and then in hot water, else the paste will stick to it.

Gravy Soup (Consommé).—Place a layer of slices of

onions in a saucepan holding a gallon, over this a layer of fat bacon, and over all about 2 lb. shin of beef chopped up in small pieces; 1 pint common stock, or even water, being poured on the whole, set the saucepan on the fire for 1 hour, or until the liquor is almost evaporated—what is called reduced to a "glaze"; then add sufficient cold common stock or cold water to cover the contents of the saucepan, and 2 or 3 carrots cut in slices, 1 leek, a head of celery (when in season), or some celery seed, a handful of parsley, have a clove of garlic, a sprig of marjoram and one of thyme, a bay leaf, 4 or 5 cloves, white pepper and salt to taste. After boiling about 3 hours strain off the liquor, and, being absolutely freed from fat, it is ready for use.

Green Corn Soup.—Boil unripe green corn in broth or water till quite soft; pass it through a sieve, in the manner of peas. Add it to some good broth, in which celery or parsley-roots have been boiled, or any flavouring herbs. Give a quick boil, and serve with sippets of toast. The broth or soup should be clear and colourless, not to alter the green tint of the corn. A few spinach leaves may be boiled with it, to give a deeper green.

Green-pea Soup (de pois verts).—(*a*) Take 1½ pint green peas, boil them in salt and water with a little mint; when thoroughly cooked pound them and pass them through a hair sieve. Put a piece of butter into a stewpan; when melted put in an onion and a carrot cut in thin slices, fry until they begin to colour; add 1 qt. stock, a little salt, pepper, and a pinch of white sugar. Leave it to boil for ¼ hour, stir in the purée of peas, let it come to the boil, strain, and serve with small dice of bread fried in butter.

(*b*) When shelling the peas, divide the youngest

from the oldest ones; 1 pint of young peas, and 3 pints of the oldest ones will be required. In 2 qt. water boil, until the whole will mash through a sieve, 3 pints old peas, a lettuce, a faggot of thyme and knotted marjoram, 2 blades of mace, 8 cloves, and 4 cayenne pods. After being mashed and rubbed through a sieve, put it in a china-lined saucepan, add the heart of a large lettuce shred, and ¼ lb. butter rolled in about 3 tablespoonfuls of flour; set the saucepan on the stove and stir till it boils, then add the young peas; when these are nearly boiled enough, add a very little green mint, finely chopped, a tablespoonful of juice of spinach, and salt to taste.

Grouse Soup.—Chop up the remains of 2 roast grouse; put them into a saucepan with an onion and a carrot cut in pieces, a faggot of sweet herbs, and pepper and salt to taste. Fill up the saucepan with sufficient common stock to cover the contents; let the whole boil till the meat comes off easily from the bones; strain off the liquor; pick all the meat from the bones; pound it in a mortar, pass through a wire sieve, and add the liquor. Amalgamate in a saucepan a piece of butter with a tablespoonful of flour, add the soup to it, let it come to boiling point, then stir in (off the fire) the yolks of a couple of eggs with or without lemon juice, according to taste. Serve on very small dice of bread fried in butter.

Hare Soup (de levraut).—Take a hare, skin, draw, and reserve the blood: cut it up and put it into a saucepan with an onion, 2 cloves, a faggot of herbs (parsley, thyme and basil), pepper, salt, and mace, 2 qt. stock and half bottle of red wine; simmer gently till the meat be quite tender; strain it from the soup, soak the crumb of some bread in the soup, and, removing the meat from the bones, chop it up with

the soaked bread, and pound it quite smooth in a mortar; add the soup gradually to it, pass through a tammy, hot it up, but do not let it boil. Just before serving add the blood, very gradually stirring it in off the fire, pour the soup into the soup tureen over small dice of fried bread.

Haricot Bean Soup (Condé).—Soak 1 pint Haricots de Soissons in cold water for 12 hours, throw away that water, and put them into a saucepan with 3 pints cold water, a head of celery, a small onion stuck with 3 cloves, a bay leaf, a sprig of parsley, some whole pepper, and salt to taste. Let them boil till the beans are quite tender, then strain off the water, and pass them through a sieve. Put the purée in a saucepan, and work into it, on the fire, 1 oz. or more of butter, moistening if necessary with a little of the liquor in which the beans were boiled.

Herb Soup.—A handful each of chervil, sorrel, spinach, and a few sprigs of parsley must be washed, drained, and chopped small. Put them in a stewpan with a piece of butter to steam until soft. Stir in with them 2 tablespoonfuls of flour. Pour in sufficient clear soup, and simmer 10 minutes. Add salt and a grate of nutmeg. Eggs may be added.

Herring Soup.—Wash well 1½ pint good split peas, and float off such as remain upon the surface of the water. Leave them to soak for one night, and the next morning boil them in 5 pints cold soft water; add a couple of onions, with a clove stuck in each end of them; 2 carrots grated, 3 anchovies, one red herring, a bunch of savoury herbs, one teaspoonful of black pepper, and one teaspoonful of salt, if required. Let all these ingredients simmer gently together until the vegetables are quite tender, when pass the whole through a fine sieve into a clean saucepan. Slice in

the white part of a head of celery, add 2 oz. butter, a little more seasoning if required, and a dessertspoonful of mushroom ketchup, if liked. Boil again gently for 20 minutes, and serve with a plate of fried bread, and another of shred mint. If convenient, the liquor that pork, ham, or bacon have been boiled in gives a nice flavouring, instead of the herring or anchovies; but, if this liquor be too salt, as is generally the case, it must be diluted with water, and the teaspoonful of salt omitted.

Hotchpotch (de mouton à l'écossaise).—Hotchpotch is a strong kail soup, the chief difference between it and common Scotch broth being its extra richness resulting from the meat being almost boiled away in it, what remains coming to table in the tureen, and in its being quite thick with the quantities of fresh green peas, onions and leeks (both the latter shredded), grated carrots, beans from which white skin has been removed, and a carefully limited quantity of turnips and other vegetables of the more watery kinds. Scotch barley is, of course, also an important ingredient.

Hunter's Soup.—Slice thin a large carrot, or 2 or 3 small ones, a large onion, a head of celery, and some rather lean ham or bacon. Fry these, with some parsley, in butter. When done yellow, dredge in plenty of flour, and let it colour, but not a dark brown. Then add some good beef broth, give it an active stir, and turn it into the soup cauldron; add the requisite quantity of broth, and a pint of red wine. Leave it to simmer slowly. In the meantime roast 3 or 4 partridges, basted with butter. Cut off the breasts in neat slices, and the other meat from the bones. Bruise the bones in a mortar, and throw them into the soup. Boil it well, strain, season with

salt and cayenne pepper, and make it hot again; but do not let it boil a second time. Add the meat, to be served in the soup.

Imperial Soup.—Beat 5 eggs well. Add 1 pint rich clear soup, some salt, and a grate of nutmeg. Pour it into a well-buttered pudding mould or basin; set this in boiling water, and let it boil 1 hour. Be sure that water does not flow into the mould. When done, cut the mass into thin slices or little pieces, and serve in clear soup; 2 or 3 fresh yolks may be beaten in the tureen if approved.

Italian Soup.—(*a*) Take the flesh left from the cowheel or calves' feet that jelly has been made from; cut it into dice. Boil 2 tablespoonfuls of sago, well washed, until it is clear, either in water or inferior stock, and warm just to boiling point some soup stock. Just before dinner, put the pieces of meat into some boiling stock until warmed through, then put them at the bottom of the tureen, also the sago and a large tablespoonful of grated Parmesan cheese, and pour the boiling stock upon these and send to table.

(*b*) Minestrone.—Take equal quantities marrowfat peas and carrots cut to the size of peas; boil separately in salted water till done; take as much rice boiled in salted water as there are peas and carrots; put all into a saucepan with sufficient common stock free from fat; add enough French tomato sauce to give the stock a rich colour. Let the whole come to the boil, and serve. Grated Parmesan cheese to be handed round with the soup.

Julienne Soup.—Take about equal quantities carrots, turnips, leeks, onions, and celery; cut them all in thin strips, not much more than ⅛ in. square and about 1½ in. long; put them in a saucepan with

a lump of fresh butter, a good pinch of pounded loaf sugar, add pepper and salt to taste; toss them lightly on the fire until they begin to colour, then add one lettuce finely shredded, and a small handful of chervil and sorrel, also finely shred; and, after giving the whole a tossing on the fire for about 5 minutes, moisten with some clear stock, and keep the soup hot by the side of the fire for 2 hours. When wanted, add as much more stock as is necessary, and serve.

Kidney Soup.—Take 3 pints well-flavoured white stock, slice finely one or two gherkins, have ready 6 small button mushrooms previously cooked in a little lemon juice. Slice a small onion, and put it into a saucepan with a little butter, let it just take colour, add to it a veal kidney cut in small dice, season with pepper and salt, and toss together for a few minutes, but do not overcook the kidney; drain them from the butter, and put them into the soup tureen with the gherkins and the mushroom. Make the soup hot, and add to it, off the fire, the yolks of 2 eggs and a little milk or cream; pour it over the kidney, &c., add a dash of cayenne, and serve very hot.

Leek Soup.—Take the green leafy part of the leeks, rejecting any leaves which may be otherwise than quite fresh and tender; soak them in cold water so as to be quite crisp; cut them into lengths of about 1-1½ in., and boil them in as much good stock as may be required for the size of the party. Let them boil until perfectly soft and tender, season with a little salt and a slight shake of pepper stirred in, and serve. This soup should be quite thick from the quantity of leeks in it, and not just gravy soup with a few pieces of leek floating about it.

Lentil Soup (Conti).—Well wash about 1 pint lentils, and soak them for several hours; add to them

3 qt. water, some bones, which can be purchased for 3*d.*, or 2 lb. of shin of beef cut up, 3 or 4 good-sized onions, and the same of carrots and turnips, with the outside leaves of a stick of celery if at hand; add a little seasoning, but be careful not to put too much pepper, and let the soup simmer gently on the side of the hob all day. When the vegetables are quite soft they can be rubbed through a colander, or many people prefer to leave them whole. The latter plan would perhaps answer best for poor people, especially if there is meat in the soup. You can make lentil soup with only the liquor in which meat has been boiled, but if the meat is salted, the lentils, &c., must be cooked first, or they will harden, and the liquor added when they are nearly done, care being taken not to make it too salt. A cowheel makes excellent stock for soup, and can be eaten separately, or cut up and left in the soup. They can be bought for 8*d.* each, and are most nutritious if poor people could only be taught the value of such food. If eaten separately the cowheel should be allowed to simmer gently for about 3 hours. The meat will then separate readily from the bone, and can be fried in batter. The bones should be left to boil up again in the soup, and thus two dinners may be provided at a small cost; but as it is always very difficult to persuade poor people to expend so much time on cookery, it would possibly be better to cut up the meat and let it be eaten with the soup.

Lettuce Soup (aux Laitues).—Boil some lettuces in salted water, when quite done drain them well, and pass through a hair sieve. Mix a small piece of butter with a tablespoonful of flour in a saucepan, add a little stock, then the purée of lettuce, let it boil for a minute or so, season with pepper, salt, and grated nutmeg to taste, add as much stock as is necessary to

make the soup, and serve with small dice of bread fried in butter.

Liebig's Beef Tea.—This is rendered much more nourishing and palatable by the addition of milk or cream. If with milk, make with equal parts of milk and water; if cream, add a tablespoonful or two to a breakfastcupful of beef tea. Season with salt. When milk cannot be taken, thin pearl barley water is excellent with Liebig stirred in it, and any approved flavouring. A little stock will also be found very nice with a little Liebig and salt only. Either of these, while containing nutriment, can be taken as simple beverages.

Liver Soup.—Slice ½ lb. liver, dredge with flour, and fry brown in butter, with an onion cut in slices. Then pound the liver quite smooth, season with salt, black pepper, and a grate of nutmeg. Stir in about 3 pints good brown soup, and boil 10 minutes with a French roll sliced in, crust included. Strain, and again make hot, nearly boiling. Pour it on 2 well-beaten eggs in the tureen. Offer lemon juice and cayenne pepper at table.

Lobster Soup (Bisque de Homard).—Pick out all the meat from a lobster, pound it in a mortar with an equal quantity of butter until a fine orange-coloured pulp is obtained; to this add pepper, salt, and grated nutmeg to taste; take as much breadcrumbs as there is lobster pulp, soak them in stock, then melt a piece of butter in a saucepan, amalgamate with it a heaped tablespoonful of flour, mix the lobster pulp with the breadcrumbs, and put both in the saucepan on the fire, stirring the contents until they thicken and boil, draw it then on one side, and carefully skim off superfluous fat; then strain the soup through a hair sieve, make boiling hot, and serve with small dice of

bread fried in butter.

Macaroni Soup.—(*a*) Take 4 oz. macaroni, break into small pieces, and simmer gently for ¼ hour in 1 pint water; then add a piece of butter the size of a small nutmeg, pepper, salt, and 1½ pint stock. A teaspoonful of chopped parsley or dried herbs can be added for flavouring; simmer another ½ hour, and serve.

(*b*) Boil 2 oz. macaroni (broken up in convenient pieces) in a pint of stock free from grease, to which add a good pinch of salt; when cooked (10-15 minutes), drain them and put them into the soup tureen containing 1 qt. well-flavoured clear stock boiling hot. Grated Parmesan to be handed round with it.

Milk Soup.—Peel 2 lb. potatoes and 2 leeks or onions (leeks are the best). Boil them together in 2 qt. boiling water to become tender. Pass all through a fine wire sieve and put it back as a purée into the stewpan. Add to this 2 oz. butter, let it melt, and then a pint milk; season to taste with a little pepper and salt; keep stirring it over the fire, and, when boiling, sprinkle in gradually 3 dessertspoonfuls of crushed tapioca; keep it boiling for another 10 minutes to cook the tapioca, and serve.

Mock Pea Soup.—Flavour some stock according to taste (a leaf or two of mint should not be forgotten), and thicken to consistency of thin cream, with some revalenta arabica; season with pepper and salt, and serve with it dice of crisp toast and some finely powdered mint on small dishes. A small piece of butter or a little thick cream may be added to the soup, if approved. It will be found a fair imitation of pea soup, is nutritious, easy of digestion, and may be acceptable in not seeming like an invalid dish. If no

stock be at hand, a simpler edition of it may be made by making a cupful of revalenta, either with water or equal parts of milk and water, in the usual way. Stir to it Liebig to taste, and season with pepper and salt. Serve with or without the accompaniments given above.

Mock Turtle Soup (fausse tortue).—(*a*) Boil half a calf's head with the skin on for ¾ hour. Remove eye, ear, and brains, cut the meat into squares 1½ in., put it into a large stewpan, add to it 2 oz. butter, 1 pint old Madeira, 1 gill veal broth, a small bundle of sweet herbs, a little sage, a small onion chopped very fine with one teaspoonful of white pepper, a little salt, a little cayenne, also a little allspice if liked. Stew gently till the meat is tender, keeping well covered; then add 2 qt. good veal stock, make some thickening with cold veal broth, flour, and herbs; boil, strain, and add to the soup. Take out the meat, boil the soup about 10 minutes, strain over the meat, add lemon juice and some forcemeat and egg balls. This is the simplest to have it good, but it may be made far richer.

(*b*) Take an ox foot, cleaned and split, 2 onions with their skins on to darken the soup, a few cloves, one tablespoonful of vinegar, peppercorns and salt to taste, a little celery seed, and carrots, and a small piece of turnip. Take out when the bones slip away easily, about 6 hours, strain through a sieve, then mix 2 tablespoonfuls of arrowroot, add a glass of sherry, let it boil, carefully stirring, add some forcemeat balls, and send to table. *Forcemeat Balls.*—One teaspoonful of sage, pepper and salt, one egg slightly beaten, ¼ lb. lean bacon or pork, a few breadcrumbs; mix altogether, the bacon to be finely minced, shape all into balls the size of marbles, and

fry in boiling lard until a light brown; sufficient for 12 persons.

Mulligatawny Soup (au kari).—(*a*) Wash nicely a knuckle of veal in lukewarm water, and put it in to stew gently in 7 pints water, skim it carefully as it comes to the boil, and let it simmer for 1½ hour closely covered; take out the meat, strain the liquor into a stewpan, and have ready 2 lb. best end of a breast of veal cut up into pieces 1 in. square, without gristle or bone; slice 3 large onions into the stewpan, and fry them both together with about a ¼ lb. butter till they are a delicate brown colour; now add the veal liquor, and let it simmer 1 hour altogether, taking care to again skim it carefully on its coming to the boil. Take a little of the liquor and mix into it a good tablespoonful of curry powder, and a tablespoonful of flour; keep stirring until both are well mixed and quite smooth, adding to it a dust of cayenne, ½ teaspoonful of salt, a pinch of ground ginger and a little mace; stir this mixture gradually into the soup, keep it simmering (not boiling) ¼ hour longer, strain off the onions, serve very hot, with the pieces of meat in the soup; it should be perfectly smooth and the consistency of good cream; serve with rice as for curry. The squeeze of a lemon put into the tureen, and the soup poured on it, adds greatly to the flavour.

(*b*) Melt 2 oz. butter in a saucepan; cut 2 large onions into fine rings, and then stew them for 5 minutes in the butter, then add 2 qt. water, salt to taste, 2 slices of bacon cut into dice. Mix to a smooth paste 2 tablespoonfuls of curry powder and one of flour. Stir this into the soup, taking care that it is not lumpy, to prevent this stir till it boils. Joint the rabbit neatly, then cut again into medium-sized

pieces; soak these thoroughly in salted water to get out the blood. Put them into the soup and stew gently for ¾ hour. Serve with boiled rice and mashed potatoes. If stock is used for this soup the butter is unnecessary. (B. Tremaine.)

Mussel Soup (de moules).—This is made by mixing a good fish or white veal stock with the half of the mussel liquor, and pouring this over a *roux* (made by rolling equal quantities of butter and flour together and putting it on the fire for 3 minutes). Stir this well together till it boils, and then let it simmer for ½ hour. Now put the mussels into a tureen, pour the soup over them, and stir in a *liaison* of yolk of egg and lemon juice.

Mutton Broth.—Fry 5 or 6 onions to a good brown colour in beef dripping, set them in a sieve to let the fat drain off them; cut 6 turnips and 3 or 4 carrots into pieces, add a bundle of sweet herbs, and a teaspoonful of salt. When these are all ready, take a large scrag, or two small ones, of neck of mutton, cut off the best pieces to fry, and make stock of the bones. Take the vegetables (fried), put them at the bottom of your pan, then add a layer of mutton, then vegetables, then mutton, till all is in; then put your stewpan shut close over a moderate fire, and let it stew ¾ hour, shaking it often to keep it from burning; then pour in 2 qt. stock, and let it stew as slowly as possible—scarcely to seem to stew. Put the best pieces of the meat and vegetables into the tureen, and then pour all the rest upon them through the sieve, so as to have a purée with the pieces floating in it.

Nouilles Soup.—Make a paste with the yolks of 4 eggs, the white of 1, a pinch of salt, the least drop of water, and as much of the finest flour as will give a

very stiff paste. When worked quite smooth, roll it out as thinly as possible without breaking it; then cut out each sheet of paste into strips or lozenges, and spread them out to dry on a cloth. In 2-3 hours' time throw the nouilles into some fast-boiling, well-flavoured clear stock, and serve as soon as sufficiently done, grated Parmesan cheese being handed round with the soup.

Okra Soup.—Soak ½ pint dried okra in 3 pints cold water all night. Make some stock with a fresh shin of beef, and after adding the okra with the water in which it was soaked, let it boil at least 7 hours. After 4 or 5 hours add some tomatoes or tomato sauce. Season to taste.

Onion Soup (Cussy, à l'oignon).—(*a*) Boil some Spanish onions in water until nearly tender, strain off the water, and finish cooking them in milk, or in milk and water. When quite tender pass them through a sieve, and add sufficient well-flavoured stock to make the soup of the right consistency. Make the soup quite hot, add pepper and salt to taste, and just at the last stir in a small piece of fresh butter, and serve with small dice of bread fried in butter. This is very suitable for catch-cold weather.

(*b*) Slice 2 Spanish onions, roll them in flour, and let them take a turn or two in a saucepan, with plenty of butter. Before they begin to take colour, add as much water as you want soup, with pepper and salt to taste; let the whole boil till the onions are thoroughly done, then pour the soup into a tureen, over some small slices of stale bread; add a good sprinkling of grated Parmesan cheese, and serve.

Ox-tail Soup (hochepot).—Take 2 ox tails, divide them at the joints, and put them into a saucepan with 3 qt. cold water, and salt to taste. Let it come

gently to the boil, removing carefully the while any scum that rises. Add gradually the following vegetables, cut into convenient pieces: 3 or 4 carrots (according to size), 1 small turnip, 2 onions stuck with 6 cloves, about 20 peppercorns, half a head of celery, a bay leaf, and some parsley. Put in a few drops of sue colorant, and let the soup boil very gently 4-5 hours. Strain the liquor, and remove all fat. Serve with the pieces of ox-tail, omitting the largest ones.

Oyster Soup (aux huîtres).—Put 24 oysters into a stewpan in their own liquor just to get hot through, but not to boil; take off the beards, and put the oysters into the soup tureen, letting the beards remain with the liquor in a small basin till wanted. The stock for the soup should be prepared the preceding day, by placing a cowheel on the fire in a stewpan of water; when it boils, take it out, cut off the best part of the meat, and throw it into a basin of cold water to remain all night. Put the remainder of the heel back into the stewpan, both meat and bones, with a sliced carrot, some outer leaves of celery, a sprig of thyme, a blade of mace, and some parsley root; let these boil up and then simmer by the fire for 2-3 hours, or until the meat is completely separated from the bones. Then pour it off through a sieve to remain also all night. Next day prepare the oysters as described, remove the fat from the stock, and, having made a thickening of flour and butter, gradually stir the stock into it; add 2 glasses light white wine, cut the meat from the cowheel which has remained in cold water, into small pieces about the size of a bearded oyster, put them into the soup, and let all stew very gradually for 2 hours. Then stir in the strained liquor from the oysters, let it boil up once, add a little lemon juice and a very little cayenne

pepper; pour it into the tureen over the oysters, and serve.

Palestine Soup (aux topinambours).—Boil till tender 40 Jerusalem artichokes in milk and a little salt; boil in milk till quite tender ½ lb. fine picked rice, pound them both together, wet with a good strong chicken or veal broth; rub through the strainer, and add more stock if not thin enough; strain the yolks of 5 eggs and ½ pint cream into the soup tureen; pour the soup in boiling hot, season with salt and pepper, and serve with fried sippets.

Parmesan Cheese Soup.—Grate 2 oz. cheese; toast thin slices of rolls; dip them in cream, cover them with the cheese on both sides; lay them in a tureen, and pour good soup over them; or, instead of the toasted roll, use thin slices of brown bread soaked in milk or cream, and covered with the grated cheese.

Pea Soup (de pois).—(*a*) 1 gal. any weak stock, obtained from bones or boiled meat, salt or fresh; 1½ pint split peas (previously soaked), 3 onions, 2 carrots, 3 turnips, a little salt. Simmer all well together for 2 hours, then pass once through the hair sieve, and it is ready. This makes enough for 8 people. Double the quantity in the same proportion for 16; costs 6*d.* per gal. This is almost the cheapest soup that can be made, as any stock does for it (even the water in which vegetables have been boiled) as a foundation.

(*b*) Take 1½ pint green peas, boil them in salt and water with a little mint; when thoroughly cooked, pound them and pass them through a hair sieve; put a piece of butter into a stewpan, when melted put in an onion and a carrot, cut in thin slices, fry until they begin to colour; add 1 qt. stock, a little salt, pepper, and a pinch of white sugar; leave it to boil

for ¼ hour; stir in the purée of peas, let it come to the boil, strain, and serve with small croûtons of bread. (Jane Burtenshaw.)

(*c*) Boil the day before it is wanted 1½ pint split peas in 3 qt. stock, from which every atom of fat has been removed; put in ¼ teaspoonful baking soda, and boil till the peas are thoroughly dissolved; strain the soup. Next day take 2 large tablespoonfuls corn-flour, ½ teaspoonful curry powder, well mixed in ½ pint cream, and 2 lumps sugar; boil 5 minutes, and serve with toasted bread cut into dice, handed round. Or rub as much butter into 2 tablespoonfuls of flour as you can, form into balls, and with 2 lumps of sugar and 1 pint milk, add to the soup; boil ¼ hour; have some chopped mint in the tureen; pour boiling soup over, and serve, either with or without toasted bread. The soup may be varied also by adding different spices, such as Jamaica pepper or cloves; and a little made mustard is a great improvement stirred into your plate of peasoup. Salt stock, such as that in which salt meat, or tongue, or a piece of ham, has been boiled (if not too salt) is best for peasoup.

(*d*) Soak a quantity of peas in water for 24 hours. Throw the water away, and put the peas in a saucepan with 2 onions stuck with cloves, a bunch of thyme and parsley, 2 bay leaves, whole pepper, and salt to taste. Fill up the saucepan with cold water, and set the contents to boil until the peas are thoroughly done. Drain off the water, pass the peas through a hair sieve, and work them in a saucepan on the fire with a piece of butter, until the purée is quite hot, moistening with a little stock if too stiff. A piece of bacon boiled with the peas is an improvement.

Pear Soup.—Peel and slice 6 pears, boil them soft

in 3 pints water, with a few cloves and a sliced roll. Strain through a coarse sieve, and reboil with sugar, a glass or two of wine, and the juice of a lemon. Serve with sponge cake.

Plum Soup.—Brown some flour in butter; stir in water to thin it. Put in plums with some cinnamon or cloves. Let them boil to a mash, strain them, and add sugar, with equal parts wine and water—about 1 pint each to 1 qt. plums. Throw in a few whole plums, and simmer again till these are softened, but not broken. Add slices of toast a minute or two before serving.

Polish Soup (barszcz).—Fill a good-sized jar with slices of beetroot cut in pieces, and cover them with cold water, to which should be added a slice of bread. The jar should then be covered, and left until the juice, which becomes a deep vermilion colour, is fermented and has a sour taste. In warm weather 3 days will suffice for this, in winter it takes 5-6. The ferment which rises to the top must be removed, and the juice passed through a sieve. It is then boiled with an equal proportion of strong beef stock, to which is added small pieces of ham. The soup comes to table looking clear and red, and for variety may be made pink by adding a pint of sour cream. (H.) See also p. 506.

Pomeranian Soup.—1 qt. white beans must be boiled soft in water; mash half of them, thin with broth, and work through a sieve. Let boil with the broth to a smooth soup, in which has been boiled a head of celery cut small. Add the whole beans, a mild seasoning of sweet herbs, some parsley, salt and pepper. Let all boil ¼ hour, and serve.

Poor Man's Soup.—See Potato Soup.

Potato Soup (Parmentier, pauvre homme).—(*a*) Put 1 oz. butter into a saucepan with 3 large onions, shred fine, and fry them a pale brown colour; add 1 teaspoonful flour, stir for a few minutes, but do not allow the mixture to darken; then add 1 qt. common stock previously flavoured with carrots, turnips, celery, leeks, and parsley boiled in it; stir until soup boils, and season to taste with pepper and salt. Peel 1 or 2 potatoes, cut them into small dice, and put to boil with the soup. Cut some crust of bread in long pieces the size, and half the length of, French beans, dry them in the oven, and at the time of serving throw them into the soup; then stir into it off the fire the yolks of 2 eggs, beaten up with a little milk, and strained.

(*b*) Peel 8-10 large potatoes, 3 onions, 2 heads of celery, 1 turnip, 1 carrot, a slice of ham or lean bacon, cut all in small squares; boil them with some broth; when done, rub all through the sieve, and season with pepper and salt.

(*c*) Boil some potatoes in water with an onion, a head of celery, and salt to taste; when done pass them through a hair sieve, and put them into a saucepan with a lump of butter, adding sufficient stock to bring them to the consistency of soup. Let it boil up, season with pepper and salt, and at the time of serving throw in either minced parsley or small sprigs of chervil. Small dice of bread, fried in butter, to be served in or with the soup.

(*d*) Use milk instead of stock, and add, besides pepper and salt, just a small grate of nutmeg.

Pot au feu.—(*a*) Take 6 lb. round of beef, put it in a large earthenware pot, with any stray bones, and 14 qt. cold water; add 3 handfuls of salt, some whole pepper, and a few cloves; let simmer, without

allowing to boil, until you can skim; after skimming add 4 turnips, 5 or 6 carrots, 2 parsnips, 1 stick celery, 2 large onions, and a clove of garlic; take a bunch of leeks, and tie up with them a leaf of bay laurel, and a root of parsley (if you have not the whole plant, some leaves alone), and put this into the pot with the other things. Let boil very slowly for 4 hours. Cook apart in a saucepan 2 fine cabbages; do not put any water with them, but when the *pot au feu* is nearly cooked, take off the top of the soup, put it over the cabbages, and let them cook in it for ½-1 hour. When the soup is ready, take some crusts of bread which have been well browned in the oven, cut them in pieces, let them soak for a few minutes in boiling water, then put them into the soup tureen, and, after skimming the soup, pour it over them. Serve the meat on a dish, arranging the cabbages, carrots, turnips, onions, and parsnips all round.

(*b*) Take a piece of fresh silverside of beef weighing 6 lb., and about ½ lb. bones; tie up the meat neatly with string, and put both into a 6-quart saucepan; fill it up with sufficient water to come well over the meat and bones, and set it on the fire; remove carefully with a skimmer the scum that will rise as the water gets warm, but do not allow it to boil. Add at intervals during the process about 1 pint cold water in small quantities; this will have the effect of checking the ebullition, and will help the scum to rise. When the scum is all removed, put in about 1 oz. salt, a small handful of whole pepper and allspice, 1 onion, stuck with 12 cloves, 1 onion toasted almost black before the fire or on the hob, 1 leek, and three carrots of average size cut in 2 inch lengths, 2 turnips of average size each cut in four, and a *bouquet garni*—i.e. 2 bay leaves, 2 or 3 sprigs each of thyme and marjoram, a clove of garlic, and a

small handful of parsley, all tied together into a small faggot. The above vegetables should not be put in all at once, but gradually, so as not to check the gentle simmering; now skim for the last time, and place by the side of the fire to simmer gently for at least 4 hours. According to the season, all or some of the following vegetables may be added: A head of celery cut in 2 in. lengths, a couple of tomatoes, a couple of parsnips, a handful of chervil. At the time of serving, strain the broth and skim off all the fat, add the least bit of sugar (not burnt sugar) and more salt if necessary; make the broth boiling hot, and pour it into the soup tureen over small slices of toasted bread, adding, according to taste, a portion of the vegetables cut in thin slices. To serve the meat, having removed the string, garnish it with some of the vegetables, or with mashed potatoes, spinach, &c.

Poultry Soup.—Remains of any kind of poultry will do for this. Cut all the meat off the bones, free it from skin, and pound it smooth in a mortar. Soak a slice or two of bread, without crust, in as much milk as it will absorb; add it, with the yolks of 2 or 3 eggs, to the pounded meat, and pass all through a sieve. While preparing the above, let the broken-up bones boil in some good meat broth. Strain this, and mix with it the pounded meat. Give it one boil up, and serve with Hühner Klösse. In boiling up the bones, any kind of seasoning may be added, such as herbs, vegetables, lemon peel, salt, and pepper. See also Chicken Soup.

Pumpkin Soup (de potiron).—Peel the pumpkin and cut into pieces (removing the seeds). Put it into boiling water with some salt, and leave it to boil until reduced to a pulp thin enough to pass through a

strainer. Melt a piece of butter in a saucepan with a wine glass of cream. Add the pulp, when strained, with salt and pepper to taste, and a pinch of flour. Let the whole simmer for ¼ hour, thicken with the yolk of an egg, and serve.

Quenelle Soup.—Put into a saucepan a gill of water, a pinch of salt, and a small piece of butter; when the water boils stir in as much flour as will form a paste, put the mixture away to get cold. Take ½ lb. lean veal, cut it into small pieces, and pound in a mortar; add 3 oz. butter and 2 oz. of the paste, and thoroughly mix the whole in the mortar, adding during the process the yolks of 2 and the white of 1 egg, salt, pepper, and grated nutmeg to taste; pass the mixture through a sieve, work a little cream into it, and, by means of 2 teaspoons, shape it in pieces the size of an olive; lay these carefully in a saucepan, pour in at the side sufficient boiling stock to cover them, and let them cook gently for a few minutes. Have the tureen ready filled with well-flavoured clear stock, boiling hot; slip the quenelles into it (with or without the stock they were boiled in), and serve.

Rice Soup (au riz).—(*a*) Pick over carefully 6 oz. best Carolina rice, wash in 3 waters, until no dirt remains, blanch in boiling water, and then drain; put 1 qt. milk into a saucepan, and set it over the fire; throw in the rice; let boil for 10 minutes and then simmer; season with salt and white pepper, and add a small cupful of cream just before serving. Send plain toast, not fried, to table with it.

(*b*) Pick and wash a handful of rice, boil it in salted water till the grains just burst; drain the water off, and leave the saucepan at the side of the fire, covered with a damp cloth. At the time of serving,

put as much rice as is wanted into the saucepan in which the soup (well flavoured and clarified stock) is being made hot, and as soon as it boils send it up to table. Grated Parmesan cheese to be handed round with it.

(*c*) The rice must be well washed, first in cold then in warm water; 2 oz. is enough for 5 half-pints of soup. Boil the rice 2 hours at least, either with some of the soup or with water sufficient to boil it to a jelly; then add it to the soup. In the latter case have the yolks of 2 or 3 eggs in the tureen.

(*d*) Boil some rice as in (*b*); pass through a hair sieve; add as much white stock as may be necessary; make quite hot, and stir in off the fire 1 gill cream beaten up with the yolk of an egg and strained. Serve with small dice of bread fried in butter.

(*e*) Use water and milk in equal parts instead of stock.

(*f*) Mix rice flour with either milk and water or white stock cold; then make it hot, and when it has boiled finish the soup as in (*d*).

Rice and Carrot Soup (Crécy au riz).—Make 1 qt. vegetable stock boiling hot, then strew lightly into it 4 heaped tablespoonfuls Bousquin's *Riz Crécy*; let gently simmer for ½ hour. Then stir in, off the fire, the yolk of an egg beaten up with a little milk or cream; add half a pat of butter, and serve.

Rice and Pea Soup (de riz aux pois).—Having prepared the soup as in (*b*) add to it at the time of serving a cupful of very young green peas boiled in salted water and thoroughly drained.

Rice and Sorrel Soup (de riz à l'oseille).—Boil some rice in water; when half done drain off all the water,

and finish cooking the rice in some clear stock; then add, according to taste, more or less sorrel finely shredded, boiled in salted water till done and strained.

Rice and Tomato Soup (de riz aux tomates).—In 1 qt. vegetable stock boil a handful or more of rice; as soon as this is cooked (not over done), draw the saucepan to the side of the fire, and add an 8*d.* bottle of *conserve de tomates*. As soon as the soup is quite hot (it must not boil) put in a small pat of fresh butter, and serve.

Sago Soup (au sagou).—(*a*) Wash 5 oz. sago in warm water, set it in a saucepan with 2 qt. milk, and simmer until the sago is thoroughly dissolved; season with pepper and salt, and add a small capful of cream before serving. Good clear stock is generally used for both sago and tapioca soup; but they are even nicer made with milk.

(*b*) The stock must be ready seasoned and quite boiling. Strew in the sago by degrees, about the same proportion as in rice soup. Boil ¼ hour, and serve in the tureen with yolks of eggs.

Savoy Cabbage Soup.—Take half a savoy cabbage, shred it very finely, and set it to boil in stock free from fat and well flavoured; parboil a teacupful of rice, and when the cabbage has boiled for 10 minutes throw it in to finish cooking with the cabbage; when both are thoroughly done, put in a handful of grated Parmesan cheese, and serve.

Savoyard Soup.—Peel and slice a small quantify of young turnips, put them into boiling water slightly salted. In another saucepan put the crusts of a quartern loaf previously soaked for 3-4 minutes, in the liquor of the *pot au feu*, and cut into pieces 1 in.

square; grate over them some Gruyère cheese, and put the saucepan over a moderate fire till the crusts become dry and crisp; brown the turnips in some grease from the *pot au feu*, put them on the top of the *croûtons*, then reversing the saucepan put them all into a soup tureen, having the turnips at the bottom and the crusts at the top. Pour over them some good stock, and serve.

Scrap Soup.—Obtain from a butcher 6 lb. ends, trimmings, bits, and bones, which he will sell at 7*d.* a lb. or less, if told that it is for a soup kitchen. Place all in a very large saucepan, or, better still, divide the quantity and put each half into a separate saucepan, covering well with water. Throw in any vegetables, either previously cooked or not, that can be had, a few herbs, cold potatoes, crusts of bread, celery and lettuce stalks, and bacon rinds. Simmer all down gently for 6 hours or longer, removing the scum from time to time, and adding water when necessary. Strain through the colander, and it is ready. This should make enough for 12 persons, allowing 1 pint to each, 1½ gal. water being used; 2 gal. water, making it rather poorer, will extend the number to 16. Cost to make 4*s.* = 4*d.* a head.

Scotch Broth.—(*a*) Take ½ lb. Scotch barley, 5-6 lb. mutton (neck or breast), put on the fire with 5 qt. water, and bring it slowly to the boil. Add turnips, carrots, onions, or leeks, and celery cut up small, with ½ pint dried green peas, ½ hour after the meat and barley have boiled. The whole is then to be simmered 2½ hours longer. The fat must be removed as it rises to the surface when boiling. If preferred, the meat can be served as a separate course, with some large vegetables round it.

(*b*) The liquor in which a sheep's head has been

boiled is most useful for this soup. If wanted stronger, the remains of the head can be boiled down in it again as for ordinary stock. Wash 1 oz. pearl barley, and put it to 2 qt. stock; chop fine 2 small carrots, 2 turnips, 1 onion, 2 or 3 outside sticks of celery; add pepper and salt to taste, and simmer till the vegetables are tender. Dried vegetables in shreds answer very well for this, and can be bought at about 1*s.* per lb., 1 lb. being sufficient for 8 qt. of stock.

Semolina Soup (à la semoule).—Have 1 qt. well-flavoured stock boiling fast on the fire. Take in one hand some of the coarsest semolina that can be procured, and slowly strew it in the stock, which is to be continuously stirred with a spoon held with the other hand. One handful will be sufficient for the above quantity of stock, but more may be used according to the thickness the soup is desired to be. Keep on stirring for a few minutes, when the soup will be seen to thicken, and it is then ready. Parmesan cheese may be served with it.

Sheep's Head Soup.—Let the head and pluck be well soaked in cold water, and then put on in 4 qt. cold water; cut the pluck in pieces, add ½ lb. pearl barley, 4 onions, 2 large carrots, 3 turnips, ¼ oz. mixed cloves, mace, and peppercorns. Take off the head and heart when done, then stew the pluck and other ingredients 2 hours longer; thicken the soup with a little flour and butter; cut the head and heart in pieces, and add forcemeat balls. ½ lb. lean beef is a great improvement to this soup. A wineglassful of sherry, ketchup, and soy to taste. Strain very carefully.

Shrimp Soup (de crevettes).—Take 1 pint shrimps, pound them in a mortar with the juice of half a lemon and a piece of butter equal in weight to them.

When quite a smooth paste, pass it through a sieve, and add pepper, salt, and grated nutmeg. Take as much breadcrumbs as there is shrimp paste, soak them in stock. Melt a piece of butter in a saucepan, amalgamate with it a heaped tablespoonful of flour, mix the shrimp paste with the soaked breadcrumbs, and put both into the saucepan. Stir well, adding more stock, until the soup is of the desired consistency. Put the saucepan on the fire, stir the contents till they boil, then draw it aside and carefully skim off all fat, strain through a hair sieve, make the soup hot again. Stir in off the fire the yolk of an egg, beaten up with a little milk or cream, and serve.

Sorrel Soup (a l'oseille).—A good quantity of sorrel leaves must be picked from the stems and washed, then put into a stewpan with a piece of butter to steam. No water is requisite. Dredge in, continually stirring, a tablespoonful or two of flour, unless the soup is to be clear. Add enough soup, already seasoned and flavoured. Serve with sippets or dice of toasted bread.

Spinach Soup (aux épinards).—Pick and wash quite clean a quantity of spinach. Put it in a saucepan with sufficient salt, and when quite done squeeze all the moisture out, and pass it through a hair sieve. Dilute the pulp thus obtained with as much well-flavoured stock as will make it of the right consistency; make boiling hot, add a dash of pepper, and at the time of serving put a pat of fresh butter in the soup tureen.

Spring Soup (jardinière, printanier).—Cut some new carrots and new turnips in the shape of peas; put them in separate saucepans with enough stock to cover them, and a pinch of sugar; keep on the fire till the stock has all boiled away, but mind they do not

catch or burn. Cook some peas and some asparagus points in the same way. Have equal quantities of each of these vegetables. Cut out of lettuces and sorrel leaves pieces the size of a sixpence; let them have one boil in some stock. Put all the vegetables so prepared in the soup tureen, add a few sprigs of chervil, pour over them some well-flavoured consommé, and serve.

Strawberry Soup.—Boil ripe strawberries, with some rusks or slices of roll, in sufficient water until dissolved. Stir through a sieve; add wine and sugar to taste; make a thickening of arrowroot or potato flour, and boil the mass up again. When about to be served, add a saucerful of ripe strawberries which have been sprinkled with plenty of powdered sugar an hour or two previously. Any fruit soup can be made according to the foregoing directions, adding or leaving out certain flavours. Sponge cakes and macaroons may be served with any fruit soups.

Sweetbread Soup.—Put a sweetbread on the fire in cold water, with a little salt. When it is warm, pour off the water and supply fresh cold; repeat this a few times as fast as it becomes warm, which process whitens the sweetbread. When it looks delicately white just let it come to a simmer; then take it out and lay it in cold water. Take off the outer skin, cut up the meat in small dice, and give it a boil up in good white veal soup. If for brown soup, fry the little pieces of sweetbread rapidly in butter, and drain them in a napkin. They must only be coloured yellow.

Tapioca Soup.—(*a*) Made as sago, only the tapioca must be soaked for at least ½ hour in warm water before being put into the milk.

(*b*) To 1 qt. well-flavoured clear stock add 1

tablespoonful tapioca; leave to boil nearly ½ hour, stirring occasionally until the tapioca is cooked sufficiently.

(*c*) Mince an onion finely, fry it in plenty of butter till of a golden colour; add pepper and salt to taste, and 1½ pint water; when the water boils, strain and put it back into a clean saucepan with 2 tablespoonfuls tapioca; let it boil till almost dissolved, then serve.

Tea Kettle Broth.—Cut a thin piece of bread and toast it crisply, cut into small pieces and put in a basin, then add a little salt and pepper, a piece of butter the size of a walnut, and half a teacupful of thin cream; fill the basin with boiling water, and serve at once.

Tomato Soup (de tomates).—(*a*) Pour over 12 ripe tomatoes a small quantity of weak stock, and stew very gently until quite tender. Mash through a sieve, and add the required quantity of good strong stock: add cayenne pepper to taste. Let all boil together for a few minutes, and serve very hot.

(*b*) Cut ½ lb. lean raw ham into small pieces, and place in a stewpan with some peppercorns, 2 oz. butter, 4 shallots, 2 bay leaves, a few cloves, a blade of mace, and 2 sprigs of thyme; let these fry until they are a light brown colour. Take either 24 ripe tomatoes or an equal quantity of preserved tomatoes, squeeze well, and add 1½ pint good well-flavoured white stock, and a small quantity of white essence of mushrooms; mix with this the ham, &c., and let all boil together over a quick fire to reduce to the desired thickness. Then rub through a tammy, warm up again, and serve. Dice of bread fried in butter should be handed round with this soup.

Turnip Soup (de navets).—Peel and slice the turnips, put them in a stewpan with a piece of butter, a spoonful of sugar, and enough clear broth to cook them soft. Work through a sieve, and add the purée to a clear soup. Mix a tablespoonful or two of flour with a cup of cream or milk, add this with salt and white pepper; let boil for 2-3 minutes before serving.

Turtle Soup (tortue).—(*a*) Kill the turtle by cutting off its head. Then put it in water for 12 hours; divide the shells, remove the entrails, and carefully preserve the green fat, which should be put into cold water to steep. Put the fins and flesh with the shells cut into several pieces into boiling water for a few minutes, then remove the thin outer skin from head, fins, &c. Put the finer parts into some good stock and stew until quite soft, about 4 hours; remove the bones, and put the meat to press between 2 dishes until quite cold, when it must be cut up to put into the soup. Put the bones, entrails, and coarser parts of the turtle into a stockpot with plenty of ordinary stock, and with some onions, celery, mushrooms, a faggot of herbs, parsley, pepper, and salt, add any trimmings, of meat or poultry, and stew until reduced almost to a glaze, about 6 hours; then add the stock in which the meat was stewed; strain, and clarify the soup. Blanch the green fat, cut it up and put it with the cut-up meat into the soup, simmer until quite hot, and then add the juice of ½ lemon, 2 glasses white wine, with cayenne pepper and salt to taste to every 3 pints of soup, and serve.

(*b*) Dried.—Soak for 3 days, changing the water each day; then boil for 12 hours in 1½ qt. very good stock, adding a burnt onion, a little ham, and a glass of sherry or Marsala. If too strong with that quantity of stock, a little more can be added each day while it

lasts. First-rate for delicate people.

Vegetable Soup (bonne femme, brunoise, chiffonade, colbert, faubonne, de légumes, paysanne, &c.).—(*a*) Cut up any vegetables, such as celery, carrots, turnips, or onions, or a judicious mixture of all, into small neat pieces as near of a size and shape as possible; place them in boiling water for about ¼ hour, then take out and stew in a little fresh water with a small piece of butter and salt. Into a larger stewpan put a good piece of butter with some leeks, onions, carrots, turnips, a head of celery, all cut up small; add a clove of garlic, if liked, and some thyme, parsley, or chervil. Stew on the fire, without water, for 1½ hour, turning frequently until well coloured; then add sufficient water for the stock, and boil ½ hour. Strain, and add the reserved vegetables; serve hot with small rounds of bread which have been well soaked in some of the stock, and then placed in a buttered tin and dried in the oven.

(*b*) Pass through a hair sieve all the vegetables used to make vegetable stock, melt a piece of butter in a saucepan, add a little flour, mix well, then add the vegetable pulp; stir well, and moisten with as much of the stock as may be necessary; let the soup boil, stir into it off the fire the yolks of 2 eggs beaten up with a little water and strained. Serve with sippets of bread fried in butter.

Vegetable-marrow Soup (de courges).—Remove the seeds from 2 or 3 vegetable marrows; cut into convenient pieces, and put to stew in a saucepan with a small quantity of stock, and pepper, salt, and grated nutmeg to taste. When quite done, pass through a hair sieve. Take 2 pints of this pulp and 1 pint milk, boil together for ½ hour, then gradually mix with 2 oz. butter, which have been previously

amalgamated in a saucepan with 1 oz. flour. Let the whole come to boiling point, then serve.

Vermicelli Soup.—Boil 2 oz. fine vermicelli in 1 pint stock free from grease, to which add a good pinch of salt, when cooked (in 10-15 minutes), drain, and put into the soup tureen containing 1 qt. well-flavoured clear stock, boiling hot. Grated Parmesan to be handed round with the soup.

Victoria Soup.—About 2 tablespoonfuls sago to 1 qt. of good stock; boil gently; then 5 minutes before dinner-time take it off the fire, and have ready the yolks of 2 eggs and ½ pint cream; beat them together and add to the soup; stir all together and serve at once with sippets of fried bread.

White Soup.—Flavour some stock delicately with onion, parsley, mace, bay leaf, lemon peel, thyme, button mushrooms, white peppercorns, and salt. Take equal parts of this and new milk, and thicken slightly with arrowroot. Just before serving, stir in the yolk of an egg beaten up, with a little cold milk or stock. A smaller proportion of cream may be used instead of the milk, if preferred. Serve in a sauce tureen, and be sure to have it and the soup plate well warmed. To vary this soup, a few small dice of sweetbread or the white meat from a chicken, or a little of the meat from a calf's foot and a few egg balls, may be added. *Egg balls.*—Mix with the yolk of 1 hard-boiled egg 1 teaspoonful grated tongue or pounded ham, and 1 saltspoonful minced boiled parsley; season with cayenne and nutmeg. Bind with the yolk of a raw egg, form the paste into balls the size of a small marble, and poach them gently for 2 minutes in milk. Put them hot into the tureen.

See also Chicken, Milk, Onion, Palestine, Potato, Rice, and Vegetable-marrow Soups, and Veal Stock.

Fish.—The first consideration with regard to fish is freshness, as nothing deteriorates more rapidly with keeping. When economy must be practised, fish may be bought at lower rates in the evening, and will keep perfectly well till next day, even in hot weather, by being moistened with vinegar, which treatment is by some people considered to improve the flavour.

Before proceeding to give a catalogue of recipes for cooking various fish, it will be useful to introduce some general remarks on dressing and cooking fish as a class.

Dressing.—(*a*) When fish are scaly they must be "scaled" very lightly and carefully with a knife, then well washed with salt and water to remove all slime. The gills and fins should be cut off; then the fish must be opened, and the insides removed, followed by well cleaning inside and out with a linen cloth. If to be fried, they are ready for flouring.

(*b*) If no scales, proceed as in (*a*) without scaling.

(*c*) If to be boiled, the wiping may be omitted, but they must be washed with salt and water inside and out.

(*d*) All cooking must be thorough.

Baking.—This is a good way of cooking any flavourless fish. (*a*) Cut it in slices or pieces and make a mound of it on a flat dish, sprinkling between each layer chopped herbs and parsley, cayenne and lemon juice. Melt 1 oz. butter in a pan, add 1 oz. flour and 1 gill milk, and stir till very thick; squeeze in a little lemon and pour it over the fish. Cover the whole with browned breadcrumbs and cook in a good oven till the fish is done. Keep a few

crumbs back to sprinkle over any cracks, and serve on the dish it is baked in. For the lemon juice and the crumbs Parmesan cheese can be substituted.

(*b*) Scald and then chop a small piece of onion and a few sprigs of parsley. Butter a baking tin and sprinkle half the mixture over and half under a thick slice of white fish. Cover the whole with browned breadcrumbs and pour round a little stock or water with a dessertspoonful of ketchup or vinegar. Bake for 10-15 minutes, and serve hot or cold, garnished with parsley and cut lemon, and the liquor poured round. Baking is the most economical way of cooking fish, because it does not destroy the flavour, and sauce is not necessary as when boiled.

Boiling.—(*a*) The common way of boiling fish is to draw them, cut out their gills, scale them—if scaly—and wipe clean. Put into a fish kettle, with salt, fennel, a bundle of sweet herbs, enough water with a little vinegar to cover the fish. When quite boiling, put in the fish, and let it boil slowly; when perfectly done, pour off the water and serve in a hot dish with parsley and butter.

(*b*) The liquor in which fish is to be boiled should be boiling ¼ hour before the fish are put in; these latter must be boiled very gently, or they will fall to pieces.

(*c*) The liquor in which fish has been boiled should never be thrown away, as excellent soup can be made of it with a few cheap additions.

Broiling.—(*a*) After the fish is scaled, &c., notch it 2 or 3 times on the back, strew some salt on, and broil, basting with butter, and turning frequently.

Frying.—(*a*) No way is more successful for cooking the cheaper kinds of fish. Plaice, ling, hake, haddock, small fresh-water fish, conger—all are good. The essential thing is to fry them properly. Cover each piece with egg and breadcrumb, or dip in a thick batter of flour and water; have perfectly fresh fat or sweet oil, and plenty of it; let it be sufficiently hot; and serve the hot fish nicely garnished with lemon and with slices of brown bread and butter. Conger must first be parboiled, or it will not be done enough. As for other fish, it is wise to cut them into strips or fillets.

(*b*) Frying fish in batter is often recommended, but it is not nearly so nice as egg-crumbing, and, indeed, when this is considered too troublesome or expensive, it is better merely to pass the fish through flour mixed with pepper and salt. Fish dipped in batter must be fried in a considerable quantity of fat, which, in small and poor households, it is generally impossible to procure. Egg-crumbed or dusted with flour, fish can be cooked in the frying-pan with a little fat, and is very good in this way.

(*c*) Plain flour may be used instead of breadcrumbs; in America "cracker-dust" (i.e. pounded biscuit) and Indian meal, the latter occasionally mixed equally with flour, are used instead of breadcrumbs.

(*d*) For eating cold. Well wash in water, rub with salt, dry, roll in a cloth, and place for a few minutes before the fire previous to cooking. Salmon, cod, and halibut should be cut into thick slices, other fish into convenient-sized pieces. Soles are done either whole or in fillets. Have ready a dish of beaten eggs, and another of flour; turn the fish well over first in the

eggs, and then in the flour, so that each piece is completely covered, then place in a pan with plenty of the best olive oil at boiling heat, fry the fish gently till of a fine golden-brown colour on both sides. When done, place on a drainer before the fire, for the oil to drain off. Great care should be observed that the oil has ceased to bubble before the fish is put in, or the latter will be greasy. It is a good plan to try it with a crust of bread first. Tho oil can be used several times if carefully strained, and put aside in a jar, adding a little fresh each time if necessary.

Stewing.—Put them in a stewpan; cover with water, and either white wine or claret; add some salt, spices, and anchovies, and a bundle of sweet herbs; cover the vessel, and put in a moderate oven. Garnish with green leaves, sippets, &c.

The following dishes are mainly adapted for using up remnants of fish, though whole fish may be employed if desired.

Bouillabaisse.—Take several kinds of fish, such as whitings, gurnets, John dory, turbot; cut them in pieces the size of an egg; mince an onion, a small piece of garlic, one tomato, and a few sprigs of parsley; put the whole in a saucepan with ½ tumbler finest olive oil, a pinch of pepper, and one of mixed spice. When the onions are slightly coloured, add the fish, salt, and a very small pinch of powdered saffron; then fill up with sufficient boiling water to come up to, but not cover, the fish. This done, let the bouillabaisse boil fast for 20 minutes, or until the liquor be reduced by one-fourth. Serve the fish on one dish, and the liquor on another over thick but small slices of bread.

Boudin.—Take the raw meat of either whiting, flounder, plaice, or pike; pound in a mortar, and pass

through a sieve. Put ½ pint water into a saucepan with a pinch of salt, and a small piece of butter; when it boils, stir it in enough flour to make a thick paste; when cold, take of this paste, half the quantity there is of fish, and take of butter half the quantity there is of paste; thoroughly amalgamate the whole in the mortar, season with pepper, salt, and grated nutmeg, work in 1 or 2 spoonfuls of white sauce (Béchamel), and lastly as many eggs, in the proportion of two yolks to one white, as will bind the mixture. Butter some small moulds, fill them with the mixture, and steam in a stewpan half full of water for 15-20 minutes. Turn out, and serve with white sauce.

Cakes.—(*a*) Take the remnants of any cold fish, pull them to pieces, and thoroughly incorporate with them a small piece of butter and some mashed potatoes; season the whole with pepper and salt to taste, and a little cayenne. Form the mixture into cakes and fry in butter till of a golden colour. Serve garnished with fried parsley.

(*b*) Remove skin and bone from cold fish; to 1 lb. fish add 4 tablespoonfuls breadcrumbs, 2 of suet finely chopped, and 1 of flour; mix well together while dry; then beat 1 egg with ¼ pint milk: mix all well together, and put in a greased mould; steam for 1 hour or bake for ½ hour.

Chowder.—Cover the bottom of the pot in which the chowder is to be cooked with slices of pickled pork, or, if preferred, use a large teaspoonful of lard. Take any kind of firm fish (cod and bass are thought best), lay them over the pork or in the lard. If pork is used, first fry it slightly; if lard, make it boiling hot. Strew over the fish a layer of chopped onions if liked, one of split crackers (biscuits), pepper and salt;

spices are used, but are not necessary; another layer of fish, onions, crackers, and seasoning until all the fish is in; dredge with flour, just cover the fish with water; stew gently; ½ hour will cook one of moderate size. Take up the chowder, thicken the gravy by adding a teaspoonful of flour to a teacup of butter, add this to the gravy; stew 2 minutes; add wine or ketchup if liked. Oyster or clam chowder may be made in the same way.

Croquettes.—Take some remnants of boiled turbot, brill, haddock, or salmon; pick out the flesh carefully, and mince not too finely. Melt a piece of butter in a saucepan, add a little flour and some hot milk. Stir on the fire until the mixture thickens, add pepper and salt, a little grated nutmeg, some chopped parsley, lastly the fish; as soon as the mixture is quite hot, turn out on a dish to get cold. Shape like corks, roll in beaten-up egg, and then in baked breadcrumbs; repeat the process in an hour's time; fry in hot lard, and serve with fried parsley.

Curry.—Take 1 teaspoonful curry powder, 1 of raw rice pounded, 1 of chillies, 2 cloves of garlic, a little ginger, a few peppercorns, a little turmeric, half a coconut (remove the brown skin); grind all up with a coffee cup of water, then put half an onion, half cooked and minced, with ½ oz. butter in a stewpan, and melt it when quite dissolved. Add the curry stuff, also the gravy of ½ lb. beef, or some stock, and a dessertspoonful of vinegar; put 1½-2 lb. fish prepared in pieces about 1 in. square, and stew the whole.

Cutlets.—Melt 1 oz. butter, add 1 oz. flour and ¼ pint milk; let it boil and thicken. Then stir in the flavouring—lemon juice or vinegar, salt, cayenne, a little anchovy sauce or paste, or, as a last resource, a

tiny piece of bloater paste. Last of all, add about a breakfastcupful of cold cooked fish cut small. When this mixture is cold, shape it into cutlets or balls, egg and breadcrumb them, and fry in hot fat or oil.

Jelly.—Put several large onions (sliced), some scraped horse-radish, lemon peel, pepper, salt, and mace into a stewpan with good white stock, simmer till the vegetables are tender; strain, remove the bones from 2 lb. turbot, sole, or any white fish; cut the fish into shapely pieces, stew in the liquor till quite done, strain the liquor, let it cool, add a glass of white wine, the whites of 2 or 3 eggs, and some lemon juice; hot it up. Lay the pieces of fish into a flat mould, fill up with the liquor, let get quite cold, turn out, and garnish with slices of cucumber. In very hot weather it will require ice.

Moolie.—Take some fried fish, 2 tablespoonfuls cream, 1 dessertspoonful butter, 3 or 4 onions, green chillies (when they are to be had), a piece of ginger, and 2-3 tablespoonfuls vinegar; boil 10 minutes, then serve. An excellent breakfast dish.

Omelet.—Beat up 3 fresh eggs with a quantity, equal to an egg in bulk, of the flesh of boiled salmon, shredded finely with a fork, a pinch of minced parsley, pepper, salt, and half a dozen bits of butter the size of a pea. Put a piece of butter the size of an egg into the pan, let it melt without browning, and as soon as it is melted and hot pour in your omelet mixture, and, holding the hand of the pan with one hand, stir the omelet with the other by means of a flat spoon. The moment it begins to set, cease stirring, but keep shaking the pan for a minute or so; then with the ladle or spoon double up your omelet, and keep on shaking the pan until one side of the omelet has become a golden colour, when you

dexterously turn it out on a hot dish, the coloured side uppermost. (G. C.)

Patties.—1 moderate-sized haddock, 12 cooking oysters, 1 teaspoonful chopped parsley, a very little pounded mace, a pinch of cayenne, a little salt, 1 teaspoonful anchovy essence, 2 oz. butter, ½ pint good white sauce, yolks of 2 eggs, ½ lb. good puff paste, and a little lemon juice. Skin and fillet the haddock, dissolve the butter in a stewpan; put in the fish, sprinkle with a little salt, and let stand on the stove, where it will cook without taking any colour. When the fish is done on one side turn carefully; while the fish is cooking, beard the oysters, put the beards with the liquor from them on the fire, in a small stewpan, and simmer for a few minutes. When done, strain off and save the liquor for the sauce. When the fish is done, which should be in 15-20 minutes, lift it out of the butter on to a plate; and when cool, roughly mince, or cut it into small dice; cut the oysters in quarters, and mix them with the haddock. Put into a small stewpan ½ pint good white sauce, and when it boils stir into it 1 oz. butter, the chopped parsley, anchovy essence, mace, and cayenne. Let it boil up, then draw it back from the fire, and stir in the yolks of the eggs, a little lemon juice, a little salt, and lastly the fish. Let it stand by the fire a few minutes, but do not let it boil, as this would curdle the egg, and harden the oysters. Now turn the fish out on a plate ready for use. Have ready some good puff paste, roll it out to the thickness of ½ in., cut out the patty cases with a tin cutter; and with another, half this size, mark the cover by gently pressing it on the paste, so as to make a slight incision; egg over the top, and bake in a quick oven. When done, take off the covers, scoop out the underdone paste inside, and leave the patties till

dinner-time, then fill with the prepared fish, and set in the oven to get hot. Serve as an entrée in the first course. Note: The butter in which the fish was cooked would make a fish sauce.

Pudding.—Equal quantities of fish rubbed through a sieve, and fine breadcrumbs, with seasoning to taste, and eggs sufficient to bind the whole. Steam 1 hour in a buttered mould, turn out, and serve with sauce poured round. (B.)

Pulled Fish.—After any solid fish is boiled, pick it clear from the bones in small pieces, and to 1 lb. fish add ½ pint cream, 1 tablespoonful mustard, 1 oz. anchovy sauce, and 1½ spoonfuls of ketchup, a little pepper, flour, and butter mixed; make it quite hot in a saucepan and serve.

Quenelles.—Pound the raw flesh of any kind of fish, and pass it through a sieve; take of breadcrumbs soaked in milk and squeezed dry, half the quantity there is of fish, and take of butter the same quantity there is of breadcrumbs; amalgamate the whole in a mortar, seasoning with pepper, salt, and nutmeg according to taste; add a little cream, one whole egg, and as many more yolks as may be necessary to bind the mixture. Shape it into small quenelles, and cook them as meat quenelles.

Salad.—Fish makes an agreeable variety in the daily *menu*, and the following mode of cooking plaice may be acceptable as a substitute for soles. Select a moderate-sized one, which will divide into 8 fillets; cover with egg and breadcrumbs, and fry a light brown. Let them drain on white paper, and when quite cold put in the centre of a dish, and surround with salad, garnished with sliced beetroot, hard-boiled eggs, and sprigs of parsley. An excellent supper dish. A small lobster added to the salad is a

great improvement.

Toast.—Toast 6 rounds of bread about the size of a large tumbler, and spread them with butter and anchovy or bloater paste. Put in a saucepan the yolks of 2 eggs, 1 gill cream or milk, and any cold fish cut small. When thick, spread it on the toasts, sprinkle some breadcrumbs over, and brown in a very quick oven. Serve very hot on a napkin.

Special recipes for each fish will now be given in alphabetical order.

Anchovy (Anchois). Butter.—Wash, bone, and pound in a mortar some anchovies, with an equal quantity of fresh butter and cayenne to taste. Mix well together, pass them through a hair sieve, and either spread it on slices of thin toast, or shape the butter into balls; ice, and serve with a piece of toast under each ball.

With Eggs and Endive.—Boil 6 eggs quite hard, shell them carefully, then cut the white with a sharp knife carefully across the middle of the egg, and, taking care not to break it, remove it like a case from the yolk. Mix the yolk with a little anchovy sauce. Form it again into a ball, and replace it within the white. Close the latter carefully, and when the eggs are thus prepared, place them in a pile upon a nest of endive, the points of the leaves towards the edge of the dish, which should be round.

Fried.—Slightly fry the little fish in their own oil, and serve them on thin fried toast; they make a nice accompaniment to the cheese course at dinner.

With Olives, Cold.—9 Spanish olives, 9 croûtons of fried bread, 4 anchovies, a little chopped parsley, ¼ teaspoonful chopped onion; take the stones from the olives in the usual way, wash and fillet the

anchovies, and mince them very fine, also the parsley and onion; pound altogether in a mortar, and season with a little red pepper. Take a small portion of this preparation, and put into each olive in place of the stone. Now, with a small tin cutter, stamp out 9 croûtons of bread a little larger than a five-shilling piece; scoop out the middle, fry in some clean lard to a nice golden brown, and drain on a piece of kitchen paper; when cold, put an olive on each croûton, arrange them neatly in a silver dish, and put on each a little mayonnaise sauce and a little round the base.

Sandwiches.—Take the contents of a bottle of anchovies, wash them in several waters, remove the bones, and put them in a mortar with a quantity of butter equal to them in bulk; pound thoroughly, so as to get a smooth paste, wherewith spread slices of bread.

Toast.—Bone, clean, and wash a number of anchovies; make some slices of toast, butter them on one side very plentifully, cut in pieces the size of finger biscuits; lay 3 fillets of anchovy on each piece, throw a dash of pepper and the least bit of cayenne on them, and put them in the oven just long enough to get thoroughly hot, and so serve.

Barbel (Barbeau).—Broiled: see Chub. Roast: see Chub.

Bloater (Hareng pee).—On Toast.—Parboil 3 or 4 bloaters just long enough to allow the skin to come off easily; remove it, and take out the meat in fillets (4 to each fish). Have some slices of well-buttered toast of a proportionate shape to the fillets, lay one fillet on each, and trim them all to the same size. Rub each fillet over with some butter, sprinkle a slight dust of cayenne and black pepper over, put them in the oven to get quite hot, and serve.

À la Sefton.—The flesh of 3 bloaters well soaked, ½ lb. Parmesan cheese grated; mixed together, seasoned to taste, and divided into pieces the size of respectable minnows; then egged and breadcrumbed, fried, and served hot. (E. P.)

Bombay Ducks or Bumaloes.—(*a*) Soak ½ hour to soften them; then beat out flat with a pestle, sprinkling with flour the while; cut off heads and tails, and toast on an iron plate over the fire, with another plate above to prevent curling up. They should be made quite crisp.

(*b*) They are generally bought in tin boxes, prepared for table, and only require crisping in the oven for a few minutes. They are served with or after the cheese course, before the dessert, or, as in India, as an accompaniment to curry, which in that country is always the last dish.

Bream (Brème).—Put into a deep dish, or baking tin, a marinade of oil, vinegar, onions, thyme, bay leaf, pepper, salt, and a few cloves; lay a good-sized sea bream in this for some hours, basting occasionally; then cover with oiled paper, and put the dish or tin in the oven till the fish is done (about 30 minutes). Melt a piece of butter in a saucepan, mix with it a good pinch of flour, strain the marinade into this, add a little stock, then one shallot and a little parsley chopped very fine; let the sauce boil, add more pepper and salt if necessary; pour over the fish and serve. River bream is far inferior to sea bream—a misunderstood and underrated fish—but may be cooked as a poor substitute for carp.

Broiled: see Carp. Roast: see Carp, Chub. Soused: see Carp. Stewed: see Carp, Trout.

Brill (Barbue).—Brill is very like turbot, but less

firm, thus requiring more care in the dressing. (*a*) After thoroughly cleansing, cut off the fins and rub the fish over with lemon juice 2-3 hours before cooking to make it white. Place it in the fish kettle with sufficient cold water to cover it, add 3-4 oz. salt and a little vinegar to 1 gal. water, heat it gradually by the side of the fire. As soon as it boils, skim, or the scum will fall on the fish and spoil its appearance. Let simmer till well done, but not broken. A large brill will take, after it boils, about 15 minutes, but to make sure of its being nicely cooked, lift up the drainer and try the fish with a fork (not steel). If the fish slips from the bone easily, and the bone is not the least red, the brill is ready to drain. It should be carefully drained before placing it on a hot napkin, garnished with slices of lemon and some lobster coral. Serve with lobster or shrimp sauce in a sauce tureen.

Brill, although inferior in plumpness and in the beautiful texture and abundance of skin and fins to the turbot, is nevertheless a very delicate fish, and worthy of the care often bestowed upon it. It is very good when boiled and served with shrimp sauce, and may also be cut into fillets and stewed or fried. (*b*) It is also nice when dressed as follows: Cleanse the brill and cut its back down to the central bone. Butter the bottom of a baking dish, and sprinkle this with finely chopped shallots and mushrooms, a very little onion, and some parsley similarly treated. Moisten these herbs with a mixture of Madeira or brown sherry and some good brown gravy. Lay the brill on his back on the couch of herbs, sprinkle a little more minced mushroom and shallot over him, and pour over some rich melted butter. Put the dish on the fire till it shows signs of boiling, and then into a moderate oven till done.

Carp (Carpe).—Au bleu.—A famous cold dish of fish is that called *au bleu*. Trout, carp, and perch are good in this way. Prepare the carp, tie up the head, and put the fish in a kettle. Make some vinegar boiling hot, and pour it (scalding) over the carp; then moisten with red wine, and add 3 large onions cut in rounds, 2 carrots sliced, parsley, sage, shallots, thyme, bay leaves, and a few cloves, pepper, and salt. Put the fish kettle on the fire, and let it simmer only for about 1 hour, when take it off. Let the fish get cold in the liquor, and when wanted for serving take it out and lay on a napkin in a dish. This is very nice when accompanied by a *remoulade* sauce.

Broiled.—Take a fresh carp, gill it, draw, scrape off the slime, and wipe it dry with a clean cloth inside and out, lay it on a dish with vinegar, claret, salad oil, sweet herbs (rosemary, marjoram, &c.), sliced ginger, coarse pepper, cloves, and mace; let them steep 2 hours, then gently broil over a clear fire, turning often, and basting with the liquor and herbs it was steeped in. Serve with the herbs, spices, and liquor boiled up together, and some butter beaten up with the juice of oranges or lemons; or with plain salad oil, and the spawn broiled by itself and laid on the carp; or with sauce made with pickled oyster liquor, white wine, grated nutmeg, juice of oranges, and a little vinegar broiled and beaten up with butter and the yolk of an egg. Pike, mullet, roach, dace, or bream may so be dressed; but their blood and spawn must not be used, and they may be broiled either with scales or without. Also slices of salmon and conger eel can be cut in pieces and cooked in the same way. This latter is best parboiled before broiled.

En Matelote.—Clean a fat carp and leave it whole.

Take any other fresh-water fish that you may have handy, such as eels, pike, tench, perch, &c., cut them into pieces, put into a stewpan with a liberal allowance of butter and a few small onions blanched, and let them take colour. Now put in the carp surrounded with roes, moisten with equal quantities of red wine and good gravy, and a piece of butter rolled in flour. Let it boil, and when it is half done put in a couple of bay leaves and a little sage. Draw back the stewpan, and cook gently. When the sauce is sufficiently reduced, put the carp into a hot dish, pour the *ragoût* over it, and garnish with fried sippets and crayfish.

In Brown Sauce.—Cut the carp in pieces and pack them in a deep dish, strewing between some salt, pepper, 3 pounded cloves, a bay leaf, 2 slices of lemon, and a small shallot minced; pour over a glass of wine and the same of vinegar; cover, and let them stand a few hours; melt some butter in a stewpan, and dredge in as much flour as it absorbs, to brown; thin this with very little water, just to keep the thickening from burning to a cake; mince a rasher or two of bacon and a small onion; put these in a stewpan, and drain in the pickle from the fish; when the sauce boils, lay in the fish, and simmer gently till done; dish the slices whole, and strain the sauce over them.

Pie.—Scale a carp, draw, remove gills, &c.; lay butter in the pie dish, and then the fish, with cloves, mace, nutmeg, 2 handfuls of capers, and currants cleaned; mix some butter and salt, and lay them over; cover with paste; lastly, pour in (at a hole in the top) some white wine, and bake. It is as good hot as cold.

Roast.—Leave on the scales, cut out the gills,

draw, wash, and remove the spawn. Make a stuffing of grated manchet (breadcrumbs), almond paste, cream, currants, grated nutmeg, new yolks of eggs, candied lemon, or other peel, some lemon and salt. Make it stiff and stuff the fish, but not too full. Roast in the oven on 2 or 3 sticks laid across a dish, turn, and let the gravy drop into the dish. Dish it with slices of lemon, and sauce made with the above gravy; the juice of an orange or lemon, and some cinnamon mixed with butter.

Soused.—Draw, but do not scale the fish, save the liver, and wash it well; boil 1 pt. white wine, and 4 of water with some spice and sweet herbs; just before putting in the fish add a little vinegar (to make it crisp); when done, take out the fish. Add to the liquor some white pepper, bruised ginger, and let it boil, then get cold. Put the fish into it for 4-5 days, serve with vinegar and fennel.

Stewed.—Scale, cut out gills, wash clean, and dry with a clean cloth, flour, and fry them in butter; put them, when the liquor boils, into a stewpan, with ½ pint claret, grated nutmeg, mace, and anchovy chopped fine, a little sliced ginger, 3 or 4 cloves, salt, and 3 or 4 slices of orange; cover up the stewpan, and stew quickly, turning the fish occasionally. When cooked, dish with sippets of fried bread and slices of orange, lay the spices on and pour over a sauce made with butter and some of the liquor in which the fish was stewed. Garnish with grated breadcrumbs.

With Polish Sauce.—Lay thin slices of parsnip, celery, and onion in a stewpan, with a good-sized piece of butter, some salt, pepper, 2 slices of lemon, 2 bay leaves, and 6 cloves. Split open the carp, leaving the back whole. Lay it flat on the seasoning with the back uppermost. Lay the head, tail, liver,

and milt on the top, and with these 2 thick slices of brown gingerbread, broken up. Pour over 1-2 tablespoonfuls vinegar, and beer enough to barely cover the fish. Simmer all till the fish is well done, take it up carefully, put the head back into the sauce, and stew this to a rich brown. Season it to taste, and strain it over the fish, which must have a thick brown glazing.

Chub (Chabot). Roast.—Scale, wash, and remove the gills, making the hole as small and as near to the gills as possible; put inside some sweet herbs—rosemary, thyme, marjoram, parsley, and winter savory—tie the fish to a spit and roast, basting frequently with vinegar and butter, and plenty of salt. Barbel, tench, bream, &c., may be dressed in the same way, but should be basted only with butter; salt first strewed on. See Carp.

Broiled.—Scale, wash, and clean the fish, slit it through the middle, cut it 3 or 4 times across the back, and broil over a clear fire, turning it frequently, and basting with butter, plenty of salt, and a little powdered thyme. Trout, barbel, and tench may be dressed in the same way.

Baked.—Put into a fish kettle enough water, with a little vinegar, to cover the fish; add some fennel and a good quantity of salt. When the water boils put in the fish (washed, cleaned, &c.); boil slowly; when done drain for 1 hour, remove the fish from the house, put it into a pie dish with plenty of butter and minced parsley, bake in the oven, and serve very hot.

Cockles (Clovisses, Prayres).—Cockles are very good when treated properly, and make excellent sauce as well as stew prepared in this fashion: Put 100 cockles into a pail of water, wash them with a birch broom; then put them into a pail of spring

water and salt for 2 hours; wash them out, and put them into a saucepan; cover them close, and stew gently till they open. Strain the liquor through a sieve, pick them out of the shells, and wash well. Now put into a saucepan the cockles, the liquor drained from the settlings, ½ pint of hock, grave, or sauterne, a little grated nutmeg, and a piece of butter rolled in flour. Stew till thick and smooth, and serve in a hot dish garnished with sippets.

Cod (Cabillaud, Morue).—Cod is popularly supposed to come into season in September, but is not really good till November, and reaches its greatest perfection in December, January, and February, after which month its quality again declines. In choosing this fish, care should be taken to select one that is thick and round, especially about the shoulders, which should present a clumsy and "humpy" appearance, like those of a wild boar, whose general outline is by no means unlike that of a prime codfish. The flesh should be firm, the gills of a lively red, and the eye bright and plump. It may be remarked that, though it is important to buy fresh cod, it is not quite so well to cook it immediately, as when freshly caught it is apt to be watery; but when rubbed with salt and kept for a day or two it acquires the firmness and creaminess so much prized. Cod is better crimped than when cooked whole, the operation of boiling being more successfully performed under these conditions. The fish may be partially crimped by scoring it at equal distances, without absolutely cutting it through into slices; but the effect of the operation is always to improve the fish. After being thoroughly cleaned the cod should be scored or sliced at regular intervals of about 1½-2 in.; then washed clean in spring water, and laid in a pan of spring water in which a handful of salt has

been allowed to dissolve. About 2 hours' soaking in this brine will produce the desired effect, when the fish may be washed and set to drain.

Au gratin.—In common with turbot and other white fishes, cod is very good when dressed *au gratin*. The cold fish should be picked out in flakes, perfectly free from skin and bone, and in this case no liver should be added; then take a dish, rub it with garlic, butter it and put in the codfish; season with pepper and salt, and pour over it a liberal allowance of melted butter, made with milk and cream; cover the whole with plenty of finely-sifted baked breadcrumbs, then put the dish in the oven; when well browned it is ready. A little finely-grated Parmesan cheese may be sprinkled over the fish as an agreeable variety.

Baked.—The tail-end of a codfish weighing 2-3 lb., or the whole of a small fish, can be cooked as follows: Pass a knife down each side of the backbone, and press in a good stuffing. For the above weight of fish the quantity here given to make the stuffing will suffice: Rub the crumb of a French roll through a coarse gravy-strainer; have very finely chopped 1 oz. beef suet or cooked fat bacon, a pinch of dried parsley and sweet herbs, salt and pepper; mix with egg and ½ teaspoonful essence of anchovy; make ½ pint thin melted butter, squeeze into it the juice of half a lemon, pepper and salt, a teaspoonful of essence of anchovy, and pour into a tin baking dish. Lay in the fish, bake in a moderate oven for about an hour, basting frequently, and taking care it does not brown. Should the sauce reduce too much and get thick in process of cooking, add a little water, a bit of butter, and a few drops of anchovy. When the fish is done, remove it to a hot dish and strain the sauce

over it.

Boiled.—Tie the fish several times over with string, lay it in cold water plentifully salted, and let it boil gently, carefully skimming the water; when done lift it up and let it drain, then serve. An ordinary-sized piece will be done 2-3 minutes after the water comes to boiling point.

Fried.—Any piece of cod can be fried, but the slices should not be more than ½ in. thick, because, if they are so, they take so long to get done through, that either the outside is sodden or dried too much, according to the method of frying. If there is time, sprinkle the slices with pepper and salt, and leave them for 1-2 hours. When ready to fry, wipe the cutlets dry, dip in yolk of egg and very finely sifted breadcrumbs, mixed with an equal proportion of flour, and highly seasoned with pepper and salt. The best plan is to fry the cutlets in a wire basket, with plenty of fat, but if this is not convenient, they can be done in the frying-pan, if care is taken to do them quickly, and to have as much fat at the right temperature as possible. It is best to fillet the tail of cod for frying, and it is an economical dish. Having removed the flesh from the bones, press it flat with the cutlet bat, and divide into neat pieces; finish as directed above. Caper or piquant sauces are suitable for fried cod. The latter can be made by warming finely-minced pickles in plain butter sauce.

Mashed Salt (Brandade).—Take some salted codfish that has been soaked for at least 24 hours. Boil in plain water, drain, carefully pick out all the skin and bones, and separate the flesh into small flakes. Put the flakes into a basin, and work them with a fork until every flake is broken into little pieces. Rub a saucepan freely with garlic, put the fish

and a small quantity of fine salad oil into it, stir well with a fork. Place the saucepan on a very slow fire, and never cease stirring the contents; pour into it salad oil and milk alternately, in the smallest possible quantities, but continuously, until the mixture assumes the appearance of a thick creamy paste. Season with white pepper, add some lemon juice, and never leave off stirring, for it is upon the thoroughness of this operation that the success of the dish depends. Served piled on a dish, with bread sippets fried in butter.

Rock.—Plain boil the cod, remove all the meat, clear it from skin and bone, then mince it fine; mince also an onion; put it in a stewpan with a piece of butter, and steam it soft; then put in the fish, with salt, white pepper, and finely mashed or grated potatoes; stir all well together, with a piece of butter; make hot; serve it well raised, with crumbs browned in butter, sprinkled over or ornamented with narrow strips of pickled beetroot.

Roe (Laitance).—Soft roes, which are the best, are to be bought at prices ranging from 2*d.* to 8*d.* each. This last is very large, and will make a dish amply sufficient for 12 persons. The hard roe is generally sold at 6*d.*, but, as it does not go so far, it is not so cheap as the soft. It has lately come into use, when cured and smoked, as a breakfast delicacy, but, like all other dried fish, is indigestible. When fresh, it requires to be carefully prepared, or it will be tasteless; but properly managed it makes both a good and elegant dish. Besides the recipes given, there are a number of other ways of utilising this roe. It makes an excellent basis for fish soups of any kind, or mulligatawny, and nothing can be better for stewed oysters. It is also very good curried.

Soft Roe Fried.—Take the whole of a small roe or a portion of a large one, about the size of a calf's sweetbread. Boil ½ pint water with a tablespoonful of vinegar, a large pinch of salt, and a shake of pepper. Put the roe in, and let it boil for 10 minutes; then take up and drain. Beat up half an egg, yolk and white together, in a basin, and pass the rose through it so as to touch every part. Have ready some finely-sifted breadcrumbs mixed with an equal quantity of raspings, and well seasoned with pepper and salt, and dip the roe in them, taking care it is nicely covered. Have ready some good frying fat, and when boiling put in the roe; fry on one side until brown and crisp; then turn and finish on the other. Butter sauce and anchovy may be eaten with it; or butter sauce with a little lemon juice and cayenne pepper added.

Hard Roe.—Get the roe the day before it is wanted. Boil it in salt and water until perfectly firm. When cold, slice it into cutlets ¼ in. thick and lay them in a pickle composed of a pinch of saltpetre and of baysalt, a teaspoonful of common salt, pinch of pepper, ground cloves, nutmeg, and allspice, the whole mixed with 2 teaspoonfuls vinegar. Let the cutlets remain in this pickle until the next day, turning them occasionally. A little before cooking drain and dry them, brush them over with egg, and dip them in finely-sifted breadcrumbs, well seasoned with pepper and salt and a pinch of chopped parsley. Fry the cutlets in butter until a nice brown, and when about to serve pour round them a sauce made as follows: Take 4 spoonfuls good gravy, add a few drops essence of anchovy, thicken with ½ teaspoonful flour, chop a tablespoonful of capers, and boil them, for a minute or two in the gravy.

The preceding recipes for roe are due to the well-known authority, Mary Hooper.

Sauté.—Boil a piece of codfish, but do not over do it. Pick out the flesh in flakes, put them in a saucepan with a piece of butter, pepper and salt to taste, some minced parsley, and the juice of a lemon, with a dust of cayenne. Put it on the fire till quite hot, and serve.

Sound (Nau).—(*a*) 6 fine salted sounds will make a good dish. Soak in cold milk and water for several hours, and boil until tender in fresh milk and water; then drain and dish on a napkin as any other fish; serve egg sauce with them.

(*b*) After boiling the sounds, as in (*a*), cut into neat pieces, not too small; and having made the egg sauce, put the pieces of sounds into the stewpan containing it. Hold the stewpan over the fire, shaking it about during the time until the fish is quite hot; then dish it without a napkin, piling the sounds in pyramid form, and pouring the remainder of the sauce over. Garnish with boiled parsnips round the dish; cut into neat pieces alike in size and shape.

Steaks, with Mock Oyster Sauce.—The most economical way of having cod steaks is to order either the tail of a good-sized cod or a cod's head and shoulders, so cut that there is sufficient to take off some steaks, and what remains comes in for luncheon or the children's dinner the following day. Sprinkle the cod with salt, and fry, either with or without breadcrumbs, a golden brown.

Stewed.—With a sharp knife remove the flesh in long slices from 2-3 lb. tail end of a codfish; divide each piece into three or four, dip in flour highly seasoned with pepper and salt, and fry lightly. Boil

the bone of the fish with a minced onion, 3 or 4 peppercorns, a small bundle of sweet herbs, and 1 qt. water, for 1 hour. Strain the liquor, which should be about 1 pint. Let boil up, and thicken with 2 tablespoonfuls of flour, mixed smooth in a little cold water; add 2 teaspoonfuls essence of anchovy, and pepper to taste. Put in the pieces of fish, and simmer them in this sauce for ¼ hour. When about to serve, a few drops of vinegar may be added.

Twice Laid.—Take 1 lb. of the remnants of boiled codfish, remove all skin and bone, taking care to leave the fish in nice pieces. Put 2 oz. butter into a saucepan, when melted add ½ tablespoonful flour; stir it on the fire 2-3 minutes, pour in 1 gill milk, add salt and pepper to taste, and a little nutmeg; stir until the sauce boils. Take 2 hard-boiled eggs, cut each into 8 pieces; put them into the sauce with the fish and about 1 lb. mashed potatoes; mix all lightly together, dish up high on a plate, put into the oven to brown, ornament with some slices of hard-boiled egg, and serve.

With Cream.—Pick out carefully in flakes all the flesh from the remnants of some boiled codfish; melt a piece of butter in a saucepan, and add to it a large pinch of flour and 1 gill milk or cream, with pepper, salt, and grated nutmeg to taste, also the least bit of cayenne; stir well, put in the fish, and gently shake it in this sauce till quite warm. If the composition be too dry add a little milk or cream; then add off the fire the yolks of 2 eggs beaten up with a little milk, and serve.

Crab (Écrevisse de mer). Browned.—Take the great shell, clean and butter it; mince all the fish, shred some parsley, mushrooms, truffles, and a little young onion. Brown these in a saucepan with a very little

butter; put in the minced crab with the inside bruised, and some cayenne pepper and salt; stir this about, shake in some flour, and add a little corach. Let this simmer up, fill up the shell, strew over crumbs of bread with small piece of butter; brown in a Dutch oven or with a salamander.

Dressed.—To produce a successful dressed crab, boil a large and a small crab in salt and water. When cold, open them, pull off and break the claws, and take out the chine. Clear out the shells completely, and put the soft creamy part into a basin. Now pick out all white meat from large and small claws and chine, and put some of this aside. Add to remainder a dressing of oil, vinegar, pepper, salt, and mustard, and mix well. Replace the mixture in the shell of the large crab, strew over the top the reserve of white meat, pulled into fibres, and adorn it with powdered yolk of hard-boiled egg, lobster spawn, and caviar, disposed in stripes, triangles, or diagonals.

Devilled.—Take 2 boiled crabs, pick out the meat and put it aside. Mince 2 or 3 shallots very finely, and put them into a stewpan with a goodly lump of butter. Fry the shallots to a gold colour, and then put in a little milk, salt, cayenne pepper, a dash of ketchup, a spoonful of chutnee, and a very little parsley finely chopped. Boil till it thickens; put in the minced crab, and let it boil up; then add the yolk of an egg, a little cream, and amalgamate quickly. Fill the shell of the larger crab, egg and breadcrumb it, put into the oven for 10 minutes, pass a salamander over it, and serve.

Crayfish.—The sea crayfish (*langouste*) may be cooked in every way like lobster, but its flesh is very inferior in texture and richness. Freshwater crayfish (*écrevisse*) are in this country frequently ignored in

consequence of the abundance of lobsters, but are excellent morsels even when simply boiled and eaten cold, and are invaluable as garnish. The famous *bisque d'écrevisses* is made in the same way as lobster soup, save and except that the shells are pounded and added to the soup at an early stage of its confection. The rich, highly flavoured dish known as *écrevisses à la bordelaise* is made by first getting ready a *mirepois* thus: Cut into small dice 3 carrots and 3 onions, and add to them a bay leaf, some thyme, parsley, and lean ham, the whole chopped finely. Put all these into a stewpan with a large piece of butter, and let it stew gently without taking too much colour. Having thoroughly cleaned 24 raw crayfish, put them into the *mirepois* with half a bottle of sauterne, half a glass of good cognac, a piece of glaze, and a little good stock; throw in a little pepper and salt, and cook over a brisk fire. In aspic: see Prawns.

Dab (Limande): see Flounder.

Dace (Vandoise) Boiled: see Carp. Stewed: see Carp, Trout.

Eels (Anguilles).—When intended for frying or stewing, eels are skinned, but for a broil or "spatchcock," the skin, after thorough scouring and cleansing, should be left on. In all these processes care should be taken that the eels be not overdone. Nothing, of course, can well be more detestable or more unwholesome than underdone fish, but in the case of eels great nicety is required, as if they are cooked too much all springiness and elasticity are lost. This point is often neglected in a stew or *matelote*; all individuality of texture is sacrificed, and a soft, tasteless dish is the consequence. Very large eels may be stuffed with truffle or other stuffing, and

roasted; and small ones may be made into a pie; but the broil, fry, and stew are the most popular forms.

Broiled.—To "spatchcock" an eel, select a large one. Scour well with salt, wipe clean with a cloth, slit down the back, take out the bone and inside, cut off the head, and wipe off the blood. Cut into 4-5 pieces. Brush these over with yolk of egg, and sprinkle with a mixture of breadcrumbs, sweet herbs, parsley, and the thin rind of lemon rubbed fine, a little grated nutmeg, pepper and salt. Put on a well-anointed gridiron over a clear fire, skin-side downwards. When that side is done, turn on the other, and broil to a fine brown. Lay in a hot dish, and garnish with horseradish and parsley. Serve, separately, anchovy sauce, *ravigote* sauce, or, best of all, a cold *tartare*.

Conger (Anguille de mer). Broiled.—Flay, draw, cut in pieces, and wipe clean; then parboil in water with salt and sweet herbs; lay the pieces on a clean gridiron, over a clear fire, turning often, and basting with butter and sweet herbs. Serve with butter, beaten up with 4 or 5 spoonfuls of hot spring water, and the beaten-up yolk of an egg. See Carp; Ling.

Collared, to be eaten cold.—Prepare some large eels as for broiling, divide down the back and take out the bone, strew inside with powdered herbs (thyme, parsley, &c.) and spices (nutmeg, cloves, ginger, pepper), and salt; roll up the eels, tie in a cloth, bound close with packthread, and boil in water and vinegar, with salt, till quite tender—the liquor must boil before putting in the eels. When done, take them out of the liquor, which must be allowed to get cold, then put them back and let remain 5-6 days. Serve either in collars or in round slices, with vinegar. If to keep for a long time, no herbs ought to

be put in, only the salt and spices; and the pickle they are kept in must be boiled every fortnight, vinegar and water being added as it wastes.

Fricassée.—Scour some moderate sized eels, cut off the heads, draw, &c., and cut them into pieces; put them into a frying pan with as much white wine and water as will cover them; add spice, cloves, mace, nutmeg, pepper, sweet herbs, and salt; boil well; when tender, dish them with 2 pounded anchovies, the yolks of eggs, and butter, added to the liquor and poured over.

Fried.—Wash clean, &c., cut them into pieces 3-4 in. long; put into some boiling water, with salt and fennel, and let them partly boil; drain the water well off, flour, and then fry till brown and crisp, first on one side and then on the other.

Galantine.—Split a good-sized conger, and take out the bone. Chop and mix a tablespoonful of parsley, the same quantity of sweet herbs, the thin rind of a lemon with a seasoning of salt, cayenne or pepper, and a little ground mace. A few mushrooms are an improvement. Sprinkle this on the inside of the fish, and roll up, beginning at the head end; wrap in a cloth to keep it in shape, and simmer in equal parts vinegar and water until tender. Let remain in the stock till both are cold, then take out of the cloth, and serve cold, garnished with parsley, and if possible glazed. It is also very good cut in slices, and set in a mould of clear jelly with hard-boiled eggs.

Matelote.—Take 2 or more eels, cut them up into pieces 2 in. long. Put ½ pint stock and the same quantity of claret into a saucepan with a sliced onion, a pod of garlic, some whole pepper, salt, cloves, thyme, bay leaf, and parsley, all according to taste, lay the eels in this, and let boil gently till done.

Strain the sauce, and add to it a liqueur glass of brandy. Melt a good sized piece of butter in a saucepan, stir in 1 tablespoonful flour, then add the sauce; let boil, and pour over the fish which you serve with sippets of bread fried in butter round it.

Pie.—Skin, prepare, and cut up the eel, season the pieces with spices (cloves, mace, nutmeg, and pepper, well powdered) and salt; line a pie dish with paste, and lay in the pieces with some currants (well cleaned) and butter; cover over with paste, make a hole in the top, pour in 6-8 spoonfuls of white wine, and bake in the oven.

Roast.—Wash a large eel in salt and water, partly pull back the skin as far as to the vent, draw and clean but do not wash again; notch 2 or 3 times with a knife, and stuff with sweet herbs, an anchovy cut very small, and some grated nutmeg. Cut off the head, put the skin back and tie it, to keep in all the moisture, fasten to a spit and roast slowly, basting (till the skin breaks) with salt and water, then with butter. Sauce, melted butter, with the stuffing from the fish.

Stewed.—1 middle-sized onion sliced, 1 dessertspoonful chopped parsley, a small quantity of chopped lemon peel, 1 teaspoonful chopped capers. Fry in a stewpan in a little butter, stir a few minutes, add ½ pint good brown stock, with a little caper or tarragon vinegar in it, and pepper and salt to taste; then add 1½ lb. middle-sized eels, not skinned, but cut into pieces rather less than 3 in. long. Put in the heads, but take them away before sending the dish to table. Cook gently ½ hour, then thicken with flour and butter, and boil gently a few minutes to cook the flour. The sauce should adhere to each piece of eel the thickness of good cream. Serve in a hot covered

dish, and send at once to table. (S. R.)

Flounder (Carrelet).—The flounder may be cooked in any of the ways prescribed for other flat fish, and is capital when fried. Still, the highest expression of the flounder is found in the dish with which he is specially identified—water souchet.

Water souchet.—To prepare this dish properly, a good fish stock should be made of the heads, fins, and other trimmings of flounders, or of any fish that may be handy. This may be prepared while the flounders are crimping, an operation which should not be overlooked if the fish are of tolerable size. Throw the trimmings into a stewpan, with pepper and salt and sufficient water; add 6 parsley roots cut up small, and a handful of green parsley; bring this to the boil, let it simmer for 1-2 hours, and strain. Put some of this liquor with a few finely shred and blanched parsley roots into a saucepan, throw in a handful of salt, and boil for 5 minutes; then put in the fish and boil for 5 minutes, when add a large handful of green parsley, nicely washed and picked, and boil for 5 minutes longer. Take up the fish very carefully, strain the parsley and roots in a sieve, put them on the fish, and add enough of the liquor to cover them well. Garnish with lemon, and eat with brown bread and butter, cut very thin.

Grayling (Ombre).—Stewed: see Carp, Trout.

Gudgeon (Goujon).—Gudgeon requires a world of scraping and cleaning, but are well worth the preliminary pains, as they only need to be treated like whitebait, i.e. floured and fried in boiling lard, to be quite successful. They may or may not be garnished with fried parsley, and should be eaten with lemon, cayenne, and salt, and very thin slices of brown bread and butter.

Gurnet (Rouget, grondin). Baked.—Take some fine breadcrumbs, add ¼ their bulk of shallots and the same quantity of mushrooms, both finely minced and lightly fried in butter; then add some chopped parsley and sweet herbs; season with pepper and salt, and make the mixture into a paste by working into it the yolks of 1 or 2 eggs, a pat of butter, and a little milk. Stuff the fish with this, and truss it with packthread. Butter a baking dish, dispose upon it an onion and a carrot cut in slices, a few sprigs of parsley, 2 or 3 cloves, and some whole pepper and salt to taste. Lay the fish on this, then add a good ½ pint stock and a wineglass of white wine, cover the fish with a sheet of buttered paper, and bake it ½-¾ hour, according to the size. Baste it now and then during the process with its own liquor. When done strain the liquor into a saucepan in which a piece of butter has been mixed with a tablespoonful of flour, add a little *suc colore* to give the sauce a good colour, and as soon as it is boiling hot pour over the fish and serve.

With Caper Sauce.—Place the fish trussed with packthread in a fish kettle full of cold water, well salted; when the water comes near boiling point draw the fish kettle aside, let simmer gently till the fish is quite done, lift up to drain, then lay it on a dish; pour plenty of brown caper sauce over.

Haddock (Eglefin).—Boiled.—Tie the fish with a string in the shape of an S, or with its tail in its mouth; lay it in plenty of cold water, well salted. Place the fish kettle on the fire, and by the time the water is on the point of boiling, the fish, unless it be a very large one, should be quite done. Let it drain across the kettle, and serve.

Broiled.—Split the fish open, wipe dry with a

cloth, rub with salad oil and flour it, then broil over a clear fire; meanwhile knead 1 oz. butter with the juice of half a lemon, pepper and salt to taste, and a little parsley blanched, squeezed dry, and very finely minced; put this butter on a hot dish, the fish over, and serve.

Dried.—Warm the haddock before the fire, just long enough to make the skin peel off easily. Cut it into pieces down the middle, and 2 or 3 times across. Put it into a closed saucepan with a lump of butter and a small teaspoonful of water, stew gently for a few minutes.

In Jelly.—See Trout in Jelly.

Hake (Merlus).—See Cod. Roast: see Pike. Stewed: see Ling.

Halibut (Flétan).—Of the halibut little need be said. It is a large fish, endowed with firm and white, but rather coarse flesh. It is perhaps best stewed or fried. Boiled halibut is very apt to be woolly.

Herrings (Harengs).—Fried.—Take care the fish is well cleaned, without being split; 2-3 hours before cooking, lightly sprinkle with salt and pepper; when ready to cook, wipe and flour the herrings. Have ready in the frying pan as much fat, at the proper temperature, as will cover the herrings. Cook quickly at first, then moderate the heat slightly, and fry for 10-12 minutes, when they should be crisp and brown. When done, lay them on a dish before the fire, in order that all fat and fish-oil may drain from them. With this precaution, fried herrings will be found more digestible than otherwise they would be. When herrings are large, there is sometimes a redness near the bone; this will be prevented by passing a knife, before cooking, a little way down the

backbone, near the head.

Rolled.—Choose herrings with soft roes. Having scraped and washed them, cut off the heads, split open, take out the roes, and cleanse the fish. Hold one in the left hand, and, with thumb and finger of the right, press the backbone to loosen it, then lay flat on the board, and draw out the bone; it will come out whole, leaving none behind. Dissolve a little fresh butter, pass the inner side of the fish through it, sprinkle pepper and salt lightly over, then roll it up tightly, with the fin and tail outwards, roll it in flour, and sprinkle a little pepper and salt, then put a little game skewer to keep the herring in shape. Have ready a good quantity of boiling fat; it is best to do the herrings in a wire basket, and fry them quickly for 10 minutes. Take them up and set them on a plate before the fire, in order that all the fat may drain from them. Pass the roes through flour mixed with a sufficient quantity of pepper and salt, fry them brown, and garnish the fish with them and crisp parsley. A difficulty is often felt in introducing herrings at dinner, on account of the number of small bones in them, but this is obviated by the above method of dressing, as with care not one bone should be left in.

John Dory (Dorée).—Stuffed.—Pick out all the flesh from a whiting, pound it with an equal bulk of breadcrumbs soaked in milk, a piece of butter, a small onion or a shallot, blanched, pepper, salt, and grated nutmeg to taste; mix the whole very well, and work it into a paste with the yolks of one or two eggs. Lift up the flesh from the backbone of a good-sized John Dory, stuff it with the above composition, and tie up with string; lay in a buttered tin with a tablespoonful of minced shallots, a couple of bay

leaves, some whole pepper, and salt to taste; pour in enough stock and white wine in equal parts to cover the fish, place a sheet of buttered paper over, and put the tin in the oven for about ¾ hour, more or less, according to the size of the fish. Remove the string, and serve with some of the liquor strained and thickened with a little butter and flour.

With Caper Sauce.—Place the fish, trussed with packthread, in a fish kettle full of cold water well salted; when the water comes near boiling point, draw the fish kettle aside, let it simmer gently till the fish is quite done, lift up to drain, then lay on a dish, pour plenty of brown caper sauce over.

Lamperns.—These great delicacies are in season from October to April. Many persons confuse them with the lamprey, which is a totally different fish, being larger than an eel, while the lampern is not more than 8 in. long. They should be bought alive, killed by boiling water, cleaned by stirring them briskly round in the bucket in which they are killed, and after rinsing them in cold water, rubbed in a cloth. They should then have the points of their mouths and the tips of their tails cut off, taking care to remove as little as possible, else the gravy is lost, and the nature of these fish is the same as a snipe.

Stewed.—Have ready about 3 tablespoonfuls of good rich gravy, ¼ pint claret or port, a blade of mace, 3 cloves, a teaspoonful of salt, ½ teaspoonful of pepper, a squeeze of lemon juice, a dessertspoonful of Worcester sauce. This is sufficient for stewing 3 doz. lamperns. Stew them very gently for about 1 hour, set them aside in the gravy till the following day, when they may be rewarmed; the gravy thickened with butter and arrowroot, a little more sauce added; serve very hot, garnished with

lemon and horseradish. They should always stand a night in the gravy before being eaten, and will keep for a week. If potted, they should be curled round in a small jar when stewed; about 9 or more fish make a small pot; the gravy requires setting with a little isinglass, and when sent to table they should be turned out and garnished with parsley. The flavour of the lampern is totally unlike that of any other fish, and epicures in Worcestershire will pay a high price for them when they are scarce. (E. B. W.)

Lamprey (Lamproie). Baked.—Skin, draw, and split the back from mouth to tail, remove the string in the back and truss it round; parboil it in salted water with sweet herbs, season when cold with nutmeg, pepper, and salt. Line a pie dish with paste, put butter at the bottom, then the lamprey, 2 or 3 onions, cloves, currants, a piece of butter; cover the pie, fill it up (through a hole in the top) with clarified butter—or boiling claret, this will not keep so long—and bake. Eels, lampreys, &c., may be baked in a glazed earthen pot (without paste) rubbed inside well with butter, and—if to keep long—they should be seasoned well with cloves, mace, pepper, and salt.

Ling.—Cut 1 lb. ling into slices, rub with flour, and fry a nice brown. When done, fry a stick of celery and a very small onion. Add ½ pint stock with a dessertspoonful of flour, a sprig of parsley, a piece of lemon peel, a blade of mace, salt, and peppercorns. When it boils, put the fish back in the saucepan, and simmer very gently until done, i.e. 15-20 minutes. Put the slices on a hot dish and strain the gravy over. The sauce may be varied by adding the chopped whites of a hard-boiled egg just before serving, and rubbing the yolk over the dish through a sieve as a

garnish. Conger requires longer cooking; hake and most other white fish, which can be used for this same recipe, not so long.

Lobster (Homard).—During the early summer months lobsters are in prime condition, and may be bought either alive or dead. As they are very tenacious of life, and indeed will live on till their substance is utterly wasted, it is clearly better to buy them alive, taking care not to kill them till just before cooking. The heaviest are the best; and if the tail strikes quick and strong, they are in good condition, but if weak and light and frothing at the mouth, are exhausted and worthless. In like manner, when buying a boiled lobster put your finger and thumb on the body and pinch it; if it feels firm, and the tail goes back with a strong spring, the lobster—if heavy and of a good colour—is a desirable specimen.

À la St. Malo.—Take a lobster, cut in two lengthwise; take out all the flesh, and scallop it, making the claws and coral into lobster butter. Reduce some good gravy with a little double cream, and add two spoonfuls of tomato sauce: stir all well together, with a pinch of cayenne pepper. Roll the lobster scallops in the sauce, and place them in the shell, on the top of a few minced truffles, and cover with the thick sauce; mix a little butter and shallot with breadcrumbs and finely-chopped parsley. Scatter this over the lobster, and cook *au gratin* for ¼ hour. (Mrs. C.)

À l'Enfant Prodigue.—Get a couple of lobsters, and cut them down the back, leaving the shell of the heads intact; remove the non-edible portions and break the claws. Put the whole into a stewpan with a bottle of champagne (sweet champagne will do), 4

spoonfuls fine salad oil, 3 cloves of garlic, a sprig of basil, and a lemon (sliced and freed from peel and pips), salt, pepper, chervil, parsley, a few mushrooms, and 2 lb. truffles (whole). When done, take out the sweet herbs, cut off the heads of the lobsters, place them erect in the middle of the dish, and dispose the other pieces around. Impale the truffles on the antennæ of the lobsters, pour the sauce over, and above all, serve Clos de Vougeôt, Chambertin, or Côte Rôtie with this dish.

Au gratin.—Split the tail and body of the lobster, removing the fish and taking care not to break the shells, mince up the fish and put all into a stewpan with a little good stock, and pepper and salt, mix it well, fill the shells with the mixture, cover them with breadcrumbs, brush over with clarified butter, and brown with a salamander.

Boiled.—A fine lobster simply boiled and served piping hot is a capital dish. To produce this, tie up the lobster's tail fast to the body with a string, put on a saucepan or fish-kettle with sufficient water; let it boil, put in the lobster with a handful of salt, and boil for about ½ hour (a small one will not require more than 15-20 minutes), then take it out, wipe all the scum off, break the claws, split it through the tail and back, and lay it in a hot dish, "displayed" with a claw on each side. Melted butter is generally served with this dish, and is much improved by the addition of pounded spawn; but a hot *ravigote* or *tartare* sauce will be found an improvement on the traditional accompaniment.

Broiled.—After being boiled as above, a lobster may be broiled in this wise: Take the claws off and crack them, split the body and tail in two, season well with pepper, salt, and cayenne, and broil. Serve

with plain butter or with a little heated ketchup, dashed with Worcestershire sauce.

Roast.—There are 3 methods of roasting a lobster. One is to boil it and put it in a dish before the fire, and baste it with butter till it froths, and then "display" it in a hot dish, and serve. Another plan is only to half boil the lobster, then butter its shell, and tie it to the spit before a brisk fire. After a plentiful basting with butter, it may be served with a hot *sauce tartare*. A more thorough method than either of these is to tie a large uncooked lobster to a long skewer, using plenty of packthread, and attaching it firmly, for a reason to be presently stated. Tie the skewer to a spit, and put the lobster down to a sharp fire; baste with champagne, butter, pepper and salt. After a while the shell of the animal will become tender, and will crumble between the fingers. When it comes away from the body the operation of roasting is complete. Take down the lobster, skim the fat from the gravy in the dripping-pan, add the juice of a Seville orange, pepper, salt, and spice, and serve in a lordly dish.

Buttered.—A buttered lobster should be first boiled and broken up. Take out all the meat, cut it small, and put it into a stewpan with plenty of butter, a little pepper, salt, and vinegar, and stir till it is hot. If a handsome dish of 2 or 3 lobsters be desired, the tails should be halved and broiled, and put round the dish with the minced lobster in the middle.

Cream.—Take the flesh from 2 lobsters, cut up small, and then pound in a mortar with the spawn until reduced to a smooth paste; then pass through a fine sieve, add pepper, salt, and grated nutmeg, and mix gradually sufficient double cream to make it of the consistency of a thick purée. Just before serving,

put into small paper cases and serve cold with some of the spawn sprinkled over the top.

Croquettes.—Mince the flesh of a lobster to the size of small dice, season with pepper, salt, spices, and as much cayenne as will rest on the point of a trussing needle. Melt a piece of butter in a saucepan, mix with it 1 tablespoonful flour, then the lobster, and some chopped parsley; moisten with a little stock until the mixture looks like minced veal; then stir into it off the fire 2 yolks of eggs, and put by to get cold. When nearly so, shape into the form of corks, egg them, and roll in baked breadcrumbs. After the lapse of an hour, egg and breadcrumb them again, taking care to preserve the shape. After a little time fry them a nice colour in hot lard.

Croustades.—Cut the crumb of a loaf of bread into slices 2 in. thick, and then with a round paste cutter about 2 in. diameter, cut out of each slice as many pieces as you can; with another paste cutter, about 1½ in. diameter, make a mark on one side of each cylinder of breadcrumb. When all are ready fry them a golden colour in very hot lard; a deep frying-pan should be used, and plenty of lard, so that the croustades fairly swim in the fat. When done lay them in front of the fire to drain, and afterwards remove the cover (marked with the smaller paste cutter), and with the handle of a teaspoon scoop out all the inside of each croustade. Then fill them with the following mixture:—Mince the flesh of a hen lobster to the size of small dice, season with pepper, salt, and spice, and as much cayenne as will rest on the point of a trussing needle. Pound some of the spawn with 1 oz. butter, pass it through a hair sieve. Take another ounce of butter, melt it in a saucepan with a teaspoonful of flour, add a very small quantity

of white stock and the flesh of the lobster; when the mixture is thoroughly hot, put in a pinch of finely minced parsley, the juice of half a lemon and the butter which was pounded with the spawn.

Curry.—Lobster curry is made by frying sliced onions in butter till they are done enough. The flesh of a boiled lobster is then added, and the curry powder (made into a paste) is put in with a liberal allowance of cream. 15-20 minutes will cook this dish, which should be carefully stirred all the time. It may be served within a wall of rice, or, better still, with the rice in a separate dish.

Cutlets.—Take out the meat of either a lobster or crab, mince it up, and add 2 oz. butter, browned with 1 tablespoonful flour, and seasoned with a little pepper, salt, and cayenne. Add about ½ pint strong stock, stir the mixture over the fire until quite hot, and lay it in separate tablespoonfuls on a large dish. When cold, form into the shape of cutlets, brush over with yolk of egg (beaten), dip in breadcrumbs, fry of a light-brown colour in clarified beef dripping, and place round a dish, with a little fried parsley in the centre.

Kromeskies.—Mince finely a small quantity of the flesh of lobster, toss it in butter on the fire, adding a pinch of flour, a little white stock, salt, pepper, and spices to taste, and lastly the yolk of an egg beaten up with a little lemon juice; but this should be done off the fire. Spread the mixture on a dish to cool; divide it into portions the size of a walnut; wrap each portion in a piece of white wafer, previously wetted; then dip them in batter, and fry a golden colour in hot lard. Serve piled up on a dish, with fried parsley.

Omelet.—Slice a quantity of the flesh of a lobster,

equal in bulk to 2 eggs, season with pepper, salt, and nutmeg; mix on the fire some butter and a little flour, moisten with a little stock, add the lobster, and stir in, off the fire, the yolk of an egg beaten up with the juice of half a lemon. Insert this ragout in the fold of a plain omelet. Turn out on a dish, and serve.

Salad.—Boil 4 eggs hard; when quite cold carefully remove the yolks, beat with a fork, with 2 teaspoonfuls mustard, 1 of salt, 1 of pepper, and a little cayenne; mix well together, add 4 dessertspoonfuls vinegar and 1 of lemon pickle. When quite smooth, add the spawn of the fish and ½ pint cream. Cut up the boiled fish in small pieces, and with an onion nicely minced, stir them into the sauce. Place the lettuce, endive, cress, &c., upon the lobster, garnish with beetroot and slices of whites of egg.

Sandwiches.—Take the flesh of a boiled lobster, cut the thick part into thin slices, put on a plate, and sprinkle with salt, pepper, a little oil and cayenne. Put any trimming of lobster and anchovies, or sardines, into a mortar with 2 oz. fresh butter, salt, pepper, and a little anchovy sauce, pound well together and pass through a sieve. Cut slices of thin bread and butter, place the slices of lobster carefully on them, and spread over each the above butter; put on another piece of bread and butter, flatten each sandwich, and cut into any shape you please. Serve either on a napkin with parsley, or over small cress. Potted lobster can be used for this purpose with greater advantage, and likewise a little cress, chopped, may be put next the slices of lobster. (Jane Burtenshaw.)

Soufflé.—Take out the meat from a small lobster, break it into pieces, and then pound it in a mortar

with some of the spawn of a hen lobster, and an equal quantity of butter; add pepper, salt, and spices to taste, with as much cayenne as can be taken up on the point of a trussing needle; slightly pound the rest of the lobster, and put it into some very good veal stock, simmer gently until well flavoured; then strain and add sufficient of this with a little double cream and a dash of lemon juice, to make the mixture of the consistency of thick lobster sauce, stir over the fire until well mixed; then leave to get nearly cold; now add quickly the yolks of 3 or 4 eggs, according to quantity, and lastly the whites whipped to a stiff froth; pour it at once into a soufflé tin, and bake in the oven. Serve immediately.

Stewed.—For stew or *ragoût*, lobsters should be only half boiled, and then transferred to the stewpan. To concoct a stew, proceed as follows: Half boil a fine lobster, and take out the meat in as large pieces as possible. Put it into a stewpan, with a little white stock, 2 glasses hock, sauterne, or very light sherry, a little beaten mace, cayenne pepper and salt, a spoonful of ketchup, a dash of anchovy sauce, and a little butter rolled in flour. Stew gently for 20 minutes, shaking now and then; squeeze in the juice of a lemon, and serve on a hot dish.

Mackerel (Maquereau).—In March superb mackerel may be obtained, full of roe and in perfect condition, while throughout the year they may be got in London in fair case for eating. Mackerel cannot be cooked too soon after being caught. The flesh immediately begins to deteriorate, and within a couple of days loses flavour—going in hot weather rapidly “to the bad.” In buying this fish, therefore, great attention must be paid to its condition and freshness. A good mackerel should be of fair size (not

the monster called horse mackerel), plump, very thick and round in shape, full and deep from the shoulder downwards. The eye should be full and bright, the skin glossy, and the body stiff. The bars on the back should also be observed, as these are straighter in the male than in the female fish, the former of which is justly preferred, on account of the richer quality of the flesh and the exquisite texture and flavour of the roe.

Baked.—Wash and clean 3 or 4 mackerel, divide them down the back and once across, making 4 pieces of each fish. Arrange these pieces compactly in a pie dish in layers, with 3 or 4 bay leaves, 6 shallots sliced, a dessertspoonful of peppercorns, half that quantity of pimento berries, 8 cloves, and a little white pepper. Make a sauce with ½ pint good stock, 1 wineglass each of claret and vinegar, 1 tablespoonful mushroom ketchup, and the same of anchovy and Harvey sauce, with a tablespoonful of Worcester sauce and soy. Bake in a moderate oven with a cover on the dish until the fish is quite done; take from the sauce, and place on the dish you intend serving it on; strain the sauce, and pour over the fish. Serve cold, garnished with sprigs of parsley or fennel. Fish cooked in this way will keep good for 2-3 days, if left in the sauce and covered over.

Boiled.—For boiling, mackerel should be carefully cleaned, from the gills, well washed in vinegar and water, and allowed to dry before being put into the fish kettle, when a handful of salt should be put into sufficient water to cover the fish which should be allowed to boil gently for 15-20 minutes. As the critical moment approaches the fish should be carefully watched, as when the eye starts and the tail splits it is done, and must be taken up immediately,

or it will break. Serve on a napkin with fennel sauce (in boats) made as follows: Pick and wash a bunch of fennel, tie it up and "blanch" it, i.e. throw it into boiling water and let it remain for a few minutes, drain and chop it finely and add it to some melted butter, make it quite hot, and serve. When fennel is unattainable parsley may be used—albeit a feeble substitute—instead. Another good sauce for boiled mackerel is made thus: throw a large piece of butter rolled in flour into a stewpan, add chopped and blanched parsley and mushrooms, a little chopped shallot and a *soupçon* of garlic, moisten with a cupful of stock or broth, add salt and a little grated nutmeg, and just before serving stir in a little mustard, amalgamate thoroughly, and serve in a boat.

Broiled.—When the fish are split open, wipe carefully with a dry cloth, sprinkle lightly with pepper and salt, and hang up in a cool place with plenty of air until next morning. Take care to keep the fish open when you hang them up. When ready to cook the mackerel, dissolve ½ oz. butter or bacon fat for each fish, and pass them through it on both sides. Lay them on a gridiron over a very slow fire, turn frequently, basting now and then with a little butter. When the fish is last turned, sprinkle finely-chopped parsley on the inner side, and then serve very hot. They must be very slowly cooked; they will take at least 20 minutes. If put over a fierce fire mackerel is rendered hard and indigestible, and the fish itself is unjustly blamed, but if the above recipe is followed a most delicious dish will be produced.

Devilled.—Split the mackerel down the back, and remove the bone. Divide the fish into 4 fillets, trim neatly, and season well with made mustard, black pepper, salt, and a little lemon juice; let remain for a

short time, 1 hour if possible, then dip in oil or melted butter, and broil over a clear fire; serve with fried parsley and cut lemon, or with a grill sauce, viz. gravy flavoured with French mustard, mushroom ketchup (or any flavouring preferred), a few chopped capers, and with a thickening of butter, flour, and a dash of lemon juice.

Fillets.—Split 2 mackerel, remove the bone, cut off the heads and tails, and trim the 4 halves into 12 fillets; remove the skin from each; sprinkle with pepper and salt, and set to cook with plenty of butter in a sauté pan, or in a tin in the oven. Put all the bones and trimmings of the fish to boil for 1 hour in a saucepan, with 1 onion, 1 carrot, some parsley, sweet herbs, pepper, salt, and cloves to taste, and a little water; then strain it. Fry in oil 3-4 shallots finely minced, and as many mushrooms, until they are a light brown; then add 3 tablespoonfuls wine vinegar, mix well, and let it reduce by one-third. Add the above liquor and a little chopped parsley, and dish the fillets with this sauce.

Fricassée.—2 mackerel, 1 tablespoonful parsley, juice and rind of one lemon, yolks 2-3 eggs, ¼ pint cream, 2 oz. butter, 1 tablespoonful flour. Clean the mackerel and with a sharp knife just cut through the skin round the head, strip the skin off from the head to the tail, then run the knife down the back close to the bone, on the outside, turn the fish over, and proceed as before, keeping the knife close to the bone; strip the fillet off each side of the bone, cut across in an oblong shape, lay on a dish, sprinkle with a little sauce. Next put the bones of the fish into a stewpan, with the stalks of the parsley, the rind of the lemon pared very thin, and a little water, let them stew about ½ hour; when done strain the

liquor from the bones into the basin, rinse the stewpan, and arrange in it the fillets in one layer; pour over them the liquor from the bones, and let them simmer 10-15 minutes very slowly. About 5 minutes before the fish is done add to it a tablespoonful finely-chopped parsley, a little salt, white pepper, the flour and butter previously mixed on a plate, and the cream; shake the stewpan round to mix the butter and flour, let the sauce just boil, add the beaten yolks of 2-3 fresh eggs, and the lemon juice; but be sure not to let it boil after the eggs are put in, or the sauce will curdle. The roes of the fish should be fried, and laid on top of the fricassée; and a wall of mashed potatoes or rice might be put round the dish if liked.

Grilled.—Split 2 mackerel down the back, and remove the bone. Mix some olive oil in a dish with pepper and salt, lay the mackerel in this, and turn them over so that they are well oiled on both sides. Place them in a double gridiron, and grill them for about 10 minutes in front of a clear, but not too fierce, fire, turning them frequently during the process. Serve back downwards, with a large piece of *maître d'hôtel* butter on each fish.

Roes.—Blanch some soft roes of mackerel for about 5 minutes in salted water, with a dash of vinegar in it; drain them on a cloth; fry a minced shallot in butter, add some mushrooms finely chopped, a pinch of flour, a little stock, some minced parsley, pepper and salt, and the juice of half a lemon; stir the sauce well. Oil some paper cases; put a little of the sauce in each, then as many slices of roe as it will hold, and fill up with more sauce. Put the cases in a moderate oven, and serve as soon as the contents are hot.

Mullet [*Grey*] (Mulet). Boiled.—Choose a good-sized fish, lay it in the fish kettle with plenty of well-salted cold water; when the water boils draw the kettle aside, lift up the fish, and let it drain, covered up over the water until the time of serving.

Broiled.—See Carp.

In Jelly.—Take a grey mullet, about 5 lb., scale and wash well; put it in a fish-kettle, with sufficient water to just cover it; add the juice of 12 lemons, 6 sweet and 3 bitter oranges, some allspice, and 2 onions, with a few cloves stuck in them. Let the fish boil gently in this liquor till done. Put in a deep dish when cooked; then put 1 oz. isinglass or Nelson's gelatine, previously soaked in cold water, in the water the fish was cooked in, and let it simmer till dissolved; then strain over the fish till not quite covered, and let it remain till next day, when the jelly ought to be firm, but not so stiff as calves'-foot jelly. (E. G.)

Stewed.—Take a grey mullet (3-4 lb.), scale and wash well; sprinkle with salt and let it rest. Put a teacupful of olive oil in a frying pan with 4 or 5 onions; put it on the fire, and fry rather brown; lay the half on the bottom of a deep baking dish, place the fish over, then a good layer of chopped parsley, a layer of tomatoes in slices (or American tinned ones will do) and the remainder of the onions, and another layer of parsley; pour over the oil left in the frying pan ½ teacup French vinegar, 1 teacupful water, with some salt in it and 2 tablespoonfuls conserve de tomates. Bake in the oven for about 1 hour in a moderate heat; lay the fish in the centre of the dish and the vegetables round. This must have no gravy left. Best eaten cold. See Carp.

Mullet [*Red*] (Rouget).—This "woodcock of the

sea" must never be drawn or cleaned, as, like its land namesake, it is a very clean feeder. As its own flavour is its greatest attraction, it is better to cook it in a manner that does justice to that flavour, without overpowering it. Lay 3-4 red mullet in a deep dish in vinegar, and some whole pepper, and let them do themselves, and be served in the juices that they throw out; or plain boil them, and mix their insides with plain melted butter, without rejecting any part.

Baked.—Cut 1 carrot and 2 onions into thin slices; add thyme, parsley, and marjoram, with pepper and salt to taste, and 3 tablespoonfuls salad oil; mix these well together, cover each mullet with the mixture, and roll up in a piece of white paper, previously oiled; bake them in a moderate oven ½ hour, then carefully open the paper, place the fish neatly on a dish, ready to be served, and keep it warm. Melt a small piece of butter, add a large pinch of flour, half a tumblerful of good stock, and the vegetables, &c., the fish were cooked in. Let the sauce boil 5 minutes, add salt if wanted; strain, skim, pour it over the fish, and serve.

Broiled.—Wipe each fish quite dry, and lay it on a sheet of note paper well oiled with salad oil; sprinkle pepper, salt, and a little minced parsley on the fish, and a little lemon juice; fold up the paper neatly, and broil them on a gridiron; take them out of the paper, and lay carefully on a dish; pour the following sauce over and serve: Fry in a little salad oil a couple of shallots very finely minced, then add a wineglassful of sherry, 6 mushrooms finely minced, and as much Spanish sauce as may be required. Lastly, put in a little finely chopped parsley, and a little lemon juice. Let the sauce gently simmer for ¼ hour, and, having skimmed off the fat, pour it over the fish.

Stewed.—Make a paste in a basin with breadcrumbs soaked in milk and squeezed dry, butter, minced parsley, pepper, salt, and spices to taste; add a yolk of egg to it, and when it is worked quite smooth, stuff the mullets with it, and put them to cook in the oven in a tin, with plenty of olive oil, and pepper and salt to taste. Fry some shallots in oil till they are a good colour, stir in a little flour and as much well-flavoured stock as you want sauce; add spices, pepper and salt to taste; then strain it and add a quantity of Spanish olives previously stoned and parboiled. Let them simmer in the sauce for a short time; then serve with the mullets.

Stuffed.—Remove the gills of the mullets, make an incision from the throat half-way down the belly of the fish, and do not remove any of the inside but the small gut, which will come away in pulling out the gills. Take some fine breadcrumbs, add to them a fourth of their bulk of shallots, and the same quantity of mushrooms, both minced as finely as possible, and lightly fried in butter. Then add some parsley and sweet herbs finely chopped, season with pepper and salt, and make the mixture into a paste by working a pat of butter or more into it, and the yolk of one egg; stuff the mullets with this, pack them up securely in buttered paper, and grill them on a clear fire, or bake them in a buttered tin.

Mussels (Moules).—Mussels have an evil reputation, and in this country are regarded with especial suspicion, while in France they are eaten by everybody, when in season—that is, during the six winter months. They maybe eaten raw if great care is taken in bearding them. This operation, which is optional in the case of the oyster, is indispensable to the wholesomeness of the mussel. It is, however,

more general and perhaps safer to eat mussels stewed.

Stewed.—Take 3-6 doz. mussels, put them in a pail of water, and wash well with a birch broom; then put into a pail of spring water and salt for 2 hours; wash out, put into a saucepan without water, and cover close; stew gently till they open, and strain the liquor from them through a sieve; pick them out of the shells, beard carefully and put into a stewpan. Put in about half the liquor carefully drained from the settlings, with a gill of sherry or sauterne, a little grated nutmeg, and a large piece of butter rolled in flour. Stew gently, and keep stirring till the mixture is thick and smooth, and serve on a hot dish with toasted sippets.

Oysters (Huîtres). Raw.—Put 4-6 oysters before each guest on a plate, with a lemon quartered, and with the upper shell replaced over each oyster. Serve thin slices of brown bread and butter and cayenne with them.

Angels on Horseback.—Take 12 or more large-sized oysters from their shells, removing the beards; cover each with a very thin slice of fat of bacon, dipping each slice into hot water and well drying it with a cloth before rolling it round the oyster; then place them on a fine skewer and suspend them before the fire until the bacon is nicely cooked. A slice of soft buttered toast should be under them while cooking, and on it they should be sent up very hot to table.

Broiled.—Many invalids who object to native oysters in the shell can eat them with relish when cooked in this way. Drain the oysters from their liquor and dry them in a napkin. Heat and well butter a gridiron, season well, lay them on, and

brown both sides. Serve on a very hot dish, with melted butter.

Cream.—Open 1 doz. oysters carefully and save the liquor; take ½ pint milk, add to it a piece of butter the size of a walnut, thicken with flour, and simmer 10 minutes. Add the oysters with their liquor, and seasoning to taste. Have some nicely browned slices of toast, take up the oysters carefully, lay them on the toast, pour the mixture over, and serve.

Croustades.—Parboil a quantity of oysters in their own liquor, remove the beards, cut each oyster into 4-6 pieces. Melt a piece of butter in a saucepan, add to it a pinch of flour, the liquid of the oysters, a little cream, salt, pepper, nutmeg, the least bit of cayenne, and some finely minced parsley. Put in the oysters and toss them in this sauce just long enough to make them quite hot. Stir into them, off the fire, the yolk of an egg beaten up with the juice of half a lemon, and strained. Fill some bread croustades, warm them in the oven, and serve.

Cutlets.—For these the large stewing oysters are the best. Take about ½ lb. veal, and an equal quantity of oysters. First chop them finely, and then pound them together in a mortar, adding a little finely chopped veal suet, and 3 tablespoonfuls breadcrumbs which have been soaked in the liquor from the oysters when opened. Season with a little salt, white pepper, and a very little piece of mace well pounded; to this add the beaten yolks of 2 eggs. Mix this thoroughly; then pound it a little more, and make it up in the form of small cutlets. Fry them in butter, after having dipped them in the usual way in egg and breadcrumbs. Drain well and send to table very hot. Serve on a napkin, and garnish with little

sprigs of parsley.

Devilled (à la diable).—Parboil some oysters in their own liquor, take off the beards and hard parts, cut up the remainder into small pieces, season well with cayenne and salt, and add a little lemon juice. Take the liquor in which the oysters were boiled and add to it a thickening of butter and flour, put in the minced oysters, and stir over the fire until quite cooked, then add, off the fire, the yolks of 1 or 2 eggs, beaten up with a little cream. Spread out the mixture to get cold, then divide it into small portions, roll up each portion into the thinnest possible wafer of parboiled bacon. Just before frying dip each roll into some frying batter, put them into the frying basket, and fry in hot lard or butter. Serve garnished with fried parsley.

Fricassée.—Take a tablespoonful of cream and the beaten yolk of an egg. Mix them well together, then drain the liquor from 12 oysters, thicken it with butter and flour, add the egg and cream, season to taste, and simmer for 5 minutes, stirring all the time. Lay in the oysters, let them warm through, then pour up over slices of buttered toast.

Fried.—The oysters must be first boiled in their own liquor, and drain. Then put them into a frying pan, with butter in the proportion of 2 oz. to 3 doz. oysters, about a tablespoonful of ketchup, a little chopped parsley, and grated lemon peel, and fry them for a few minutes. Serve very hot, with toast separate. (Mrs. B.)

Fritters.—Have ready a batter made as follows: Dissolve 1 oz. butter in 2 oz. water or oyster liquor, and stir to this 1½ oz. sifted flour; mix well over the fire. Take it off and mix in, one after the other, 3 eggs and a little salt. Beard and scald the oysters, dip

each into the butter, fry lightly, and serve.

Kromeskies.—Put 1 doz. oysters (tinned will do), with their liquor, into a saucepan, bring them to the boil, take them out and beard them, cut into pieces about the size of half a pea; return the beards to the saucepan, boil in their liquor to extract the flavour, put them back for 5 minutes to simmer. Make a panada of 1 oz. butter, 1 oz. flour, ¼ gill oyster liquor (add milk if short), pepper, salt, cayenne, and a few grates of nutmeg; put into a saucepan. When it thickens add the yolk of an egg, a teaspoonful of lemon juice, a teaspoonful of anchovy sauce; do not let it boil. Put the pieces of oyster in the panada to get thoroughly warmed through, turn out on a plate to cool. Then shape into cakes, inclose in very thin bacon, dip into frying batter, then drop into boiling fat, and fry. These can be warmed up in the oven. Batter for kromeskies: 4 oz. flour, 2 dessertspoonfuls salad oil, a pinch of salt, 1 gill tepid water, whites of 2 eggs beaten to a stiff froth; put the flour into a basin, make a well in the centre, then add salad oil, begin to stir very slowly, when it thickens add the water. After all the water is added let the mixture stand for 1 hour. Beat the whites of the eggs into a very stiff froth (it ought to be stiff enough to be able to cut it with a knife), stir into the batter very lightly. The best bacon for kromeskies is a block off the back, nearly all fat; parboil it for 20 minutes, let it get cold, cut into slices 2½ in. wide, 3 in. long, then wrap round the oyster shapes.

Olives.—Chop finely 1 lb. inside loin of mutton, with ½ lb. beef suet free from skin, and 1 pint oysters, scalded and bearded. Mix well, and season with pepper, salt, and mace, and a squeeze of lemon juice. When quite smooth, press all into a glazed pot.

It will keep several days. For use, roll it into balls or cakes, and fry lightly.

Patties.—Make first a rich puff paste with ½ lb. Vienna flour and ½ lb. butter. Press all the moisture out of the butter with a clean cloth, then rub half of it very lightly into the flour, mix with sufficient cold water to form a paste, roll, and put on the remainder of the butter, fold in three, and roll out; repeat this, then fill the patty-pans, and bake quickly. Beard and drain 1 doz. oysters, add a few drops of lemon juice to the liquor, and thicken with flour, butter, and the yolk of an egg. Cut the oysters into dice, stir them into the mixture with a few drops of anchovy sauce; warm up, and fill the cases.

Pie.—Line the sides and edges of a buttered pie dish with puff paste. Take some large, fresh oysters, lay them in a stewpan, and stir to them pepper, salt, and mace to taste, a very little butter rolled in flour, and the liquor. When well mixed over the fire, pour it all into the pie dish, strew it thickly with breadcrumbs and chopped hard-boiled egg, cover the dish with paste, and bake in a quick oven.

Rissolettes.—Boil as many oysters as you may require in their own liquor, taking care that they are not too much done; a very few minutes will be enough. Take off the beards, return them to the liquor, taking them out of it again with a perforated ladle. The liquor must stand a short time to allow the sand to settle; pour it carefully into another basin through a fine strainer, that there may be no chance of any grit. Make a thickening of butter and flour, moistening it with the liquor. When the sauce is very thick, add a spoonful or two of cream and the same of good white stock; cut the oysters into dice and mix them with the sauce, which must be sufficiently thick

to hold them together in a sort of paste. Season with a little salt and a very little cayenne pepper. If the flavour of mushrooms be liked, 2 or 3 may be cut into dice and fried in butter, dusted over with flour, and then mixed with the oysters. Make up into rissolettes, using puff paste rolled thin, and cutting them into small three-corner-shaped turnovers, putting about a teaspoonful of the oyster mixture into each. Brush over lightly with yolk of egg, bake in a quick oven, and serve piled up on a napkin in a dish garnished with parsley.

Roasted.—Large oysters will be found very nice if roasted in their shells. This operation is sometimes performed by simply putting the wretched oyster on the embers alive, and thus converting his own coat into a cooking pot. A far better plan is to open the oyster in the hollow shell, taking care to preserve the liquor. To every oyster give a little piece of butter, put on the flat shell as a lid, and then lay the oysters on the embers on a gridiron, or put them in a tin into the oven, taking care not to overcook them. When they are done administer to each a dash of lemon juice, and 2 or 3 grains of cayenne; replace the top shells, and serve instantly.

Sausages.—Beard the oysters and chop them very fine. To this add finely pounded breadcrumbs, sweet marjoram, parsley, and seasoning to taste, and mix it to a stiff paste with the yolk of an egg or two. Cut this into pieces the length and breadth of your thumb, and fry these a delicate brown. Serve on a napkin with fried parsley, or round mashed potato.

Scalloped.—Parboil 2 doz. oysters in their own liquor, beard them and cut them in half. Butter some scallop shells, fill them with a mixture of half breadcrumbs and half oysters, adding pepper and salt

to taste, and a grate of nutmeg. Strain the liquor and divide it between the number of scallop shells you have, put a piece of butter in each shell, a few drops of lemon juice, and cover up with breadcrumbs, pressing down contents of each shell. Put into a very brisk oven till top is well browned.

Skewered (Hâtelets).—Beard 2 doz. oysters, and let them steep for some time in their own liquor. Cut some fat bacon into rounds, and place these and the oysters alternately on skewers, taking care to finish, as you began, with a round of bacon. Season with pepper and salt, egg and breadcrumb them, and fry a light brown. Serve on a napkin with fried parsley, or in a dish with the following sauce: Simmer the beards for 5 minutes in the oyster liquor, strain it, and add ¼ pint stock (fish stock is best); thicken with flour and butter, with a pinch of Nepaul pepper, salt to taste, and a little lemon juice. Give it one boil before adding the lemon juice, and serve.

Soufflé.—Mix 3 oz. flour and 3 oz. butter smoothly over the fire, add 1 pint good milk, and stir till it boils and thickens. Pour half the sauce aside in a basin. To the half in the pan add a score of oysters, roughly chopped and bearded, ½ oz. butter, the liquor from the oysters, 1 dessertspoonful anchovy, the same, or a little more, lemon juice, a grain of Nepaul pepper, and a little salt. Mix all well together, stirring in the well-beaten yolks of 4 eggs; then add lightly the whites of 6 eggs, beaten to a stiff froth. Butter a plain tin mould, tie a band of buttered paper round it, and pour in the mixture which should little more than half fill it. Steam for 1½ hour, and serve very hot.

Steamed.—Lay them in a potato steamer over boiling water, cover with a plate to keep the steam

in, and cook for 10 minutes. Then serve quickly in the shell, and on a very hot dish, with fried brown bread and lemon or vinegar.

Stewed.—Take 1 pint milk, thicken with 1 dessertspoonful of cornflour, and stir in 1 oz. butter; season well, add a dozen oysters, and stew gently for ½ hour. When serving, garnish the stew with sippets of bread soaked in lemon juice and fried in butter.

Toast.—Chop 20 oysters roughly, and mix with them 2 anchovies, washed and boned (paste or essence will do), mix well with a little cream or the yolk of an egg, and thicken with a little butter rolled in flour, and a grain of cayenne; boil up and serve on hot buttered toast.

Pilchard (Pie).—Cut the white part of 4 or 5 leeks into pieces, and scald them in boiling water with salt. Soak in water all night 3 or 4 slightly salted pilchards, clean them, and cut off the tails and fins, and put them in a pie-dish with the leeks in layers, seasoning to taste. Cover the pie with crust, and bake it in a moderate oven. In the country where this recipe comes from cream is cheap, and it is recommended to raise the crust, to pour off the gravy, and to add instead one cupful of hot cream just before serving.

Plaice (Plie).—Plaice have little to recommend them beyond their cheapness. There are two distinct kinds, those with the black backs being generally preferred to the spotted variety. The flesh of both is soft, and lacks the exquisite delicacy and firm springy texture of turbot and brill; but still, if stewed in the same manner as brill, they are fair eating. Fried plaice is a well-known article of commerce in the by-ways of London, where the operation of frying is successfully performed. The secret is that the fish

are fried in good oil, and that the temperature is duly attended to. See Sole.

Perch (Perche).—Perch are delicate, especially when caught in a swiftly-running river, and may be eaten fried, or in water souchet, and shine especially in the latter form.

Clean the fish through as small an opening as is practicable, and lay them, without scaling, on a well-oiled gridiron on a brisk fire; keep turning them until you judge they are done, and send up to table with them, in a sauce boat, some liquefied butter, to which pepper, salt, and the juice of a lemon have been added. There should be one perch for each person. Stewed: see Carp, Trout.

Pike (Brochet).—When they exceed 4-5 lb. in weight, they are excessively coarse and hardly worth carriage, but those of small or moderate size are not to be despised when stuffed with a veal stuffing—into which a liberal supply of lemon peel has entered—and baked.

Baked with Sour Cream.—Cut the pike in neat slices. Place them in an earthen baking dish with some butter at the bottom; divide 2 bay leaves into pieces, and put them with slices of onion between the fish; strew with salt, and pour over ½ pint sour cream. Bake about 20 minutes in a quick oven, basting at intervals; then strew over some fine breadcrumbs and grated Parmesan cheese, bake a few minutes more till delicately coloured, dish without breaking the slices, but take away the bay leaf and onions. Pour enough broth or water into the baking dish to make a sauce; add pepper, salt, lemon juice, or vinegar; stir well round the crusting, and pour it over the fish.

Boiled.—Rub off the slime with salt and water, cut away gills and fins, draw, &c., and put into a fish kettle a handful of salt, 2 dr. cloves, also of mace, 2 sliced nutmegs, the peel of a lemon, and a small quantity of ginger peeled and sliced, 2 dr. whole pepper, 4 or 5 onions, a faggot of sweet herbs, equal quantities of rosemary, marjoram, thyme, winter savory and parsley, enough liquor, 3 parts water and one white wine, to cover the fish. Let it boil, put in the fish, and cook slowly. When done drain the liquor from it, and dish with the herbs and spices on it, sliced lemons and lemon peel, and with either of the following sauces: Sauce.—(1) To 1 ladleful melted butter add 2 of the boiling liquor in which the fish was cooked. (2) Add to the above some slices of lemon, and an anchovy or two pounded quite smooth. Garnish the fish with powdered ginger. (3) Add to the above some oysters, some sliced horseradish, and a small quantity of white wine, lastly, add the yolks of 2 or 3 eggs.

Broiled: see Carp.

Carbonade.—Slices of pike, neatly cut and cleared of skin and bone, must be coated with fine herbs and oiled butter; after which sprinkle with breadcrumbs, and ladle over some beaten egg with a spoon. Bake them a pale brown, and serve with a good sprinkling of lemon juice and a little gravy made in the baking dish.

Fried.—Choose small pike not more than 15 in. long, fry them until brown and crisp, drain off the butter, and put them into a pan with nutmeg, sliced ginger, a few anchovies, salt, and just sufficient claret to cover them. Boil until the liquor be half consumed, then add a piece of butter and a sliced lemon or orange. Serve on a dish previously rubbed

with shallot, and garnish with lemon or orange.

Larded.—Choose a large fish. When cleaned, lard it thickly over with fresh bacon; put butter in a baking-dish with a little water; lay in the fish in a ring, with the tail in its mouth, and bake in a brisk oven; when half-done, strew fine breadcrumbs over, with pepper and salt; baste occasionally, and when done a delicate brown move the fish carefully on to a flat dish; pour into the baking-dish a brown caper sauce or a sardine sauce; add a good sprinkling of lemon juice; scrape in the crusting of the dish; pour the sauce over the fish, and serve.

Roast.—Stuff a large pike with veal stuffing, rather highly seasoned, and sew it up. Skewer its tail into its mouth and put it in a round baking tin. Pour over a teacupful of cream, and roast it in the oven, basting it frequently. Serve in a tureen melted butter sauce, with the liquor out of the dish added, and the juice of half a lemon. Hake would be good cooked in this way; one of moderate size must be chosen if it is to be cooked whole.

Soused: see Carp.

Stewed.—Having cleaned and scaled the pike, lay it in plenty of salted water. Put a good-sized piece of butter in a stewpan, with a large tablespoonful of chopped parsley and either a shallot, an onion, a clove of garlic, or some minced chives, 2 slices of lemon, 2 or 3 cloves, salt and pepper; cut up the fish into good-sized pieces. A pike of about 4 lb. weight is best this way. Add a glass of wine, the same of vinegar, and a large cup of broth or water to the stewed herbs. Lay in the fish packed closely together, cover, and let it simmer about ½ hour. Mix 3 or 4 yolks of eggs, with a cup of milk or cream, pour this over the fish; strew in breadcrumbs to thicken the

sauce. Let it come to the boil; dish the fish carefully, put a piece of butter to melt in the sauce, and pour it over.

Prawns (Crevettes).—Prawns are in this country generally boiled for about 10 minutes, and served cold. Very pretty they look when built up over a *buisson* of parsley, and very nice they taste as a preparation for more serious dishes. In India and America, where they grow to a very large size, prawns are often curried or served in an *omelette*. In both of these cases they are first boiled, allowed to cool, and carefully picked. For an *omelette* they are then tossed in butter seasoned with a little pepper, and inserted into the fold of the *omelette*, and in curry are treated precisely like curried lobster. In the first form they are exquisitely delicate; in the second simply delicious.

Aspic.—Make a savoury jelly with 2-3 lb. knuckle of veal, an oxfoot, some lean bacon, carrots, onions, shallots, a faggot of herbs, spices, pepper, and salt, and 2 qt. water; stew till quite strong, strain, when cold remove all fat, and clear with the whites of 2 or 3 eggs, and a glass of sherry; strain through a jelly bag, and when nearly set pour a little into a jelly mould, put a layer of cooked prawns, another layer of jelly and so on, filling up the mould with alternate layers of jelly and prawns; when quite firm (it will require icing) dip the mould in hot water for an instant, and turn it out very carefully. Crayfish may be cooked in the same way.

Roach (Gardon, rosse).—Broiled: see Carp; Stewed: see Carp, Trout.

Salmon (Saumon).—A good fresh salmon is stiff, is bright and clear in the scale, and has a small head. When the head looks long and the jaws are hooked

at the ends, it is no longer desirable. The fish should be thick and deep, and the flesh of a fine pink colour, and very firm. Flabbiness in substance, and a crimson or purplish colour, are infallible indices of a fish out of condition. Salmon may be eaten advantageously with shrimp or with *Hollandaise* sauce, with caper sauce, with simple *beurre fondu*, or perhaps best of all with fennel sauce.

À la Montpelier.—Take 6-8 lb. of the middle of a large salmon, put it into a braizing pan with 3 qt. stock, 2 qt. water, and ½ bottle chablis, with sliced carrots and onions, 6 bay leaves, some basil, thyme, and ¼ oz. fresh butter. Put it on the fire, and let it just boil, then withdraw it, and let it braize gently for 1 hour. Take equal proportions of chives and parsley, and a fourth part of anchovy. Blanch and then pound them in a mortar with fresh butter and cayenne to taste; when reduced to a smooth paste, pass it through a hair sieve, and put it on ice. When the salmon is cold, take it out of the braize and drain it, then cover it evenly with the above mixture. Serve ornamented with lobster spawn and aspic jelly, with truffles and chopped whites of egg.

Au bleu.—Cut the salmon into slices not quite 1 in. thick. If trout be used, let it be gutted by the gills, and not scaled, but only well washed. Lay the fish in a deep dish, pour over it about a teacupful of boiling vinegar, more or less, according to the quantity. Let the fish soak in this for an hour; then take it out, fold it in a nice clean piece of linen, place it in a stewpan with a piece of butter, an onion and a carrot thinly sliced, a bunch of parsley, a shallot, 2 bay leaves, a sprig of basil, spice, pepper, and salt to taste, 1 pint red wine (vin ordinaire), and a little broth. Let all simmer gently till the fish is cooked enough; the

weight of the fish must decide the time. Let the fish remain in the liquor till cool, then serve it dry on a napkin, with the following sauce: 1 part vinegar to 2 of oil, with equal quantities of sorrel, chives, and chervil, chopped small, but not very fine.

Au gratin.—Take 2 slices salmon, about 1 in. thick, lay them in a buttered tin, having first sprinkled them on both sides with pepper and salt, put a few pieces of butter on them, and over all a sheet of buttered paper. Place the tin in the oven for ¼ hour, then take out the slices, lay them on a dish, pour the butter over them, and sprinkle them all over with grated Parmesan cheese, and a very little fine baked breadcrumbs on the top. Place the dish in the oven for 10 minutes, and serve in the same dish.

Boiled.—Put the fish—scaled and cleaned—into a fish kettle with sufficient cold water to cover it well, and with salt in the proportion of 1 lb. to 6 qt.; boil it quickly, skim carefully, and let it simmer till quite done. Remove it from the water, drain, brush the outer skin lightly with salad oil, and serve on a hot dish, with cut lemon and parsley.

Broiled.—Salmon for broiling should be cut in slices not more than 1 in. thick. These may be floured, dusted with a little pepper and salt, broiled on a gridiron previously rubbed with butter, and served with plain butter or anchovy sauce; but a better method is to rub the slices of salmon with a salad oil, instead of adopting the ancient process of flouring. Another and perhaps still better plan is—after drying the slices of fish thoroughly, to season them with a little pepper and salt, and a *soupçon* of grated nutmeg. Then take some sheets of white paper, considerably larger—when doubled—than the steaks, and anoint them either with butter or with

oil. Wrap each slice of salmon in a sheet of paper, and fasten the paper by turning up a rim and pinching it over. Broil gently over a very clear fire for about 20 minutes, and serve on a very hot dish. See Carp.

Boudin.—Take equal quantities cold boiled salmon and breadcrumbs. Put the salmon, finely flaked and picked free from bone and skin, into a mortar; pound it, pass it through a sieve, and return it to the mortar, then work into it half its bulk of butter, the breadcrumbs soaked in milk and squeezed dry; season with pepper, salt, and nutmeg; then work in sufficient eggs, in the proportion of 2 yolks and 1 white, to bind the mixture. Put it into buttered moulds, and steam it for ½ hour in a saucepan full of boiling water. Serve with Dutch sauce.

Cakes.—Pound about 1 lb. cold boiled salmon free of skin, with about the same quantity of cold boiled potatoes, taking care first to remove any eyes or dark-coloured specks there may be; with these beat up some pounded spawn of lobster, an egg, and a little milk. Season with salt and pepper and a few grains of cayenne. Then, with 2 little flour, roll into cakes, and fry them a nice brown. Dress them, set round on a napkin in a dish, garnished with fried parsley.

Chaud-froid.—Cut a slice about 4 in. thick from a fine salmon. Wrap it round with thin slices of fat bacon, first detaching the skin, by passing a sharp knife under it, from the fish, without removing it, and placing a piece of carrot wrapped in bacon in the hollow of the slice to keep it in shape; tie it firmly round with string. Set it on a small strainer, and place this in a stewpan. Have ready a sauce made by putting into a stewpan ¼ lb. chopped suet, ¼ lb. fat

bacon, with some sprigs of parsley, 2 small onions and 1 carrot, both to be sliced, 2 cloves, the juice of half a lemon, a saltspoonful of pepper, and a little salt. Let these remain on the fire about 10 minutes, stirring them carefully during the time to prevent their getting brown; add as much water as may be necessary to use for boiling the salmon in, and let it boil for 1 hour, strain it and let it get cool, when it will be ready to pour over the fish into the stewpan. This stewpan should be no larger than absolutely necessary, or a very large quantity of the sauce would be required in which to boil the fish. Set the stewpan on a moderate fire for about ¾ hour; remove it, and let the fish remain in the liquor till nearly cold; then remove it to an earthen strainer on a dish, and set it aside to become quite cold and firm. Take the yolks of 2 hard-boiled eggs, 2 anchovies, a dessertspoonful of capers, 2 green gherkins, a few chives, and some sprigs of parsley and tarragon, previously washed and well freed from water; pound all these well together in a mortar, and then mix in 2 oz. fresh butter, very gradually adding 2 tablespoonfuls salad oil, and 1 dessertspoonful tarragon vinegar; season with pepper and salt. Rub this all through a sieve and if too soft set it on the ice for a short time until sufficiently firm for use. Cut a slice of bread 1 in. thick, shape it into an oval form to suit the form of the salmon, fry it in butter a light colour, and spread some of the prepared butter all over it with a knife dipped in warm water. Place this on the dish in which it is to be served, set the fish on it, and spread the upper part of it with a rather thin coating of the same butter, smoothing it well with the blade of a knife. Cut a truffle into slices, and with a cutter stamp it into leaves, circles, &c. Some thin slices of white of hard-boiled egg should be stamped

out in the same way, and be used for ornamenting the fish. A little bright red spawn of lobster should also be tastefully added here and there on the fish. The dish should be garnished with slices of cold aspic jelly cut into three-cornered pieces, and laid slightly one over the other to form a ring round the salmon.

Croquettes.—Carefully pick out the flesh of some remnants of boiled salmon and mince it slightly. Melt a piece of butter in a saucepan, add the smallest quantity of flour and some hot milk. Stir on the fire a minute or so, then add pepper, salt, a little grated nutmeg, some minced parsley, and lastly the fish; shake it well, and as soon as the fish is hot take the saucepan off the fire, and stir in the yolk of an egg beaten up with the juice of half a lemon; now spread out the mixture on a plate to get cold; when cold divide it in tablespoonfuls, and fashion them all in breadcrumbs into the shape of balls; roll these in beaten-up egg, breadcrumb them well and, after the lapse of about an hour, fry in very hot lard, serving with fried parsley.

Cutlets.—Take a piece of salmon 4 in. thick, remove the bones and skin carefully, cut it in slices ½ in. thick and flatten each on the chopping board with a cutlet bat or common chopper dipped in water. From these slices cut as many neatly-shaped cutlets of a uniform shape as is possible. Place them quite flat on a well-buttered baking tin, sprinkle butter and salt over them, and ten minutes before they are wanted put them into the oven, with a sheet of buttered white paper over them. Place all the trimmings of the salmon into a saucepan, with carrots, onions, thyme, a bay leaf, some parsley, pepper, and salt, and a pint of stock. Let this boil for ½ hour; melt a small piece of butter, add to it about

a teaspoonful of flour; stir it till it begins to colour; then strain into it the above sauce, and add a little chopped parsley. Cut a large cucumber in rounds 1 in. long, cut each round into 4 quarters, remove the seeds and rind, and trim each piece to a uniform shape; then throw them into boiling water with a little salt; let them boil until nearly cooked. Strain, and throw into cold water, then strain again and put into a saucepan with a little butter, pepper, salt, and chopped parsley, to be kept covered up, and warm until wanted. To dish up, pour the sauce on a dish, arrange the cutlets slanting, overlapping each other round it, and fill the hollow space in the middle with the cucumber.

Devilled.—Some thin slices of kippered salmon, 3 captain's biscuits in clarified butter or olive oil and some devil mixture. Soak some thin captain's biscuits in clarified butter or olive oil, rub each side over well with the mixture, and toast them on the gridiron over a clear fire. Put them on a hot dish, place on each a very thin slice of kippered salmon, and brown with a salamander or before the fire. Serve quickly and very hot.

Grilled.—Grilled salmon may be served with many sauces. Plain *beurre fondu* is a very good accompaniment, as is also a rich *maître d'hôtel*. *Sauce périgueux*, *sauce ravigote*, *sauce piquante*, *italienne*, and *sauce indienne*, are also frequently served; but perhaps the very best sauce of all to a salmon steak or cutlet is *tartare*, whose most formidable rival is the shallot sauce, known as *biérnaise*. French cooks are very fond of submitting salmon steaks to a preliminary bath in a *marinade*, composed of oil, salt, sliced onions, and plenty of parsley.

Kromeskies.—Odds and ends of cold salmon, and

the tail of the fish, are well employed in making neat little dishes, such as kromeskies. To make these, cook the salmon, free it from skin and bone, and put it under a weight. When it is cooled into solidity, cut it into dice, and add half its bulk of chopped cooked truffles, if you have them, or mushrooms if the more noble fungus be unattainable. Take some good gravy, thicken it with butter and yolk of egg, reduce it a little, put in the salmon and the truffles, give it a shake up, and let it cook. Form the kromeskies with sheet wafer, dip in batter, fry them in butter, drain carefully, and serve very hot.

Mayonnaise.—Boil 5 or 6 eggs hard; when cold remove the yolks, and pound them up with 2 saltspoonfuls salt, 1 teaspoonful mustard, a little cayenne, and the raw yolks of 2 or 3 eggs. When quite smooth add 10 dessertspoonfuls oil, 2 of tarragon, and 4 of common vinegar. Wash and chop some tarragon, chervil, spring onions. Divide 1 lb. cold boiled salmon (freed from bone and skin) into flakes. Put a layer of the above salad into a bowl, then half of the salmon, pour some sauce over, then another layer of salad, the rest of the salmon and the sauce; ornament with sliced cucumber.

Pie.—Salmon pie is an elegant dish. To prepare this, take a tail of salmon and pick it clean from the bones and weigh it. Then make half its weight of whiting stuffing. Strip the fillets from 2 whiting, pound the flesh and rub it through a tammy; add to this ¼ lb. butter, and a like weight of breadcrumbs soaked in milk; season with pepper and salt, add a little white sauce, bind with yolks of 2 eggs, and mix all well together. Now take a pie dish, and put in a thin layer of stuffing, and on that a layer of salmon, seasoned with pepper, salt, and a little spice; on this

put another layer of stuffing, then salmon, and so till the dish is filled; cover with paste, and bake in a slow oven till done. This requires some care in its preparation; but a simpler salmon pie may be made by mixing the cold flaked fish with mashed potatoes and a liberal dose of anchovy or shrimp sauce, and putting the whole into a pie dish, which may remain in a moderate oven till nicely browned.

Salad.—Take some boiled and "soused" salmon, mince it with apples and onions, add some salad oil, vinegar, and pepper; garnish with lemons and capers.

Scalloped.—Cut the flesh in slices half a finger thick, and these again, according to their size, into 2, 3, or 4 pieces, as round as possible. Put them into a pan with plenty of butter, and some salt and pepper. Keep a brisk fire till they are cooked through. Arrange them on a dish in a circle, overlapping each other, with a piece of fried bread the same size between each. Into the middle of these pour a sauce, tomato, genevoise, or Italian, or a white sauce, Parisienne or Normande.

Salt fish (Morue).—In buying salt fish, care should be taken to select a thick, plump slice, which should be very white, as a yellow tinge often indicates fish that has been cured for a long time. That with a black skin should be preferred. Now take a sharp knife and pare the inside all over, wash the fish thoroughly, put it into a tub of spring water for 24 hours, then wash it out and put in fresh spring water for 12 hours longer. After this, lay it in hot water for a few minutes, and scrape off the tough outside pieces and scales without injuring the skin, which should be carefully preserved intact.

Wash the fish thoroughly, cut it into handsome pieces, and set it to drain. Have ready a kettle of

boiling spring water, put in the fish, and boil it 20-30 minutes, according to thickness. Skim thoroughly, take up the fish and put it across the kettle to drain. Then with the paste brush wash it well, set it on a fish stand and napkin in a very hot dish, and garnish with hard eggs chopped small, and the whites of several more cut in rings. Surround the fish with pieces of boiled parsnips, and serve mashed parsnips and potatoes in separate dishes. If the fish be "dried" instead of merely salted, it will require soaking for 12-20 hours, according to its condition before commencing the operations just described. Salt fish is in this country invariably accompanied by egg sauce in boats, and it is important that this accompaniment be supplied in profusion. A little egg sauce is mere weak trifling. To make egg sauce, boil 6 eggs for 12 minutes, let them get cold, then cut the yolks into dice, and the whites in segments. Make 1 lb. good rich melted butter, add a little cream, season with pepper, salt, and a very little cayenne. Boil for a few minutes, then add the eggs, and shake them over the fire till they are quite hot through. Serve very hot.

Sardines.—Curried.—Prepare the sardines as in the next recipe, put them on toast, and pour over them, instead of the "devil" mixture, the following sauce. Put the oil from the sardines in a small saucepan, which has previously been rubbed with a clove of garlic cut in half. When the oil boils add 1 tablespoonful flour and 1 teaspoonful curry powder, then add 2 gills stock, and boil till a good consistency is reached; then pour it upon the yolk of an egg, beaten with ½ teaspoonful lemon juice; add cayenne pepper and salt; pour over the sardines, and serve very hot.

Devilled.—Split the sardines, and remove the bones, trim them neatly, and season with a little made mustard, pepper, salt, and a little lemon juice; leave them for a short time, then broil over a clear fire, serve with fried parsley or with rich brown gravy, well flavoured and seasoned with pepper, salt, and French mustard.

Dressed.—6 sardines, 6 or 8 croûtons of bread, 2 teaspoonfuls anchovy essence, 2 teaspoonfuls Worcester sauce, a pinch of cayenne pepper, 1 dessertspoonful flour, 3 oz. butter, ¼ pint boiling water. Scrape, bone, and pound the sardines in a mortar with 1 oz. butter, a teaspoonful of anchovy essence, a teaspoonful of Worcester sauce; have ready fried, in fresh lard or butter, 6-8 croûtons of bread, stamped out with a small round tin cutter; spread the prepared sardines on the croûtons, and keep hot while the sauce is being made; put into a small saucepan 2 oz. butter, let it dissolve over the fire a minute; stir into it 1 dessertspoonful flour, and stir into it from the kettle ¼ pint boiling water; add to it the remainder of the anchovy and Worcester, and a little lemon juice; pour this over the croutons and serve.

Eggs.—4 eggs, 4 sardines, 1 dessertspoonful chopped parsley, boil the eggs 8-10 minutes, and put them in cold water; scrape the sardines gently, and pound in a mortar. Peel the shells off the eggs, and cut them in halves lengthways; take out the yolks, and add them to the sardines in the mortar, and to these add the parsley, a little salt, a little white pepper, and 1 oz. butter. Pound all together and use this mixture to fill the whites of the eggs; now put the two halves together, so as to give them the appearance of whole eggs, set them on a dish, and

put between them some sprigs of parsley and some strips of toast, or a border of small salad sprinkled with a little salad oil and vinegar.

Grilled.—Open a box containing 1 doz. sardines, remove the skins, and place the sardines on a tin plate in the oven till they are heated through. Meanwhile pour the oil from the sardines into a small saucepan, set it on the fire, and when it boils put in an even tablespoonful flour, stir well; then add gradually 2 gills weak stock or water. Boil till it is as thick as rich cream, then add 1 teaspoonful Worcester sauce, with salt, and plenty of cayenne pepper; beat together the yolk of 1 egg, 1 teaspoonful French mustard, and 1 teaspoonful vinegar. Pour the sauce boiling hot on the eggs, &c., stir a moment, then pour it over the sardines.

Maître d'Hôtel.—6-8 sardines, 1 dessertspoonful chopped parsley, 1 thin slice onion chopped fine, 1 tablespoonful chili vinegar, ¼ pint melted butter, a round of toast. Have ready some toast; scrape the sardines carefully, and arrange them neatly on the toast, keep them warm while you make the following sauce: Make ¼ pint melted butter or white sauce, put into it the parsley and onion finely minced; let it boil 1 minute; add the chili vinegar or a little lemon juice, and a pinch of cayenne; pour this over the sardines, stand in the oven a few minutes, and serve.

Salad.—Take some sardines from a tin, wipe them slightly, bone and divide them into small pieces. Cut up some nicely washed lettuce, chervil, cress, &c., lay them in a salad bowl with the sardines and some chopped capers. Boil 2 eggs hard, mash the yolks, with salt, pepper, mustard, and cayenne; add gradually 3 tablespoonfuls fresh oil and 2 of lemon juice, stir well; pour it over the salad, garnish with

slices of lemon and pickled capsicums.

Sandwiches.—Take 2 boxes sardines, and throw the contents into hot water, having first drained away all the oil. A few minutes will free the sardines from grease. Pour away the water, and dry the fish in a cloth; then scrape away the skins, and pound the sardines in a mortar till reduced to paste; add pepper, salt, and some tiny pieces of lettuce, and spread on the sandwiches, which have been previously cut as above. The lettuce adds very much to the flavour of the sardines.

Toast.—Place them with some of the oil out of the box between 2 plates in a hot oven; when thoroughly hot through place on toast cut in long slices the length of the sardine; shake a little cayenne and salt mixed over them, with a gentle squeeze of lemon.

Scallops (Pitoncles).—Scallops are to be obtained during the colder months of the year, and in January and February are in full roe and at their best. Like all shell fish, scallops must be eaten quite fresh, or they are a failure; the flesh should be firm and white, the roe deep orange-coloured. In full season they are 6-8*d.* a doz., sometimes less, and being thick and fleshy, 1 doz. is generally considered enough for 4 persons.

Baked.—Trim off the beards and black part of the fish, and lay them in their own deep shells, or tin shells, 3 scallops in each; put a little vinegar in each, and pour over them the following mixture: a teacupful of breadcrumbs, a tablespoonful of chopped and scalded parsley, pepper, salt, and sufficient milk to make a thin paste; sprinkle a few dry crumbs, and put a tiny lump of butter on each shell; bake 20 minutes. Where vegetables are scarce and dear, or, as in this case, the bill of fare does not

demand them, fried bread can be substituted. It should be cut into neat broad “fingers,” fried in bacon fat or beef dripping, and well drained before sending to table. A neat and pretty dish can be made by chopping up any remains of green vegetables, such as cabbage or sprouts, frying in a small proportion of fat, and piling it in the centre of a dish, with the bread round.

Fried.—Clean and beard them very carefully, and set them to drain; get ready a panful of boiling lard; flour the scallops thoroughly, put them in a frying basket, and fry to a light brown colour; garnish with fried parsley.

Stewed.—Put the scallops into a small saucepan with as much water as will thoroughly cover them, a little mace, and a little sugar. Let them stew gently till tender (probably about ½ hour), you can feel with your finger when they are sufficiently done. Make a sauce with 1-1½ oz. of butter dredged with flour and some of the liquor in which the scallops were stewed, add some cream and a little nutmeg. Stir this over the fire till it boils; then put the scallops in, and let them stew a little longer in the sauce beside the fire. In dishing up pour the sauce so as to cover the scallops.

Shad (Alose).—This fine and delicate fish is found in greater perfection and richer abundance in the United States than in Europe; nevertheless, Europe is not devoid of shad, the Loire and the Severn being perhaps the most highly favoured rivers. The shad of the Thames—called the “twaite”—is a poor fish, but the “allice,” or Severn shad, is a great delicacy.

Take a fine shad, firm and bright in the scale; empty from the gills, and wash it thoroughly. Now make a forcemeat—either whiting or oyster—mixed

with the roe of the shad, fill the fish, and either sew or skewer it up carefully, wrap it in strong writing paper thickly buttered, broil gently for an hour over a smokeless fire, either of charcoal or coke, and serve with caper sauce.

Skate (Raie).—Boil some crimped skate in salted water, with some vinegar in it. Put a large piece of butter into a saucepan, and leave it on the fire until the butter becomes of a dark brown colour, but do not let it burn; then throw in some finely-chopped parsley, a wineglassful of tarragon vinegar, a little salt, and some powdered white pepper. Serve the sauce in a boat piping hot, with the fish on a napkin.

Smelts (Eperlans) Fried.—Carefully flour, and fry in plenty of hot lard. When done, drain well in front of the fire, sprinkle all over with very fine salt, and serve with fried parsley and lemon cut into "quarters."

Sole (Sole) In jelly.—See Trout.

À la Normande.—Take a good-sized sole and put it into a fish kettle which will hold it flat; strew the sole with sprigs of parsley, minced onions, a little mace and thyme, and pepper and salt; now add some oysters, bearded, and some mussels, previously well cleaned, about 1 doz. of each; pour in a glass of chablis or any light white wine, and about the same quantity of white stock, or even water; cover over the kettle, and stew gently until cooked. Strain off the liquor and arrange the sole on a deep dish which will stand the oven, with the oysters and mussels all round; put the strained liquor into a saucepan, add to it ½ pint well flavoured good white stock; when quite hot add, off the fire, the beaten-up yolks of 2 eggs; pour the sauce over the fish, put it into the oven for a few minutes (it must not take colour), and

then serve garnished with mushrooms previously stewed in lemon juice, slices of truffles stewed in white wine, and with fried bread croûtons.

À la Maître d'Hôtel.—Put into a saucepan full of water a bunch of parsley, an onion, a blade of mace, some whole pepper and salt to taste. When the water boils throw in 8 fillets of soles, each tied up in a knot, and let them boil till done. Serve with maître d'hôtel sauce.

Aspic.—Take 6 fillets of soles, put them in a buttered tin, with pepper, salt, and a squeeze of lemon; cover the tin with a sheet of buttered paper, and put it in the oven just long enough to cook the fillets, then put them under a weight until cold. Clean and wash some fillets of anchovies, have a little parsley very finely minced, cut the fillets of soles in rounds the size of a penny, make a layer in a plain mould of very pale aspic jelly; on this, when it begins to set, dispose in some sort of pattern the fillets of anchovies and the pieces of sole, sprinkling each with a little parsley; fill up the interstices with aspic jelly, and keep on adding layer upon layer of soles and anchovies until the mould is full.

Au gratin.—Put 1 large sole in a proper fish-baking dish, or else place 2 small ones side by side and head to tail. Pour a glass of sauterne or any white wine into the dish, add some pepper and salt, a few very fine mixed sweet herbs sprinkled over lightly, a little onion finely minced, and a squeeze of lemon juice. A few little lumps of butter or dripping should be placed at the bottom of the dish to prevent dryness. Cover the whole rather thickly with breadcrumbs, and bake for ½ hour or until the top is a brown colour. The fish must be sent to table in the dish it is baked in, as it spoils it completely to move it.

Au vin blanc.—Butter a baking dish, lay 2 soles on it, add pepper and salt to taste, pour sufficient white wine and common stock free from fat in equal parts to cover the fish well. Put a piece of buttered paper on the top, and bake for 20 minutes. Melt 1 oz. butter in a saucepan, and mix with it a tablespoonful of flour, strain into this the liquor in which the soles have been cooked, add a little more stock or water if necessary, and stir on the fire till the sauce thickens, throw in some finely minced parsley, pour over the soles, and serve.

Broiled.—Clean and skin the fish, and thoroughly dry it in a cloth; dip it either in oil or liquefied butter; put it in a double gridiron, and broil it at a brisk fire for about 8-10 minutes, turning it once or twice during the operation. Serve with a piece of fresh butter under, and a lemon cut into quarters round it.

Consommé.—Remove the fillets from 2 soles, cut them out with a cutter in pieces the size of a penny. Put the bones and all the trimmings of the soles in a saucepan with 1 qt. plain white stock, a large handful of parsley, a piece of celery, 1 onion, 2 or 3 cloves, a blade of mace, and pepper and salt to taste. Let this boil slowly 3-4 hours, carefully skim and strain the liquor; then put it on the fire again, and when it boils put in the cut pieces of soles. When they are cooked take them out, put them in the soup tureen with a little chopped parsley, and having strained the liquor once more pour it over and serve.

En Matelote.—Put the fish in a stewpan with a bunch of sweet herbs, some butter, onions cut in rings, some white wine or cider and water, half of each, enough almost to cover the fish; add salt and pepper. Bring it to the boil, and boil for about 15

minutes. Place the fish on the dish on which it is to be served, having first covered the bottom of it with slices of fried bread. About 25 mushrooms may be added to the sauce. Boil it down till it is somewhat reduced; thicken it with a good-sized piece of butter rolled in flour; take out the bunch of herbs, and pour it over the fish.

Fillets.—(*a*) Fillet and fry soles in the usual manner. Make tartare sauce of the yolks of 2 eggs, dropping in 1 gill oil, with 2 tablespoonfuls of vinegar, and 1 of tarragon vinegar, ½ gill cream, and 1 teaspoonful made mustard.

(*b*) Remove both skins of the sole; then, with a sharp-pointed knife, cut it around the inside of the fins. This done, make an incision along the backbone, and divide the fish from the bone by beginning at the head, and drawing the point of the knife horizontally down each side of the backbone, between the flesh and the ribs, and placing at the same time the 3 first fingers of the left hand on the fillet you are about to remove. Each sole should make but 4 fillets, except in the case of very large soles, when they may be either cut lengthways or across, as taste may direct. (Jane Burtenshaw.)

Fricassée.—Fillet a large pair of soles, put the bones in an enamelled stewpan with a pint of cold water, a small bunch of thyme and parsley, and ½ onion, a blade of mace and a little lemon rind pared thin, let them stew about 1 hour; when done strain the liquor off into a basin. Rinse the stewpan, and roll up each fillet separately, and fasten either with a small skewer, or tie round with a piece of darning cotton, and place them in the stewpan in one layer, and pour over them the liquor from the bones; stew about 20 minutes very gently, and thicken the sauce

with 1 dessertspoonful arrowroot or cornflour, mixed with a little milk; when done, add to the sauce ¼ pint cream, the yolks of 2 eggs, the juice of ½ lemon, a pinch of pounded mace, and a little pepper and salt. The dish may be garnished with a border of potato croquettes.

Fried.—Clean and skin the fish, and dry it thoroughly in a cloth; dip it in an egg beaten up, and then strew it on both sides with very fine breadcrumbs, taking care that it is evenly covered with a very thin layer of them. Let the fish rest for 1-2 hours, then have ready in the frying-pan boiling hot fat in sufficient quantity to fairly float it; put in the fish, which will be cooked in 5-10 minutes, according to size, and should be skilfully turned over once during the operation. The fish should be laid on blotting-paper before the fire in the screen, in order to drain all fat from it. Serve with fried parsley and cut lemon.

In Brown Sauce.—Put into a small copper stewpan 3 oz. butter. Put this on the fire to dissolve; then stir into it 1 tablespoonful flour. Keep stirring on the fire till it assumes a golden-brown hue. Now stir into it ½ pint stock or gravy, and let it boil up to thicken the sauce. Now put into a wide shallow stewpan a pair of moderate-sized soles that have been previously cleaned, well dried in a cloth, floured and fried in some lard or butter over a rather sharp fire so as to brown them without being quite done. Pour over the soles the prepared sauce, adding a moderate-sized onion stuck with 4 or 5 cloves, a few sprigs of thyme, and a few peppercorns. Stew the fish 15-20 minutes very gently. When the soles are done lift them out carefully on to the dish in which they are to be served and keep warm while the sauce is being

finished by adding to it a wineglass of sherry, a tablespoonful of mushroom ketchup, one of vinegar, and two teaspoonfuls of essence of anchovies. Pour some of the sauce over the fish and the rest in a boat and serve.

In Cases.—Take 2 parts finely minced mushrooms, 1 part shallots and parsley in equal proportions, also finely minced; toss them in plenty of butter for a few minutes, adding pepper and salt to taste, and put the mixture aside. When cold spread a thin layer of it on each fillet, roll them up, and cook them between 2 buttered plates in the oven. Have ready some paper cases, place one rolled fillet in each, then fill up the case with white sauce, and place a button mushroom on the top of each, and keep quite hot till time of serving. *Sauce.*—Take 2 parts butter and 1 of flour, mix thoroughly in a saucepan on the fire, add enough veal stock to get the sauce of a proper consistency, add a few button mushrooms; let the sauce boil for 10 minutes; stir in, off the fire, the yolks of 2 eggs beaten up with the juice of ½ lemon.

Roulettes.—Choose fine ones, take off the heads, fins, and tails, strip them from the bone; cut small oblong fillets, lay them in a marinade of salt, pepper, lemon juice, and a grate of nutmeg for ½ hour. Roll the fillets egg-shaped and bind them with thread; pack them closely together in a stewpan, with a little broth or water, to which add lemon juice and some butter; cover closely and stew gently till done. Serve in their own sauce, or glaze them brown and serve as a ragout.

Salad.—Take any remnants of sole, cut them up in small pieces, and put them to marinade for 2 hours in tarragon vinegar, with some sliced onions and sprigs of basil, thyme, and chervil. Strain and mix

them with some fresh lettuce; beat up the yolk of a hard-boiled egg with salt, pepper, a very little of the tarragon vinegar, 3 tablespoons cream or sweet oil, and ½ teaspoon anchovy sauce. When quite smooth pour over the salad.

Savalada.—Take 2 Spanish onions, slice them, and stew them in a gill of olive oil, taking care that they do not burn or even brown; add 2 soles (filleted and fried a light brown in oil), and 1½ gills tomato sauce, or 3 fresh tomatoes, peeled, freed from pips, and cut in slices. Season with pepper and salt, let the whole stew a few minutes, and serve.

Stewed.—Cut up 2 large onions in slices, lay them flat in a stewpan with an ounce of butter, pepper, and salt, and enough water just to cover them. Let them simmer till tender. Cut in comely pieces a pair of soles, lay them on the top of the onions, and let them simmer till done. Strain off the liquor, and when it is cold stir into it the juice of 2 lemons beaten up with the yolks of 3 eggs, return it to the stewpan, and let the whole get hot again, but not boil; then arrange the fish and the onions on a dish, sprinkle them over with finely minced parsley, and pour the sauce over. To be served cold.

Water Souchet.—Take a number of small soles, fillet them, and cut the fillets into convenient pieces. Put the bones and all the trimmings into a saucepan, with some whole pepper, 6 roots of parsley, cut up small, a handful of parsley leaves, a blade of mace, and salt to taste; cover with cold water, and let the whole boil for 2 hours. Strain the liquor, put in it the pieces of fish, with a few parsley roots finely shredded; let it boil 10 minutes, then add some minced parsley; boil 5 minutes longer. Serve in a deep dish, with enough liquor just to cover the fish;

garnish with lemon cut in quarters, and serve with brown bread and butter.

With Ravigote Sauce.—Lay a sole in a well-buttered tin, add pepper and salt, put a piece of buttered paper over it, cook it in the oven until done, drain, and serve with the following sauce over: Take equal parts of parsley, chervil, garden cress, and tarragon; mince them very finely. Rub a saucepan with shallot, melt a piece of butter in it, add a little flour, mix thoroughly, then add stock, pepper, salt, a glass of white wine, and the herbs. Let the sauce come to the boil, then throw in a small pat of butter, a squeeze of lemon, and serve.

Sprats (Harenguets).—Although these fish, of small marketable value, are considered more as food for the multitude, yet in these times of strict food economy it may not be amiss for any housekeeper—especially those in the country, where fish supplies come in seldom but in large quantities—to try the following modes, suitable for breakfast, luncheon, making out servants' dinners, supper, &c., besides the more usual way of cooking by broiling or frying.

Baked.—After they have been cleaned, place them in a pie-dish, with some whole pepper, bay leaves, and a little salt sprinkled over them; cover them over, and put them in the oven; they will not take long to cook; let them stand in the liquor they make until cold, when pour the vinegar over them. (E. J. G.)

Fried.—After the sprats are washed, wipe them dry in a cloth, sprinkle a little salt over, and let them lie for 1 hour; put them on paper with flour, and turn them about until lightly coated with it. Throw as many as will cover the bottom of it into a wire frying basket, plunge it into hot fat, and keep gently

moving the basket until the fish are crisp. Sprats should not be too small, and those of an average size take 5-6 minutes to fry. When the sprats are done, turn them on to a sheet of paper to free them from grease, and serve immediately with cayenne, cut lemon, and brown bread and butter. When not convenient to use a wire basket, the sprats can be thrown into the hot fat, and, when done, be taken out with a skimmer. (Mary Hooper.)

Patties.—Clean the sprats. When seasoned, add some vinegar to taste. Line some patty pans with pastry, fill with the fish, sprinkle with breadcrumbs and a scrap of butler on each, and bake in a smart heat. (D.)

Pie.—(*a*) Cut off the heads and tails of 1 lb. sprats, and place them in a pie-dish; sprinkle pepper and salt between the layers, also a few peppercorns, add 3 tablespoonfuls water; cover it with a light paste and bake. Best eaten cold. (Mary Hooper).

(*b*) Scald, bone, and mash the sprats. Mash some freshly boiled floury potatoes, butter a pie-dish, put layers of potato and fish seasoned with pepper, more salt, and chopped onion if approved of. The cover should be potatoes. Put breadcrumbs and butter, or a beaten-up egg on the top, and bake, according to size, for ½-1 hour. Brown before the fire. Hard-boiled eggs, in slices or mashed, can be added if available or desired. (D.)

Rissoles.—Prepare the sprats as for potting. Bind with egg and breadcrumbs, and fry. The same can be prepared with mashed potatoes instead of breadcrumbs. (D.)

Soused.—Clean the sprats by washing and rubbing them in a cloth; lay them in a baking dish in layers,

sprinkle over lightly pepper and salt, cover them with vinegar and one-fourth water. Put a tin or dish over, and set the sprats in a cool oven to cook very slowly for 2 hours, taking care they do not get broken. These can be eaten either hot or cold. (Mary Hooper.)

Toast.—Clean without the addition of salt. Add a few chopped and cleaned anchovies; spread out the fish 2 in. deep on a Yorkshire pudding tin or baking plate, and warm well before the fire. Have some toast ready hot, slightly buttered. Lay a spoonful of the fish on each piece, draining off any oil which may have gathered.

Tamarind Fish.—Tamarind fish is cured as follows: Cut the fish into slices about ½ in. thick; the slices are then rubbed well with salt; let them stand in the pickle 48 hours; then drain. Get some of the plain, sun-dried tamarinds, as imported from India; boil these in pickling vinegar, about 2 lb. to 1 qt., until the pulp separates from the seeds and stalks. Work through a sieve. Dip the slices of fish in this mixture when cold, and pack closely in large-mouthed jars, taking care the top layer is well covered with the tamarinds. Fish roes prepared in the same manner are excellent. Haddock, cod, herrings, and mackerel make good tamarind fish.

Tench (Tanche).—Tench, when large and fat, is not bad when it is possible by eternal cleanings and soakings to get rid of the muddy taste, which clings to it with singular tenacity. Perhaps the best way of dressing it is to stew it in red wine, or to let it form the central spot of a *matelote*, into the composition of which eels, perch, &c., have entered.

Roast: see Carp, Chub. Broiled: see Chub. Stewed: see Trout.

Trout (Truite).—Trout should be treated in the following way. Scrape, wash in salted water, remove gills, gut, and wipe with a linen cloth, flour one side, and fry in butter till brown and crisp; then flour the other side, and fry that likewise, put it on a hot dish, and lay on it some fried parsley and sage. Make a sauce with some fresh butter and boiling water, flavoured with anchovy. Pour over the fish and serve.

Baked.—Put inside the fish a piece of butter the size of an egg, into which a due quantity of salt, powdered pepper, and minced parsley have been worked. Lay it in a baking dish plentifully buttered, sprinkle pepper and salt over it, then lay a piece of oiled paper on the fish, and bake it in a moderate oven for about ½ hour, more or less according to the size of the fish. Serve garnished with pieces of lemon.

Broiled.—(*a*) Clean and split them down the back, notch them 3 or 4 times across, mix a little olive oil in a dish with pepper, salt, and powdered thyme; lay the trout in this, turn them over once or twice, so that they may be well oiled on both sides, then broil them over a moderate fire. (*b*) See Chub.

Grilled.—Small or moderately-sized trout may be advantageously dressed *à la tartare*—that is to say, grilled and served with a cold *tartare* sauce. Very small trout may also be fried and served with or without tomato sauce.

Jelly.—Wash the trout carefully; form them into rings with the tail in the mouth. Boil some water with a little vinegar, salt, sliced onion, bay leaf, spice, and pepper according to taste. Let this boil so as to get the various flavours; set it aside to cool. Lay in the fish, and simmer a few minutes after the water

has just come to the boil. Take out the fish carefully, and when drained baste them with clear fish jelly. When the first basting has set repeat another, until they have a nice coating of jelly; then arrange them gently and garnish to taste. Haddocks, whitings, smelts, &c., are good in this way.

Soused: see Carp.

Stewed.—Wash, dry on a cloth, open, gut, and wipe very clean; notch 2 or 3 times to the bone on one side. Put into a fish-kettle enough liquor (half vinegar or white wine and half water) to cover the fish; add a good quantity of salt, the rind of a lemon, some grated horseradish, and a faggot of sweet herbs —rosemary, thyme, marjoram, parsley, and winter savory. When quite boiling, put in the fish—if many, one by one, so as not to lower the temperature. When quite done, put it on a dish sprinkled with horseradish and powdered ginger (or coarsely-bruised pepper); pour over it a sauce made of fresh butter, a little of the liquor in which the fish was boiled, and an anchovy. Grayling, carp, bream, roach, dace, perch, and tench may also be dressed in the same way. See Carp.

With Remoulade Sauce.—Fry some medium-sized trout, lay them on paper to remove all fat. Chop some chervil, chives, capers, parsley, cress, and a little shallot; pound them in a mortar; add a little French mustard, the yolks of raw eggs, season with salt and pepper; add drop by drop good olive oil, in the proportion of a dessertspoonful to each egg; beat up the mixture, and when quite smooth add a little chili vinegar. Dish the trout (when quite cold), pour the sauce over, and garnish with sprigs of chervil.

Turbot (Turbot).—Great size in a turbot is rather a

drawback than otherwise. Provided that the fish be thick and firm, with the under or white side of excessive roundness and of a thick, opaque, creamy look, it can hardly be too small. In a very large fish the thick, massive white flesh is out of all proportion to the delicate morsels, and the major portion of the fish must of course appear in the form of a *réchauffé* —for which turbot is admirably adapted. In choosing turbot, it is well, unless for a large dinner party, to select a fine, plump, round, "chicken" turbot, such as may be bought in London for 6-7*s.* Particular attention should be given to the colour of the white skin, as if this present a semi-diaphanous or a bluish look, the fish should be rejected. The white side must also never be flat, but should "plump up" directly from the fins like a firm white cushion. As brill is sometimes palmed off on youthful housewives, it may be well to say to those unskilled in markets and fishes that a chicken turbot may be known by the small round spines on the back, which may be easily felt and even seen. The brill is also more oval in shape and much flatter than the juvenile turbot, whose form acquires at an early age the peculiar rotundity so much prized. As a rule turbot require a severe soaking in salt and water to discharge the slime.

À la Normande.—In every respect an admirable dish. Take a nice small turbot, cleanse it thoroughly, lift up the flesh from the backbone, insert a stuffing made of 6 oz. scraped and pounded whiting to 4 oz. soaked breadcrumbs rubbed smooth. To this add 3 oz. fresh butter with which the flesh of 24 shrimps or 12 prawns has been skilfully incorporated. Put in gradually 2 whole eggs and the yolk of one more, season with nutmeg, pepper, and salt, and after thorough pounding and mixing put the forcemeat on

the ice till wanted for use. When the fish has been carefully stuffed—not filled to excess—prepare a stewpan by buttering it liberally, then put in 2 tablespoonfuls finely-minced shallots, 3 glasses sherry, Madeira, or any good white wine, salt, pepper, and a cupful of fine white stock, lay in the turbot, and set it to boil over a slow fire. On its reaching the boiling point, take it off the fire and put it into a moderate oven for ½-¾ hour. Meanwhile prepare a *Normande* sauce by putting a pint of *béchamel* into a stewpan and giving it a boil up. Stir it carefully, and strain through a tammy into another stewpan. Add 2 doz. blanched oysters, 2 doz. mussels, also blanched, and 2 doz. small mushrooms. Add a little milk and a teaspoonful of pounded loaf sugar, and reduce to a proper consistency. Then put in 8 tablespoonfuls cream and the juice of a lemon, stir all well together, pour the sauce over the turbot, and group the oysters, mussels, and mushrooms around. Although best with a combination of oysters and mussels, these shellfish are not always to be procured at the same time, in which case double the quantity of that in season should be used. Many people prefer to leave out the stuffing, and supply its place by a garnish of fish *quenelles*.

Au Gratin.—Mince finely 2 shallots and 2 or 3 mushrooms, toss them in butter till quite cooked, add a little minced parsley, the remnants of a boiled turbot, with pepper and salt to taste; moisten with a cupful of stock and ½ glass white wine; shake the saucepan a few minutes over the fire, then turn out the contents into a silver dish, smooth them well down and sprinkle plentifully with baked breadcrumbs. Put the dish in a quick oven 10-15 minutes, and serve.

Boiled.—The fish must be either scored across once or twice, or cut right down to the bone lengthwise, on the black side. This precaution is necessary in order to prevent the white side—which is always served uppermost—from cracking when the fish begins to swell in boiling. The next proceeding is to rub over the turbot very thoroughly with the juice of a lemon and a little salt. Then have ready a large turbot kettle—to every gallon of cold water put 11 oz. salt—and put in the fish with sufficient water to cover it well. As soon as it begins to boil draw it back and allow it to simmer till done, which may be seen by the skin cracking very slightly. Then remove the fish carefully, drain it over the fish-kettle, and slip it gently on to a dish, masked with a wooden or china bottom, covered with a napkin. Garnish with slices of lemon, laid on and around the fish, and sprigs of fresh parsley.

Fried.—Cut some remnants of boiled turbot into neat pieces, steep them in a marinade of lemon juice, oil, pepper, and salt for 1-2 hours, then dip them in batter and fry them a golden brown in plenty of hot lard.

Hashed.—Take the flesh off a cold turbot, carefully preserving the jelly and removing all the bones. Let the flakes be as large as will look well, and warm by steaming with the remains of the sauce, and serve with a wall of potatoes round the dish and the fish in the centre.

Sauté.—Pick out into neat flakes the remnants of a boiled turbot. Melt a large piece of butter in a saucepan, place the flakes of fish in it, and toss them on the fire till they are quite hot, add pepper and salt to taste, some finely minced parsley, and the juice of a lemon.

With Tomato Sauce.—Slice a Spanish onion, and fry it in butter or in olive oil till quite cooked, without being at all coloured, add the pieces of fish, of which there should be twice as many as there are onions, then moisten with a sufficient quantity of French tomato sauce, put in pepper and salt according to taste, and a small pinch of powdered sweet herbs, shake the saucepan on the fire till the fish is quite hot, and serve.

With White Sauce.—Pick out the remnants of a boiled turbot free from bones into flakes. Make some plain melted butter, not too thick, using plenty of butter and very little flour; season it with pepper, salt and nutmeg, and simmer in it 12 button mushrooms cut in two. When these are cooked add the turbot, and as soon as this is quite warm stir in, off the fire, the yolks of 2 eggs beaten up with the juice of a lemon and strained. A little minced parsley may be added.

With Wine Sauce.—Lay the turbot on a shallow tin or pan plentifully buttered, with slices of onion, some parsley, a few mushrooms, pepper, salt, 2 bay leaves and a few cloves, and enough white wine and water to come up to, but not over the fish; put a piece of buttered paper over the fish, and place the tin in the oven to bake for about 1½ hour, basting the fish frequently with the liquor. When done strain some of the liquor, thicken it with some of the browned butter and flour, add some grated nutmeg, and stir in, off the fire, the yolks of 2 eggs beaten up with the juice of a lemon, slip the fish on a dish, pour the sauce over, and serve.

Whitebait (Blanchaille). Fried.—The great secret of successful frying depends upon the fat being boiling, scrupulously clean utensils, a clear, bright fire, and

plenty of good fat. There must be little time lost in serving any fried fish. Directly it is taken from the fire it should be sent to table, never covered with a dish cover; that renders it tough. It is not to be expected that any one can perfectly succeed in cooking whitebait the first time of trying, but if these directions are carefully carried out, two or three trials will ensure success. Everything must be prepared. Have a stewpan (copper is the best) that is perfectly clean, for if there is anything sticking at the bottom of the pan, it will quickly catch or burn, and so spoil the contents; a wire fish-basket that fits the stewpan, and can easily be moved in or out. Have a clean, fine cloth; some fine white flour (the finer quality is requisite, as it is less heavy). American flour is first-rate, being fine and dry. Place an inverted sieve before the fire on a stand, and on the top of the sieve a double sheet of thick white blotting-paper. For a pint of whitebait have 2 lb. pure lard. Put it in the stewpan and let it melt; when the fat boils and all the little bubbles cease to appear on the surface, and it begins to smoke, it is ready for use. The fat must be very hot (some people test the heat by a frimometer); the heat should be 345° Fahrenheit for ordinary frying, and 400° for whitebait. The little bubbles that rise on the surface show there is still water in the fat; this would at once spoil the fish and make it flabby. When the lard is quite ready it is time to prepare the fish. The whitebait is generally sent from the fishmonger's in a tin pot full of water. Take it from the pot and throw it into some clean, fresh cold water. Take a handful of the fish and throw it in the clean cloth; shake it lightly so that all the moisture may be absorbed. Have a sheet of clean white paper with a good handful of flour on it. Take the whitebait and

sprinkle them into the flour, fingering them as little as possible. Take up the paper and shake the whitebait well in the flour, so that they all get well floured. Turn the whitebait into a wire basket and sift all the loose flour back on to the paper. Turn the whitebait a few at the time into the frying basket, and immerse it at once in the stewpan of hot lard for 1 minute; the fish should be quite crisp. Quickly let the fat drain from the frying basket, and turn the fish out on the blotting-paper on the sieve. Repeat the process until all is done. Have a dish ready with an ornamented paper, and pile up the fish pyramid fashion, and serve as quickly as possible with a plate of thin brown bread and butter and lemon. Place them on a plate with a caster of cayenne pepper in the centre. 2 lb. lard seems extravagant, but, if carefully poured into a clean basin, and when cold the sediment at the bottom taken away, and the lard put again into a clean vessel, it will serve 10-15 times.

Whiting (Merlan). À la Venetienne.—Cut a large whiting into fillets, put them into a deep dish, with some salt, pepper, and the juice of a large lemon; let them marinade for an hour, then drain; flour the fillets well, and fry of a golden brown, serving them with whatever sauce is preferred. A good white sauce, with the squeeze of a lemon added at the last moment, is excellent with this fish.

Au Gratin.—Take a few mushrooms, 2 shallots, and some parsley, all finely minced; mix them together. Butter a tin very plentifully, strew in it some of the above mixture and some fine baked breadcrumbs with a little pepper and salt. On this place the whitings (split open), on them place the remainder of the mushrooms, &c., more pepper and

salt, and cover up the whole with a thin layer of baked breadcrumbs. Pour in at the side a glass of white wine and a sufficient quantity of stock to come up to the fish, and soak the breadcrumbs without washing them off. Put the tin in the oven to bake for 20 minutes.

Aux Fines Herbes.—Butter the bottom and sides of a pie-dish, put into it some whitings nicely cleaned, with a sufficient quantity, according to the number of fish, of chopped parsley, thyme, tarragon, and shallot, very finely chopped, moisten them with a small quantity of white wine, and put them into the oven; when the whitings are about half cooked, turn them, and when they are quite done thicken the sauce with a little butter and flour, pepper and salt should of course be added. In serving them let them go to table in the same dish, just adding a squeeze of lemon juice.

Baked.—This fish is very nice baked and served with caper sauce.

Dressed.—Take 4 or 5 whitings, according to size and number of people, 1-2 hours before they are wanted; sprinkle them with a little salt to make them firm, as they are apt to break. About ½ hour before dinner put the fish into a wide enamelled stewpan, so that they may form one layer. This stewpan should be shallow, so that the whitings may be more easily lifted out; pour over them a little stock or gravy (it should reach about half-way up the fish), and put with them one moderate-sized onion, cut into quarters, and a tablespoonful of chopped parsley. Stew the fish 20-25 minutes. Put into a saucepan 2 oz. butter and 1 tablespoonful flour, stir over the fire till the flour is well mixed with the butter. When the fish are done, with a slice lift them

out on the dish in which they are to be served, and pour the liquor in which they were cooked into the saucepan with the butter and flour, stir well and boil up, then add the yolks of 2 eggs, a tablespoonful of mushroom ketchup, the same of lemon juice, a little pepper and salt, and serve. Be careful the sauce does not boil after the eggs are in.

Fillets.—Carefully skin and free from bones 3 or 4 small whitings. Put the heads and bones into the stockpot. Dip the fish into a beaten egg. Roll in finely-sifted breadcrumbs, and tie up with cotton before frying. The fish may be rolled up wholly or divided into slices. It may also be fried as fillets without rolling up. Serve up with parsley and slices of lemon.

Fried.—Flour the fish, and, having shaken the flour from them, brush them over carefully all over with egg beaten up with pepper and salt; then breadcrumb with fine breadcrumbs, and fry in plenty of lard to a light colour; sprinkle with fine salt; serve with fried parsley and cut lemon.

In jelly.—See Trout.

Puddings (Boudin).—Take the raw meat of some whiting, pound it in a mortar, and pass it through a sieve. Put ½ pint water into a saucepan with a pinch of salt, and a small piece of butter; when it boils stir in it enough flour to make a thick paste; when cold take of this paste half the quantity there is of fish, and take of butter half the quantity there is of paste; thoroughly amalgamate the whole in the mortar, season with pepper, salt, and grated nutmeg, work in 1-2 spoonfuls of white sauce (*béchamel*), and lastly as many eggs, in the proportion of 2 yolks to 1 white, as will bind the mixture. Butter some small moulds, fill them with the mixture, and steam them in a stewpan

half full of water for 15-20 minutes. Then turn them out, and serve with white sauce (*béchamel*).

Meat.—Before proceeding to deal with the four recognised forms of culinary flesh, viz., beef, mutton, pork (including bacon), and veal, some space may be devoted to recipes for cooking frozen and tinned meats.

Frozen Meat.—This requires special treatment, for its juices are liquified by being first turned to ice, and then thawed that it may cook throughout the joint. A joint would be raw in the centre if it were roasted or boiled before it had been perfectly thawed. As an example, take a shoulder of New Zealand mutton to roast. The first thing to be done is to pitch 1-2 oz. of fat off it into the fire, and hold the inside, or lean side, of it in the blaze till the tubes of the lean become seared or hermetically sealed. This may be done by holding the joint with a pair of tongs, or laying it on a gridiron. Of course an absence of smoke from a coal fire is advisable during the few minutes this operation takes. If it be required to roast a leg, the thick end, where the cut lean is apparent, should be served in the same way. If the leg is to be boiled, the water should be made to boil rapidly, and the leg rested on the side of the boiler, so that the thick end is covered about an inch up the outside. This will require about 10 minutes. If the whole leg be put into the water, the boiling will at once cease, when the attempt to close the ends of the tubes will not be effectual. If a neck of New Zealand mutton is to be boiled, the lean end should be hung in the water when it is boiling rapidly, and the whole joint put into the water when it is at the same heat.

Another question of importance raised here, is that

frozen meat requires to be thawed gradually to be fit to cook in the best condition. If taken from a frozen chamber into a warm or a muggy atmosphere, it will, of course, condense vapour as a bottle of wine taken from a cool cellar into a warm dining room does. This makes the outside of the meat pale from its being sopped. It needs first to be taken from the freezing chamber to another at about 40° F., then to another at, say, 55° F.; then to one at about 70° F., or the temperature of the outside air. Then the meat—if the water from the ice outside has been properly wiped off with soft, dry clothes—will appear in a retailer's shop or larder as dry and fresh as home-killed meat. Of course these thawing chambers need to be provided with dry air by the use of ice and fans for circulating the air as above described.

Tinned Meats.—These having been cooked once already and deprived of bone, can only be used in stews and the like. The following recipes are well adapted:—

Collops.—Fry an onion to a golden colour in butter, add a tablespoonful of flour, mix well, add ½ pint stock, a sprig of thyme, one of parsley, a bay leaf, 6 cloves, some whole pepper, and some salt. Let the whole simmer for ½ hour; strain, add a little walnut or mushroom ketchup, and a little Worcester sauce. Lastly, put in the meat cut into neat collops, and let it remain by the side of the fire for about an hour. Serve with bread sippets round the dish.

In Batter.—Cut some pieces of beef 1 in. thick, dip them in a batter made of 3 tablespoonfuls flour, a teacup of milk, and one egg well beaten, pepper, salt, and grated nutmeg. Handle the pieces of beef gently, so that they do not break. Fry a nice brown, and serve with fried potato slices.

Irish Stew.—Simmer 6 sliced onions and 12 sliced potatoes in a pint thin stock for ½ hour. Then add the contents of a 2 lb. tin of Australian mutton cut in slices. Season with pepper and salt, and let all simmer together for 15 minutes.

Mince.—(*a*) Boil 2 carrots in water, peel them, and cut in slices. Fry 3 large onions in golden brown rings, put these into a teacupful of gravy, and let them simmer for 10 minutes. Then thicken the gravy with a heaping teaspoonful of cornflour, mixed in a little water. 10 minutes before serving, put in 2 lb. minced Australian beef, and keep it quite hot, but not boiling. Serve with sippets of toast round the dish; or make a wall of mashed potato, and put the mince in the centre. A few slices of the red carrot can be dotted at the base of the white potato wall.

(*b*) Mince 1 lb. Australian mutton very finely, boil ¼ lb. rice to a pulp, mix it with the meat and add a teacupful of gravy in which an onion has been boiled; stir over the fire, only until the meat is heated through, turn into a dish; have ready turnips (which have been previously parboiled and cut in dice), onions sliced, carrots sliced, all well fried; dish up round the mince. Care should be taken not to cook the Australian meat too long, or it loses its flavour.

Patties.—Mince finely 1 lb. tinned beef, melt 1 oz. good butter, and mix it with the meat. Season the meat highly with pepper and salt, and a dash of powdered mace and nutmeg. Mix all these ingredients together, and add 2 tablespoonfuls rich beef gravy. Cut rounds of light paste to line the patty pans, put in a tablespoonful of minced feed, and cover with lids of paste, leaving a small hole in the centre. Bake for 20 minutes in a hot oven. Their

appearance is improved by brushing the lids over with beaten yolk of egg.

Pie.—(*a*) Rub 6 oz. lard into 1 lb. flour and a dessertspoonful of baking powder; add 2 well-beaten eggs, and scarcely ½ gill milk: this should make a stiff paste. Cut off pieces, the size of an egg; line small tin cups with the paste, and fill with the same meat as for the raised pie, cover with a lid of paste and bake 20 minutes. When cooked, turn them out of the tins, pour a little gravy through the lid, and leave to get cold. This paste is very light and short; 6 of these little pies on a dish garnished with parsley, are useful for luncheon or supper. They can also be made the same shape as small pork pie by moulding the paste round the bottom of a bottle, filling the case with meat, and covering with a lid. They are rather tiresome to get into a good shape, but practice soon overcomes this difficulty.

(*b*) Fill a pie dish with alternate layers of beef, mutton, and bacon, all thinly sliced; season between each layer with chopped onion (boiled), chopped apple, sage, pepper, and salt; pour in a little good gravy, and bake with a crust over it for ½ hour. The onion, sage, apple and seasoning should be well mixed together. This dish is generally liked in the kitchen, and can also be covered with potatoes, mashed smoothly with milk and butter, and seasoned to taste.

Pudding.—(*a*) Cut 1 lb. Australian mutton into thick pieces, the length of one's little finger, and 1 in. wide; cut up ½ lb. beef kidney, and season it with pepper and salt. Line a greased pudding basin with suet crust; put in the meat and kidney alternately; pour in half a teacupful of gravy, with a tablespoonful of mushroom ketchup; cover with the

crust, and boil for 2 hours. This makes a very savoury pudding.

(*b*) Make a crust of 1 lb. flour, a large teaspoonful of baking powder, ½ lb. suet, and ½ teaspoonful salt; add water sufficient to make rather a soft paste; roll out as for a roly-poly pudding; and spread over it a mince of Australian meat, seasoned with pepper, salt, ¼ lb. minced bacon, and 2 shallots finely chopped. Spread this an inch thick, roll it up, pinch the ends firmly, and boil for 2 hours. Serve with thick brown gravy.

Sausage Rolls.—Put 1 lb. Australian tinned beef through a mincing machine; mince with a chopper ¼ lb. pork; grate 1 oz. bread crumbs; mix all together, and season well with pepper, salt, sweet marjoram, and, if liked, a little thyme. Make some light paste, roll it thin into square pieces, put some meat on it, and fold the paste over it, pinch the edges and ends securely, and bake for 20 minutes. This mixture of meat can be made into flat cakes or rissoles, egged and bread crumbed, and fried a golden brown in Australian fat.

Shape.—Take ½ oz. gelatine previously soaked in water, an onion, a carrot, a little thyme and marjoram, and 1 qt. good stock; boil until reduced to 1½ pint, add a tablespoonful of ketchup, and pepper and salt to taste. Strain the liquor into a saucepan, take 2 lb. of the meat, and cut it into neat collops; put them also into the saucepan and let them get warm, then pour all into a mould, put it into a cool place until cold and firm.

Stew.—(*a*) Cook some potatoes and onions in stock, or with some of the jelly from the tin, until thoroughly done and falling to pieces; add salt and pepper, and about 10 minutes before serving put in

some small slices of the meat; simmer gently just long enough to warm them through, and serve with the potatoes and onions all mixed together.

(*b*) Slice 2 large Portugal onions in thin slices, and fry them a golden brown; simmer them in ½ pint thin gravy for 20 minutes; then add 2 lb. tinned mutton finely minced, pepper and salt to taste. Thicken the stew with a dessertspoonful of corn flour, and a piece of butter the size of a walnut; add a few drops of colouring, if it is necessary, to make the stew look a nice colour, and serve very hot on toasted bread.

Vienna Steak.—Turn out a 2 lb. tin of Australian fresh beef, scrape all the fat and jelly from it, melt the jelly in a saucepan, and use the fat, if any, to fry the steak with. Mince the meat finely, and pepper and salt it to taste; mix with it some finely-chopped onion, fried a light brown, and form it into pats the size of the hand and 2 in. thick; brush the pats—which should be more oblong than round, and slightly irregular in form—with egg and bread crumbs, and fry to a dark brown in the fat. Pile them on a hot dish, and surround them with fried onions and good gravy, in which the melted jelly forms a part. The pats should be strewed over with chopped parsley just before they are sent to table.

Vinaigrette.—Cut some Australian mutton in slices, lay them in a dish, make a sauce of 2 tablespoonfuls oil, 1 dessertspoonful vinegar, chopped parsley, a little celery cut small, sliced potatoes, sliced cucumber (when not obtainable, beetroot), and put over the mutton.

Beef (Bœuf). A la financière.—This is simply grenadins of beef served with a ragout *à la financière* in the centre of the dish. It requires some little care

and taste to cook properly. The best part of the beef for the purpose is the undercut, which should be neatly trimmed, all fat and skin removed, and then cut up into shapely pieces about ⅓ in. in thickness, and shaped something like a flat pear—a long oval, rather pointed at one end. These grenadins or fillets should then be finely larded, and afterwards braised by putting them in a stewpan on some slices of bacon, with a carrot and onion sliced, a little celery, if in season, some sweet herbs, parsley, spices, salt and pepper to taste, and a little stock. When sufficiently cooked, take them out, drain, and glaze them, then serve round a ragout made with truffles, cockscombs, quenelles of chicken, mushrooms, &c., all previously cooked, then tossed together in some good brown gravy, highly flavoured with chicken or game, mushrooms, and white wine.

A la Macédoine.—Cut some rump steak in slices a little more than ½ in. thick, trim them all to the same size in the shape of cutlets, and lard them thickly on one side with fine lardoons of bacon fat. Lay them out, the larded side uppermost, into a flat pan, and put into it as much highly flavoured rich stock or gravy as will come up to the grenadins without covering them. Cover the pan, and place it in the oven to braise gently for an hour. Then remove the cover, baste the grenadins with the gravy, and let them remain uncovered in the oven till the larding has taken colour; they are then ready. Take equal quantities of carrots and turnips cut into the shape of olives, also equal quantities of peas, of green haricot beans, of asparagus points, and of small sprigs of cauliflowers. Boil all these vegetables in salted water, then melt a piece of butter in a saucepan, add a tablespoonful of flour, stir in sufficient milk to make a sauce, add pepper, salt, and

a little grated nutmeg. Put all the vegetables into this sauce, of which you should have just enough to make them hold together; toss them gently in it to make them quite hot. Dress them in the middle of a dish, round them dispose the grenadins in a circle, and, having removed the superfluous fat from their gravy, pour this round the grenadins, and serve.

Alamode.—Rub your beef with saltpetre, if it is a large round it will take 3 oz., and the same weight of coarse sugar, then salt it very thick. Strew some black pepper over it and turn it frequently. Do not salt in too wide a pan, as the beef should be nearly covered with the brine. Let it be 3 weeks in salt; then wash it, and rub over it some pounded cloves and mace, and Jamaica pepper, then bind it up, and put some chopped suet into the pan, and cover it with water, and bake it. You must have it from the oven hot, as it will want binding up afresh. Bind with strong wide tape, unbleached.

À la Napolitaine.—Take a piece of fresh silverside, make 2 or 3 holes in it, and insert in each a piece of bacon rolled in powdered sweet herbs and pepper. Tie up the meat with string carefully. Take a piece of the fat of bacon, mince it with a meat chopper, adding to it a clove of garlic, an onion, some parsley, thyme, and marjoram. When the whole is finely minced and well amalgamated, put it into a saucepan with the meat, and keep turning the latter until it is browned on all sides; then moisten with plenty of French tomato sauce, diluted with a little stock, add salt to taste, and let the meat stew slowly till done. Remove the string and serve with macaroni, dressed with the sauce, round the meat. Having boiled the macaroni, mix with it a fair allowance of the above sauce, strained and freed from any superfluity of fat,

and plenty of grated Parmesan cheese. The macaroni should be mixed or dressed in a warmed tureen, not in a saucepan on the fire.

Boiled.—Take a piece of the round, silverside, aitch-bone, or brisket; skewer it if absolutely necessary, and tie it up with string. Put it into a saucepan, cover it with cold water, and let it come gradually to the boil, removing the scum as it rises, and throwing in a small quantity of cold water from time to time. When well skimmed add 2 or more carrots, an onion, and a bundle of sweet herbs, and salt to taste. Draw the pan to the side of the fire, and let the beef slowly boil till done. 2-2½ hours from the time of boiling for a piece of beef 10-12 lb. weight. Strain and preserve the liquor for stock.

Braised.—Put in a stewpan a layer of slices of onion, and over this a layer of slices of fat bacon ½ in. thick; on this place a piece of round of beef 8-10 lb. weight, neatly tied up with string; set the saucepan on the fire for 20 minutes, and turn the beef over once or twice during the process, then add a cupful of wine (red or white), 2 carrots, and an onion cut in slices, a bundle of sweet herbs, pepper and salt to taste, and a few cloves. Lastly, fill up the saucepan with just enough common stock to come up to the top of the piece of beef; cover the pan close, and braise it for 4-5 hours, keeping a few hot cinders on the lid. Serve with its own gravy, freed from fat, and strained.

Brasciolette.—Take a piece of rump steak freed from fat, skin, and gristle, mince it finely, and pound it to a paste. Grate some breadcrumb and mix with it pepper, salt, spices, and chopped parsley to taste. Take some lean bacon and cut it in thin strips, 1 in. wide. Spread out the meat paste to the thickness of

½ in. Cut it into squares about 2½ by 4½ in. Put a strip of bacon on each square, with a small piece of butter, and 4 or 5 pine cone kernels (pignoli). Strew over a little breadcrumb prepared as above, and roll up tight on the table each brasciolette in meat paste, then roll it between the palms of the hands. When they are all done, pack them up close in one layer in a well-buttered baking tin. Strew plenty of the prepared breadcrumbs over them, and some little bits of butter. Bake in a quick oven. Look at them frequently, and when the brown gravy shows on the top they are done. They should not in any case be baked longer than 15 minutes. They may be served plain, or with some tomato sauce poured over them.

Bubble and Squeak.—Cut from a piece of boiled beef slices the thickness of a penny piece, trim and cut them into any shape you please—parts underdone being the best; plain boil 1 large cabbage, 1 carrot, 1 onion; when cooked, drain and mince them together very fine, removing any hard part of the cabbage. Put into a sauté pan a piece of butter the size of an egg; when melted put in the beef to warm, taking care it does not dry; this done, remove the meat and put in the vegetables; stir on the fire until they are very hot, moisten with a little good stock, add salt and pepper, a little grated nutmeg; place them and the meat on the dish in the same way as cutlets, pour over a little stock, and serve. (J. Burtenshaw.)

Bullock's heart.—(*a*) A bullock's heart, stuffed in the usual way, should first be gently simmered for an hour or more, according to size; then roasted slowly, being basted continuously, as all meat should; if preferred, it may be larded. Thus managed, it is an excellent dish.

(*b*) Put the heart in lukewarm water, and let it soak for 1½ hour, then have ready a good supply of veal stuffing, which put in the heart in every available place; sew it up carefully, and plunge it into boiling water, allowing it to boil 2 hours; then take it out, put it in the oven with a good piece of dripping on the top; baste occasionally, and bake 1½ hour. Have a tureen of good gravy, slightly thickened, sent to table with it, and, of course, currant jelly. (Kate Campion.)

Cow-heel.—(*a*) Wash, clean, and scald a cow-heel, and cut into pieces about 2 in. long and 1 wide. Dip these into the yolk of an egg beaten up. Cover them with breadcrumbs mixed with chopped parsley, pepper and salt, and a little cayenne. Fry them in boiling batter.

(*b*) Split the cow-heel, wash it, and place it in a stewpan with just enough water to cover it. Simmer gently for 3 hours, chop enough parsley to fill a tablespoon, put it into the stewpan. Mix 2 tablespoonfuls baked flour, 1 teaspoonful salt, 1 saltspoonful pepper, and 1 teacupful cold water, pour it in, and stir till it thickens. Boil for 10 minutes longer, then serve.

Croquettes.—The croquettes can be made from any remains of cold beef, whether boiled or roast, that will cut into neat slices. These slices must be rather thin and nicely trimmed. Make a forcemeat by chopping parsley, fat bacon, dried herbs, and a suspicion of lemon peel together; season well, spread a little on each slice of meat, roll up and dip in a thin batter, then fry in boiling fat.

Fillet.—Take a piece of fillet of beef (the undercut of the sirloin), trim off the fat neatly and the thin

skin next to it, lard not too finely the outside of the fillet with fat bacon, and lay it for a whole day in a pie dish with plenty of olive oil, pepper, salt, parsley, slices of onion, and bay leaves. Turn it occasionally. Cover the larded side with a piece of oiled paper, roast it at a brisk fire, and do not let it be overdone. Baste it frequently with butter, or with some of the marinade and a short time before serving remove the paper, sprinkle the fillet with salt, and cease basting, to let the larding take colour. Collect what gravy is in the dripping pan, free it entirely from fat, or serve it under the fillet; which may be garnished either with fried potatoes or with watercresses. If the gravy collected in the dripping pan is not sufficient, some well-flavoured and reduced clear beef stock can be added to it.

Frizzled.—Brown a piece of butter the size of an egg in a saucepan, add a cup of cream or milk, 1 teaspoonful flour, mixed with a little cold milk. Have ready ½ lb. of thinly-shaved smoked beef, add it to the mixture, let it just come to a boil; serve. (F. E. W.)

Hash.—(*a*) Two tumblers hot water, 1 large spoonful butter, 3 tablespoonfuls grated cheese, and the same of fine breadcrumbs; then season highly with cayenne pepper, adding three tumblers cold beef, minced. All stirred well together, and served as soon as hot.

(*b*) Fry a small onion, cut in thin slices in butter; when it begins to colour stir in a tablespoonful of flour, then add a cupful of stock, pepper and salt, a small pinch of powdered sweet herbs, and ½ wineglassful tarragon vinegar. When the sauce has boiled for a minute or two strain it into another saucepan; when cold, put in the beef cut in thin

slices. If roast beef, all outside parts must be trimmed off. Set the saucepan by the side of the fire for the contents to get gradually warm; when nearly so, a fair allowance of sliced gherkins would be added. The longer the process of warming, the better the hash will be.

(*c*) Cut some thin slices of underdone roast or boiled beef, lay them in a buttered tin, strew over them some mushrooms and onions and a little parsley, all finely chopped, add pepper and salt, and pour in at the side as much stock as will come up to, but not over, the meat. Strew plenty of baked breadcrumbs over all, and put the tin in the oven for ½ hour, or till the moisture is nearly dried up. A very small quantity of wine may be added along with the stock.

Hung Beef.—(*a*) This is served in America, shaved very thin, so thin as to curl up; or grated, to spread on toast; also shred in omelettes.

(*b*) It should be soaked for a few hours, then boiled slowly until tender with carrots and cabbages. It is best eaten cold, or it may be shaved or grated, and served on buttered toast. Slices of it can be broiled on a gridiron and served with any green vegetables.

Kidney.—Parboil a beef kidney and cut it in slices, the thickness of a penny piece, toss them in a saucepan with a piece of butter for 5 minutes; in another saucepan put 1 oz. butter, and 1 dessertspoonful flour; stir on the fire until it begins to brown; moisten with 1 teacupful stock, add some finely minced parsley, the juice of a lemon, pepper and salt to taste; pour this sauce into the saucepan with the kidneys, and let them very gently simmer until thoroughly done.

Minced Collops.—Mince some raw beef very finely, put the mince into a saucepan with a bit of butter to prevent it sticking to the pan. When they are hot add 1 teaspoonful flour and a little gravy or water. They should be stirred often, to prevent their getting lumpy: they take about 20 minutes to cook. Onions minced may be added, or a little hot pickle. Hare collops are dressed the same way, with the addition of a little claret.

Mock Brawn.—Take 4 cowheels, clean and wash them thoroughly, boil them in plenty of water till very tender, then take them out and shred them in long pieces, which put in a stewpan; just cover them with stock, and let them stew a little. Have ready chopped a handful of capers, half as many gherkins, and one glass of vinegar stir in with the heels; put all into a mould; when quite cold turn out.

Ox Brains.—Lay the brains in plenty of lukewarm water to blanch. Put them into scalding water, with some salt, to boil slowly about ½ hour. Take them up, drain, and divide them into small pieces. Dip these into a well-beaten egg, sprinkle them with grated bread; fry them in plenty of butter a delicate brown. Sprinkle with lemon juice when done, and serve with slices of lemon as garnish.

Ox Cheek.—(*a*) One of the nicest dishes that comes to table is an ox cheek. It will require to be well washed, not soaked, and to be put on the fire in a large boiler full of cold water, and when it boils it must continue to do so for 4 hours. 1½-2 pints peas should be in soak all the night before, and put in with the cheek at first. Onions, carrots, turnips, and celery are also added, and require 2 or 3 hours' boiling. This makes delicious soup for the following days, and the cheek itself a savoury and tender dish

for a family. What is left can either be made into a shape for the breakfast or luncheon table, or cut into dice about 1 in. square and sent to table in the soup. Hard-boiled eggs, pepper, salt, and nutmeg must be added to the shape.

(*b*) It has long been in the north a favourite dish for breakfasts, or lunch when made into a pie; it is a most economical, excellent, and appetising dish, gentlemen like it for breakfast before a hard day's shooting or hunting. Wash the ox cheek in several waters, let it soak 1 hour, then stew gently until the meat is cooked; remove it from the stew pot, take out all the bones, which return to the stew pot—use a digester for this purpose; put the meat on one side until quite cold, boil 2 eggs hard and leave until cold; any remnants of bacon or ham you have should be cut into pieces about ½ in. in size. Take 1½ pint of the stock from which you took the meat, reduce it one-third by boiling, flavour it with a teaspoonful of Yorkshire relish or Worcester sauce, pepper, and for those who like it, a little tarragon vinegar. Trim the meat, that is, take off the white skin, cut the rest into pieces, about 1 in. in size, lay them in your dish with the egg cut in slices, bacon or ham, till full, then pour in your gravy, cover with the paste, taking care to make an incision in the centre, and bake until the crust is sufficiently cooked. The pie should be eaten cold. If you have any other bones from meat they should be added to the stock and boiled for some hours; we always boil them for 3-4 days, removing the stock occasionally and filling up again with water, for the longer they are boiled, the more the stock is likely to jelly, you then have the foundation of many good soups. The ox cheek may be made into a galantine instead of pie. (M. E. S.)

Ox-head.—People who have to study economy are often puzzled as to what is the cheapest and most profitable dish for a Saturday early hot dinner when the boys and girls of the family are generally in from school. To those who are not already aware of the many excellencies and useful purposes to which half an ox head can be applied, this dish can be safely recommended. At a butcher's in an unfashionable locality half a head can be bought uncooked for 5*d.* a lb. with the bones out, or 4*d.* with the bones in. The wary housekeeper will prefer having the bones left in as so much more stock is obtained in this case. The head must be soaked 12 hours in cold water. Then place it in a large saucepan, after dividing it into 2 portions, with about 4 gals. cold water, 2 onions stuck with cloves, 4 carrots, 3 turnips, ½ a burnt onion, a bay leaf, some mixed herbs in a muslin bag, salt and pepper to taste. Stew slowly for 4-5 hours. The liquor will gradually become reduced in quantity, and consequently, another gallon of water must be added. When quite tender, take it out of the saucepan and cut off sufficient slices to fill a dish: if the appearance of the head on the table is objected to, serve the meat with some of the gravy, and a fresh lot of vegetables. The slices do very well indeed for the dining room, and the servants can have a good dinner from what remains. Some nice pieces should be left, which can be made into a mould of collared head for Sunday night's supper, in the following way: Cut the meat into little squares and also a small quantity of fat bacon. Put this into rather more than 1 pint stock with a teaspoonful of mixed herbs, 3 cloves in muslin, ½ teaspoonful of parsley, a dash of cayenne pepper, and some salt. Stew all these ingredients together for about 1 hour. When it has become tepid, wet a plain mould, pour in the

mixture, and set it aside to get cool; serve garnished with aspic jelly made of gelatine and flavoured with tarragon vinegar. The first lot of stock makes splendid soup after all the fat has been carefully removed, and into which anything that is liked can be put, such as some pieces of ox tail from a tin containing tails only, because, the stock being so good, it is not necessary to add ox tail soup to it. A small quantity of French sago and the well beaten yolks of 2 eggs are a very good addition. The second stock, which is extracted from the bones, is naturally poorer; but it can be utilised very successfully for soup, thickened with tinned tomatoes, prepared tapioca, chestnuts, cold boiled potatoes, leeks, cabbage, carrots, lettuce, &c.; in fact, it can be employed in any way most handy. Such a large quantity of stock can be made from this very inexpensive dish, that, with the addition of 6*d.* worth of fresh bones, enough soup and gravy for a moderate-sized family can be obtained to last about a week. (C.)

Ox-tails.—Thoroughly wash and divide into 4 in. pieces 1 or 2 ox tails, put them into a stewpan, with a bunch of sweet herbs, a little salt and cayenne pepper, and rather more than 1½ pint stock. Simmer very gently for 2½ hours, then take out, and let them drain on a sieve. Brush them thickly over with the yolk of a well-beaten egg, and cover with breadcrumbs. Broil a fine brown on both sides very quickly, serve with a good gravy or sauce tartare.

Potted.—Take 1 lb. cold roast beef, free from skin and sinews, mince and then pound in a mortar to a paste. In pounding, add by degrees a large saltspoonful of salt, scarcely that quantity of black pepper, a pinch of cayenne, a little finely powdered

mace, and 2 oz. clarified butter. Press into small jars, and cover with a slight coating of warm clarified butter; tie down tightly with bladder or paper. The clarified butter, after being used for covering, need not be wasted, but will do nicely for basting poultry or game.

Pressed.—(*a*) Take a piece of the brisket, or of the thick flank, trim it, and rub it well for 3 days with salt and saltpetre. Pound 3 oz. allspice, 1 oz. cloves, 1 oz. black pepper, 2 lb. salt, and ½ lb. brown sugar in a mortar. Tie up the beef, and put in a pan, rub it with the above ingredients every 12 hours for a week, drain it from the pickle, pour over it the juice of 2 or 3 lemons, and 1 glass brandy. Chop up 2-3 lb. beef suet, put a layer at the bottom of the dish, under the beef, and the rest on the top, cover it with a paste of flour and water, and bake for 6-7 hours. When done remove the crust (drain off the juice), and put the beef to press under heavy weights. Glaze it, and garnish with aspic jelly.

(*b*) To glaze.—The easiest way is to cut a thick slice from a piece of glaze, which may be bought at no great expense; remove the surrounding skin, and place it in a small-sized jam-pot to melt in the oven. When it has become quite liquid, and while it is still hot, apply it with a paste brush over the upper surface of the beef, which should be already trimmed and placed on the dish on which it is to be served, before the application of the glaze. It will soon get cold, and will then be ready for serving.

Pot au feu.—Take a piece of fresh silverside of beef weighing 6 lb., and about ½ lb. bones, tie up the meat neatly with string, and put both into a 6 qt. saucepan; fill it up with sufficient water to come well over the meat and bones, and set it on the fire;

remove carefully with a skimmer the scum that will rise as the water gets warm but do not allow it to boil. Add at intervals during the process about 1 pint cold water in small quantities; this will have the effect of checking the ebullition, and will help the scum to rise. When the scum is all removed, put in about 1 oz. salt, a small handful of whole pepper and allspice, 1 onion stuck with 12 cloves, 1 onion toasted almost black before the fire or on the hob, 1 leek, 3 carrots of average size cut in 2 in. lengths, 2 turnips of average size each cut in 4, and a *bouquet garni*—i.e., 2 bay leaves, 2 or 3 sprigs each of thyme and marjoram, a clove of garlic, and a small handful of parsley, all tied together into a small faggot. The above vegetables should not be put in all at once, but gradually, so as not to check the gentle simmering of the *pot au feu*, which should be now skimmed for the last time, and placed by the side of the fire to simmer gently for at least 4 hours. According to the season, all or some of the following vegetables may be added: A head of celery cut in 2 in. lengths, 2 tomatoes, 2 parsnips, a handful of chervil. At the time of serving, strain the broth and skim off all the fat, add the least bit of sugar (not burnt sugar) and more salt if necessary; make the broth boiling hot, and pour it into the soup tureen over small slices of toasted bread, adding according to taste, a portion of the vegetables cut in thin slices.

Roast.—(*a*) Cut off most of the flap of the sirloin and trim the joint neatly. Have a clear, brisk fire well built up. Place the joint close to it for the first half-hour, then move it further off. Baste frequently. When nearly done sprinkle the joint well over with salt. Put a small quantity of water in the dripping pan, then pour off the gravy, free it effectually from fat, and pour it over the joint in the dish. Time of

roasting about 3 hours for a 10-12 lb. sirloin. Garnish with scraped horseradish and Yorkshire pudding. Serve horseradish sauce in a tureen.

(*b*) Take a piece of the undercut of sirloin of beef, trim off the fat neatly, and the thin skin next to it; lard (not too finely) that side of it with fat bacon, and lay it for a whole day in a pie dish, with plenty of olive oil, pepper, salt, parsley, slices of onion, and laurel leaves. Tie it on the spit, cover the larded side with a piece of buttered paper, roast it at a brisk fire, and do not let it be overdone. Baste it frequently with its own gravy, and a short time before serving remove the piece of paper to let the larding take colour. Serve with its own gravy.

Salt.—Wash the piece of beef thoroughly, then proceed as in boiling fresh beef, omitting the salt. Serve garnished with carrots.

Scalloped.—Melt together 2 oz. Parmesan cheese and 2 oz. butter, finely mince ½ lb. tender and rather underdone cold roast beef; mix this with the cheese and butter, seasoning it with a little pepper and salt; have ready some tin or plated scallop shells, buttered and sprinkled over with breadcrumbs finely grated; pour in the mixture, sprinkle over it some more breadcrumbs, and then grate Parmesan cheese over the top; they may be baked either in the oven or in a Dutch oven before the fire. Serve very hot.

Spiced.—(*a*) Take the bones from a piece of thin flank, and put it for 10 days into the following pickle —it should be covered. Boil for 20 minutes 2 gal. water, 5 lb. salt, 2 lb. coarse sugar, 2 oz. saltpetre, 2 oz. black pepper and of mixed spice, bruised and tied in muslin, and bay leaves. Clear the scum as it rises, and let it stand till cold. To boil the meat, put it in cold water, to cover, with a wineglassful of vinegar

and a few vegetables. Let it come very slowly to boiling point, simmer it very slowly, and leave it in the pickle till it is cold. If it is hard, it is cooked too fast. Vinegar helps to make it tender, and it (as well as all boiled meat) is much less dry if it is left till cold in the liquor. Before boiling, the thin flank should be sprinkled with chopped parsley, herbs, and allspice, rolled, and tied with tape. (E. A. B.)

(*b*) ½ lb. black pepper, ½ lb. white ditto, 3 oz. allspice, 3 oz. cloves, 2 oz. saltpetre, 1 lb. salt, 1 lb. coarse brown sugar. Grind all the spice, and pound the saltpetre fine; mix all the ingredients well together. Get a round of about 26 lb. small beef, with 2 lb. extra fat, to replace the marrow bone, which must be cut out of the centre; let the meat be as fresh as possible, remove any kernels, then thoroughly hand-rub every inch of the round, put it with all the ingredients into a stone crock, or pan, where it will make its own pickle, rub it well, and turn it in the pan every second day for 2-3 weeks. To cook it: Bind it into good shape with tape; put 1 qt. cold water, and a plate of suet or good dripping into a large pot; put in the beef, and completely cover it with suet or dripping; place another plate above all, and put the cover on the pot. Bake for 6 hours in an oven, turning the beef at the end of the third hour.

Steak (*a*). À la Bordelaise.—Take a rib of beef, remove the bone, and cut the meat into 2 steaks, trimming them neatly. Take a marrow bone, break it, remove the marrow in one piece, blanch it for a minute in hot water, and put it into the oven to keep it warm. Broil the steaks, and serve them over some Bordelaise sauce, placing on each the marrow, cut in slices and brushed over with a little thin glaze. *Bordelaise Sauce.*—Mince finely 2 or 3 shallots,

blanch them for a few minutes, press out the water from them, and put them into a saucepan with a cupful of white wine; let them boil 20 minutes, then add 2 cupfuls Spanish sauce, a dust of pepper, and some parsley finely minced; let the sauce give a boil or two, and it is ready. Well-flavoured gravy, thickened with browned flour and butter, may be used instead of Spanish sauce.

(*b*) The great secret in cooking a steak lies in having a perfectly clear red fire-no black or smoking coal. It should also be quite even, so as to be at an equal distance all over (nearly 1 ft.) below the gridiron. Before putting on the gridiron throw a handful of salt on the top of the fire; then place the gridiron on to get quite hot. Before putting on the steak rub the gridiron well over with a piece of suet or fat. See that the steak is cut of an equal thickness-¾ in., certainly not less. It should on no account be beaten. Place it on the gridiron, and turn frequently with steak tongs. If these are not at hand, use a fork; but put it into the edge of the fat, on no account into the lean, as that would let out the gravy and spoil the steak. The time for cooking must depend on the thickness of the steak and on the fire—10 minutes is the rule. Serve on a very hot dish, on which should be ready, sliced very thin, a shallot. For gravy, use Cock's Reading Sauce and a very little boiling water. After the steak is dished pepper and salt well, and rub it over with a piece of butter.

(*c*) Stewed.—Season and lay them in a stewpan, put in ½ pint water, a blade of mace, an anchovy, and small bunch of herbs, a piece of butter rolled in flour, a glass of white wine, and an onion, cover close, and let it stew till the steaks are tender, then take them out, strew some flour over them, fry them

in butter till they are of a nice brown and pour off the fat; strain the sauce they were stewed in, pour it into the pan, and toss it up together till the sauce is quite hot and thick, then lay your steaks in the dish, pour the sauce over them, and serve with horseradish and pickles. (S. S.)

(*d*) Pie.—Have your steak cut up and placed in its dish (nearly covered with water) in the oven for 1½ hour, with a cover over the dish. The oven should be about the heat for rice pudding. Open the door if likely to dry the gravy. When cooked take it up, and after properly flavouring it, and adding a hard-boiled egg cut up, lay on the crust, and replace the pie in the oven until the paste is properly cooked.

(*e*) Ditto.—Cut up 1½ lb. fillet steak or rump steak, with 2 kidneys, previously boiled, 2 eggs boiled hard and cut lengthways in 4 pieces, pepper and salt lightly, flour the steak and kidneys, place some of the meat and some of the egg in the dish, and a piece of butter the size of a walnut; add a teacupful of good gravy, seasoned with a teaspoonful of Worcester and 1 dessertspoonful Harvey sauce; fill the dish with the remaining portions of meat and eggs. Cover with the paste, and bake slowly for 2½ hours.

(*f*) Pudding.—Line your basin with thin suet crust. For a small pudding take ¾ lb. rump steak, cut in thin slices, without fat or gristle; make a powder of pepper and salt, dip each slice into it, and lay it round in layers in the basin until nearly full. Fill up the centre with oysters or mushrooms, tie it tight, and boil for 3 hours; add water in the saucepan as required, but it must not reach the top of the pudding basin. Fill up the basin with good stock.

Tea.—(*a*) Use Gard's patent meat juice extractor. Its principal virtue consists in the beef tea being

cooked just enough to render it most digestible. Put about ¼ pint water to ½ lb. beef, the roll of the shoulder.

(*b*) Put the beef, cut in pieces or slashed, into a jar with a cover, and tie it over with paper; stand the jar in a saucepan with plenty of water, but not enough to make the jar float. Setting the jar in the oven dries the meat. It should be well boiled gently, and the lid kept on the saucepan to keep the steam in.

(*c*) Mince 8 oz. gravy beef very finely, pour over 8 oz. cold water, and let it stand 1 hour; pour off the liquor, and it is ready.

(*d*) Dr. Stutzer has exposed the common superstition about the nourishing powers of beef tea. He extracted all the extractible matter from 100 gr. of beef with 100 gr. water, and a good proportion of salt, at a gentle heat for 4 hours, but could only succeed in obtaining in solution $^{1}/_{12}$th the nourishing matter of the beef, the other $^{11}/_{12}$th remaining behind in the *bouilli*. In other words, we should have to take ½ gal. beef tea made with beef to each pint of water before we got as much nourishment as is contained in ¼ lb. of steak. We might, it is true, evaporate our beef tea down to, say ½ pint, but we doubt if it would be palatable to the least squeamish invalid.

Tongue.—(*a*) Never boil a tongue, only simmer, and allow 3 hours for a large one. Never cure small ones. ¼ hour to every lb. is the usual time given when meat is simmered, for meat should not boil, as it hardens it; but you may know when the tongue is done, by its peeling readily. The skin should peel off as a glove, when drawn, does from the hand; and if the tongue is to be eaten cold, it can be glazed; or if warm, a few well-browned and sifted breadcrumbs put over it, and a paper frill should encircle its root.

Many garnish warm tongue with flowers in the old-fashioned way; but these adornments interfere with the carver; serve browned or glazed, with simply a frill.

(*b*) A dried tongue should be put to soak all night in cold water; if it is only pickled, 2-3 hours will suffice. Put the tongue in a saucepan sufficiently large, and with as much cold water as will cover it well; put it on the fire until it comes to boil, then remove it to the side, let it simmer but not boil. A bunch of herbs in the water when boiling is a great improvement; while cooking the water should be skimmed.

(*c*) Put the tongue into an earthen pan, and lay on the top of it a few slices of butter; then cover the pan with a flour-and-water crust, and bake, according to size, in a moderately hot oven. When done, take off the skin, and straighten the tongue on a board, by means of skewers at the tip and root. When cold, glaze it, ornament it with a frill of paper, vegetables cut into shapes, and curled parsley.

Tournedos.—Cut some rump steak or fillet of beef in slices about ½ in. thick, trim them all to the shape of cutlets (pear shape), lay them in a marinade composed as follows: Olive oil and tarragon vinegar in equal parts, an onion and a carrot sliced; pepper, salt, and bay leaf, a sprig of thyme, parsley, and a few cloves. There should be enough marinade to cover the fillets, and they should lie in it for 12 hours. When wanted, take them out of the marinade, fry them in butter quickly on both sides, and arrange them in a circle on a dish alternately with slices of bread cut to the same shape as the fillets, and fried a golden colour also in butter. Pour in the centre of the dish some well made sharp sauce (sauce piquante, or

sauce poivrade), and serve.

Vinaigrette.—Cut in thin slices the cold beef of the *pot au feu*. Mix in a small basin 1 teaspoonful mustard with some water and the yolk of an egg; stir it continually, and at the same time drop in some olive oil, drop by drop, until the sauce becomes pretty thick; then add a little vinegar, and continue stirring and dropping in the oil until you have as much sauce as you require. Add a hard egg chopped up in small pieces some chopped-up parsley and chervil, a little salt, and 3 tablespoonfuls good cream. Arrange the slices of beef round the dish, and pour the sauce over them.

Mutton (mouton). Baking.—In baking a joint in any kind of oven, the following rules must be enforced to command success. First of all, the joint must be placed in a proper baking tin, which can be bought of any ironmonger for 6-8*s*. This baking tin is a double tin, one placed inside another and has raised grating to place the meat on, which prevents its being sodden in the fat. Water is put in the under-tin to prevent any scorching of the dripping, which imparts such an unpleasant taste to the meat; the small amount of steam from this water helps to keep the meat from drying and hardening, but is not sufficient to sodden it. Secondly, the joint must be put into a thoroughly hot oven, which hardens the outside enough to keep in the gravy. After the first ¼ hour of brisk heat, lower the fire a little, keeping a moderate fire for the rest of the time. The joint must be turned the under side uppermost when it is half cooked, or it will not be evenly done or browned, as the main heat in stoves or kitcheners proceeds from the top of the oven. Thirdly, the oven door should be opened every 10 minutes for a second or two to

allow the vapour from the meat to escape: it is the confined vapour of meat in a close oven that makes a baked joint offensive to a sensitive palate. To sum all up in a few words, the oven must be thoroughly hot when the joint is first put in, the meat must be raised above the dripping, water must be used in the under tin, and the oven door must be opened every 10 minutes. Suppose we have a leg or shoulder of mutton to cook, in an ordinary kitchener or stove oven, place the joint, ready trimmed, on the grating of your baking tin, the underside uppermost, as when it is turned it will bring the proper side up to send to table, and be ready for the final browning. Dust it over lightly with flour, and put a lump of dripping in the upper tin to baste with; pour sufficient cold water in the underneath baking tin. Put the joint into the hot oven, and let it remain ¼ hour, if a joint of 10-12 lb.; but if only 5-6 lb., 10 minutes will be enough. Open the oven door once in that time, and baste it at the end of the ¼ hour, then lower the fire a little, and keep a steady even fire all the time the joint is cooking. Baste every 10 minutes, at the same time the door is opened to let the vapour escape. Turn the joint, when half cooked, and flour it a little; and ¼ hour before it is finally cooked dust it well with flour, and do not baste it again unless any part of the meat refuses to moisten and brown, when a very little dripping may be put on this part to bring it to its right colour. When the meat is ready to dish up, take the baking tin out of the oven, put the meat on a warm common dish, and return it to the oven to keep hot while the fat is being separated from the gravy, which is best done by pouring both fat and gravy into a hot basin, and then skimming the fat off quickly with a large spoon. A shoulder of mutton will make very little gravy, and should have some made

gravy added to it. An economical way of making the gravy nice is to boil a teacupful of water in a saucepan with a good pinch of salt and a little white pepper in it. Mix ½ teaspoonful flour in a little water until smooth, and stir into the boiling water. Let it boil a minute, and when all the fat is skimmed off the gravy pour the gravy into the saucepan, letting it simmer a second, and pour it over the meat or into a gravy tureen, and send to table.

Breast.—(*a*) With the poor, to whom fat is a necessity, this dish is much in vogue, but to be economical, even from their point of view, it must be bought at a low price. Persons accustomed to the prime parts of mutton are wont to despise the breast; but it may, with a little care and skill, be made into excellent dishes. It is essential that it should be partly prepared the day before using, as it cannot be freed sufficiently from fat until cold. After preparing in the following manner the meat may be made either into a mutton pasty, Devonshire pie mutton pudding, stew, or curry. It is besides excellent eaten cold. Cut the breast into convenient pieces, and lay them in a saucepan, meat downwards, sprinkle with pepper and salt, and slice 3 onions over them. If it is desired to use the fat drawn from the mutton in any way in which the flavour of onions would be objectionable, they must be omitted. Set the stewpan at a low heat, and allow the meat to cook gradually in its own fat and juices. It will take about 3 hours. When done put away the meat on a dish, and the fat in a basin. The next morning a little gravy will be found beneath the cake of fat, which will, from a breast of mutton weighing about 3 lb., be as much as ¾-1 lb. It is excellent fat either for making family cakes and pies or for frying. Use the gravy, with the addition of a little water or stock, onion or other vegetables to dress the meat, in any of the ways above mentioned.

(*b*) Boil it tender, and take out the bones; have ready some parsley and thyme, well chopped, a little salt, pepper, and some breadcrumbs; mix them well, and lay on the top of the lamb, put it down before the fire to brown, and serve it up with a good gravy and a few capers.

Broth.—(*a*) Take ½ lb. Scotch barley, 5-6 lb.

mutton (neck or breast), put on the fire with 5 qts. of water, and bring it slowly to a boil. Turnips, carrots, onions, or leeks and celery cut up small, with ½ pint dried green peas, to be added ½ hour after the meat and barley have boiled. The whole then to be simmered 2½ hours longer. The fat must be removed as it rises to the surface when boiling. If preferred, the meat can be served as a separate course, with some large vegetables round it.

(*b*) Take a piece of the best end of a neck of mutton (say 6 cutlets), saw, short off, the end of the ribs in one piece, also the chine, divide the cutlets, and trim off the fat. Put the cutlets, ribs, and chine into a saucepan with 2 qts. cold water, and 2 tablespoonfuls pearl barley; when the saucepan has been on the fire for ½ hour, throw in 1 onion, 2 carrots, 1 turnip, and ½ head celery, all cut in small squares the size of peas. Keep on skimming the broth of all fat, and scum at intervals; when it has boiled another hour, add pepper and salt to taste, a pinch of powdered thyme, and a dessertspoonful of finely mixed parsley. Then let the broth simmer gently till wanted, removing the ribs and chine at the time of serving.

Casseroles.—Boil 6 large potatoes; when done add salt, pepper, grated nutmeg, 3 yolks of eggs, 1 oz. butter; beat all well together over the fire a few minutes, then pass through a sieve. Butter a large baking sheet; place the potato on it in a flat heap 1½ in. high. When cold, cut them out with a plain cutter the size of a patty, egg and breadcrumb; make an impression at one end with a smaller cutter, to represent the top of the patty; fry a golden colour in hot lard. Remove the inside, and fill them with the mince moistened in the same way as for patties.

Serve very hot on a napkin.

Chops.—Take some chops from a loin of mutton, trim them neatly, and remove all fat; lay them in a deep dish, with slices of onion, a few cloves, whole pepper, salt, and sweet herbs; add oil and vinegar in equal parts just sufficient to cover them; let them marinade for 10-12 hours, turning them occasionally, then broil over a clear fire; arrange them neatly on a dish. Fry one or two shallots, minced very finely in butter; when just beginning to take colour, pour on the chops, and serve with sharp sauce in a boat.

Croquettes.—Roll up the mince in balls, egg and breadcrumb, and fry them in hot lard. They can be made into any shape, such as round balls, diamonds, sugar loaf, or cutlets. They must be served with fried parsley, and very hot.

Cutlets. (*a*) Cold.—Trim some neck cutlets very neatly, remove every particle of fat, and cut the bone quite short. Lard them finely with bacon or ham, and put them into a braising pan on a slice of fat bacon. Add a sliced carrot, a turnip, and an onion, also sliced, a bundle of sweet herbs, whole pepper, and salt to taste. Add a little gravy or good stock—if liked, a glass of white wine. Braise gently for an hour or so. When sufficiently done, drain and put them to press until cold between 2 dishes. Trim them again, glaze with some of the gravy reduced for the purpose, and serve with clarified aspic jelly and sprigs of chervil or tarragon, or with cold tomato sauce.

(*b*) Stewed.—Take some lean, neatly trimmed mutton chops from the loin, and fry them lightly a good brown. Have ready sufficient good, well-seasoned gravy, in which put a few slices of pickled cucumber. Add the chops, and stew most gently

1½-2 hours.

(*c*) With apples and gravy.—Take some cutlets from the neck, trim them neatly; season with pepper and salt, put them in a deep dish, with slices of apples and chopped onions over, pour in sufficient stock or gravy to cover them; put the dish in the oven, cover it over, and let the contents braise gently for ¾ hour, or until thoroughly cooked; serve in the dish in which they were cooked.

(*d*) À la maître d'hôtel.—These may be prepared over night by cutting from a neck of mutton as many as will be required; cut the bones rather short, and cut a cutlet from between every 2 bones, these with the bone being only the thickness of the bone itself; trim off some of the fat, flatten them, season with pepper and salt, and set them in the larder for the night. The next morning prepare the sauce before cooking the cutlets. For this take 1 oz. butter, 1 teaspoonful finely chopped parsley, and a few drops of lemon juice; mix these well together with a knife on a plate, then proceed to fry the cutlets in clarified butter on both sides till quite done; put them at once on to a very hot dish, and put little bits of the *maître d'hôtel* butter all over them; these at once melt and form a nice savoury gravy.

(*e*) Lamb cutlets.—Take a neck of lamb, divide it into cutlets, trim them neatly, dip them in liquefied butter, sprinkle them with pepper and salt, and broil them in a double gridiron in front of a brisk fire; dispose them in a circle on the dish round a pyramid of spinach.—Pick and wash perfectly clean 2-3 lb. spinach, put it into a saucepan with a little water, and let it boil till quite done. Turn it out on a hair sieve to drain, throw the water away, and pass the spinach through the sieve. Put a good lump of butter

into a saucepan with a pinch of flour, mix well, add the spinach, pepper and salt to taste, and a little milk; stir well and serve.

(*f*) Savoury.—Cut the cutlets from a neck of mutton rather thick, lard and put them in a braising pan, with enough good gravy to cover them; add an onion stuck with cloves, a sliced carrot, a faggot of herbs; braise till quite tender. Remove them from the gravy, strain, then reduce it, and skim well. When cold trim the cutlets carefully, simmer till hot in the reduced gravy. Have ready a block of bread (pyramid shape), fry it in butter, put it in the centre of the dish, the cutlets round it (the gravy in the dish), and garnish with new carrots and turnips (cut up small, and previously tossed in butter), arranged alternately between the cutlets. Instead of the block of bread and garnish of carrots and turnips, they may be served with peas or beans, tossed in butter, or with any purée of vegetable, or with tomatoes, &c., according to the season.

Haggis.—The outer covering of this is made from the stomach or paunch of a sheep, which requires great care in the cleansing. It must be well washed, and then be allowed to soak for several hours in salt and water; after this, turn it inside out, put it into boiling water to scald, scrape it well, and then put it into a large basin of cold water to remain till wanted. Care must be taken in scraping that no thin places are left, or they will burst in the boiling. Take a sheep's pluck, clean it well, piercing the liver and heart in several places to let out the blood. Boil the liver and lights for 1½ hour, putting them into fresh water after they have boiled for ¼ hour, and adding the remainder of the pluck to boil with them during the last ½ hour they are on the fire. Take them off

and trim away any discoloured parts and the skin. Grate half the liver, and mince all the rest as finely as possible. Chop 2 good-sized onions and 1 lb. suet, and mix with ½ pint oatmeal previously well dried, 2 teaspoonfuls salt, a dash of cayenne, 1 teaspoonful black pepper, and a little grated nutmeg. To this add the juice of a small lemon, and ½ pint good brown gravy. Mix all thoroughly, take the bag or skin from the cold water in which it has lain since preparing, and into it put the mixture. Sew the skin up securely, not forgetting to leave room for it to swell, and at once put it into boiling water, to remain gently simmering for 3 hours after it again comes to the boil. Just at first it must be occasionally pricked with a needle, to let out the air, and prevent it from bursting. Some people tie it in a cloth as well, for fear of this happening; but it ought not to have one, and with attention it will turn out perfectly well without. A haggis is also sometimes made from the stomach or pluck of a calf or lamb, but that of the sheep is most generally used. If lamb is used for this purpose, great care must be taken to sew up any thin places, or possibly holes in the skin, which from being so tender often occur. Occasionally a small quantity of beef, finely minced, is added to the other ingredients, as described for filling the haggis, but it is more generally made without this addition. It must be served directly it is taken off the fire, as hot as possible, with no gravy or sauce of any kind, nor any garnish, as the gravy from the inside flows all over the dish directly the knife is put into it.

Haricot.—Toss some chops or mutton cutlets in butter till they are a good colour all over. Take them out. Have some carrots and turnips, also potatoes, all cut the same shape, and pass them in butter on the fire, each vegetable separately, till they are half-

cooked. Strain the butter so used; add to it a good pinch of flour, or more according to quantity, to thicken the sauce. When the mixture begins to acquire a golden colour, put in as much water (or stock) as will be required for sauce, together with the meat, pepper, salt, a bunch of sweet herbs, with a clove of garlic or a shallot in it. When the meat is half-cooked, add the carrots, after a little time the potatoes, then the turnips. Serve when done, removing the sweet herbs.

Hashed.—(*a*) Mince an onion and fry it in butter to a brown colour, add 1 tablespoonful flour, stir well, pour in enough stock or broth to make the sauce, with a dash of vinegar, pepper, salt, and spices to taste. Let the sauce give a boil, then strain it, and when cold put in the slices of meat well trimmed of any outside parts, and a good allowance of pickled gherkins cut in slices. Let the whole get warm by gentle simmering, and keep it hot till wanted for table. Serve garnished with fried sippets. Cut out of a loaf slices 1 in. thick, shape them into triangles or arrow-heads all of a size; put some butter in a frying-pan, and when quite hot lay the sippets in it. Turn them frequently, adding more butter as it is wanted, and taking care that they are all fried to the same light golden colour. A readier way, but producing not so nice a sippet, is to lay the pieces of bread in the frying basket, and dip it in a saucepan full of boiling fat. They must afterwards be laid in front of the fire to drain.

(*b*) Cut your meat in slices, free from fat, gristle, and skin. Take a flat dish, and cover the bottom with dry flour, seasoned to taste with pepper and salt; rub each piece of meat all over in this flour, and lay them in a “Dutch oven,” i.e., a brown stoneware jar

or pot with a lid, and one small hole in it. When you have packed as much meat as you require, pour on the whole some cold gravy free of fat (or stock), seasoned with a dessert spoonful of or more of Worcester or any other favourite sauce; put on the lid, and put it into a slow oven. It may be left any number of hours, and only requires to be occasionally looked at, and a little gravy or hot water added to it, and stir now and then to prevent it getting dry.

(*c*) Roast 1 large or 2 small onions until they are quite black; cut the meat in small thin pieces; put the fat, skin, and bones in a saucepan with the onions and water, allowing for the latter to waste; let all stew until the gravy looks good and rich; then strain, and put the meat and gravy on again, letting them simmer gently until the meat is quite cooked; put a sufficient quantity of mushroom or walnut ketchup in a cup, and stir in enough flour to make a very thick batter, also a liberal quantity of cayenne; add this to the hash, giving it one "boil up," stirring occasionally, and serve as usual with sippets of toasted bread. (F. J. H.).

(*d*) Chop the bones of the meat and let them simmer 3-4 hours, with 2 good-sized onions previously fried, thicken with flour, and add a little Harvey sauce and soy, then strain. Put the meat (which should be cut into nice slices, but not too thin) into the gravy, and let it heat thoroughly; just before serving, stir in whilst on the fire a good-sized piece of butter. Add pepper and salt.

(*e*) Fry in a saucepan 3 small onions and 3 small slices bacon or ham until they are brown; then add a little more than ½ pint water, and thicken it with flour; then strain it, and add it to the meat, with a

little Harvey's sauce; pepper and salt to taste. It will take about an hour to hash.

(*f*) Cut the mutton into nice slices, free from skin and fat, and dredge each slice on both sides with flour; take 6 good-sized mushrooms, trim them, cut each into 4 pieces, and put them into a stewpan to stew, with a small piece of butter; add a little good stock, some pepper and salt, and, when sufficiently done, put in the meat. Let it heat through slowly, stirring frequently to prevent burning; but be careful that it does not boil, or the meat will be hard; and, as soon as the flour loses its raw taste and thickens the hash, it is done, and should be served immediately with sippets of neatly cut thin toast or fried bread round the dish.

Irish stew.—(*a*) Cut up into cutlets about 3 lb. best end of a neck of mutton, saw off the chine bone, and trim off the fat; season the cutlets well with pepper and salt, and put them with the bones into a stewpan, just covering them with cold water; stew gently for ½ hour, remove from the fire, skim the fat from the gravy, and then return it with the chops into the stewpan; add about 8 potatoes cut in halves, 4 onions sliced, 2 turnips, and 1½ pint of either stock or water; cover the stewpan, and simmer gently for 1½-2 hours. Serve with the potatoes in the centre of the dish, the cutlets arranged all round, and with the onions and gravy poured over.

(*b*) For a more economical stew, take the scrag of mutton, together with any trimmings, bones, &c., from the best end. To 1 lb. meat put 2 lb. old potatoes, peeled and cut in pieces, with 2 onions sliced, pepper and salt, cover with cold water or weak stock, and simmer gently for 2 hours; when half done add a few whole potatoes, and when the

ingredients are well amalgamated skim off superfluous fat, and serve very hot.

(*c*) Take any thin pieces of mutton that have been cut off the loin or breast, and cut them in pieces 4 in. square. Put them in a stewpan, and cover them with boiling water. Add 2 doz. whole onions, pepper and salt, put on the cover closely, and draw it to the side of the fire, and let it boil slowly for 1 hour. Add a little boiling water to it. Wash and pare 2 doz. potatoes, put them in the stewpan amongst the mutton, and let them boil till quite soft. Stir the potatoes with the mutton till it becomes smooth, then dish it hot.

(*d*) Put some slices of cold boiled corned beef (never fresh), into a stewpan with a good deal of water or thin stock, 2 large onions sliced, and some cold boiled potatoes (whole), a little pepper. Stew gently until the potatoes are quite soft and have taken up nearly all the gravy; some will break, but they should be as whole as possible. Turn all out on a flat dish and serve. (M. M. F.)

Kidneys.—(*a*) À la maître d'hôtel.—Plunge some mutton kidneys in boiling water; open them down the centre, but do not separate them, peel, and pass a skewer across them to keep them open; pepper, salt, and dip them into melted butter; broil them over a clear fire on both sides, cooking the cut side first; remove the skewers, have ready some maître d'hôtel butter, viz. butter beaten up with chopped parsley, salt, pepper, and a little lemon juice; put a small piece into the hollow of each kidney, and serve very hot.

(*b*) Devilled.—Skin and parboil the kidneys, split them in halves without separating them, dip them in liquefied butter, and sprinkle pepper and salt with a

judicious proportion of cayenne over them; place them, spread open, in a double gridiron, and broil either in front of or on a brisk fire. Serve hot, placing on each kidney a piece of butter into which has been worked pepper, salt, cayenne, and minced parsley in due proportions.

(*c*) Fried.—Split asunder, and then free from skin and fat; sprinkle them with salt and cayenne pepper, and having put them in the frying-pan, which must be well heated, pour some clarified butter over them. Fry them over a brisk fire, place them in a dish, or upon slices of fried toast; make in the pan some gravy mixed with ketchup, or any sauce which is preferred, and pour it into the dish with the kidneys.

(*d*) Ditto.—For a breakfast dish they should be first skinned and cut open lengthwise down to the root, but without quite separating them. Then season them with pepper and salt, and fry them in butter for about 8 minutes, turning them when they are half done. Serve them very hot, each one on a small round piece of buttered toast, a tiny piece of butter being put upon each kidney.

(*e*) Ditto.—Take six kidneys, remove the skin, and cut them into quarters, fry them in butter for 5 minutes over a bright fire, powdering them over with flour; turn them a moment, in order that the flour may be well cooked. Throw in ½ glass white wine, some mushrooms ready prepared, some chopped parsley, a little shallot, pepper and salt, all to cook in the frying-pan for 8 minutes, stirring it during the time; then serve at once.

(*f*) Grilled.—Cut 3 kidneys in half, dip them in an egg previously beaten up with salt and pepper; pass them in white breadcrumbs; put a piece of butter the size of an egg to melt; when melted, dip in the

kidneys and pass them again in breadcrumbs, then grill before a slow fire and serve with sauce piquante on a rich gravy. (Jane Burtenshaw.)

(*g*) Put upon a silver skewer about 6 in. long with ornamental head, and cook in a dish before the fire with a little bacon. The one imparts flavour to the other; they must be served up together.

(*h*) Stewed.—Cut them (after carefully skinning them) into halves, or, if large, into quarters, and simmer them gently in rich stock for 2-3 hours at least. The slower they are done the better, as they should be quite tender. Then take as much of the stock as is required for the dish in which they are to be served, thicken it with a little flour, add a little seasoning and a flavouring of mushroom ketchup, a dash of Worcester sauce and a teaspoonful of sugar, and let it just boil up. Then add a large wineglass of claret, and pour over the kidneys. There should be plenty of gravy, but not so much that the kidneys swim in it. If only a small dish is required, a wall of mashed potatoes may be put round the dish, with the kidneys in the middle; otherwise a great many are required to make it look nice. A garnish of fried sippets is an improvement.

(*i*) Toast.—Chop very fine some kidneys and a little of the surrounding fat; season with salt, pepper, a little cayenne pepper, and grated lemon peel; warm this mixture with a little butter, then place on thin slices of toast, first beating up and adding one egg to the kidneys, place the toast in a dish with a little butter; brown them in an oven, and serve very hot. This is a very appetising little dish.

Kromeskies.—Cut some pieces of fat bacon as thinly as possible, in size 1½ in. by 2 in., lay them flat, place a small piece of mince on each; roll up

tightly, taking care that the mince does not escape; put aside in a cold place, dip each in batter, and fry a light brown colour. Serve with fried parsley.

Lamb Pie (Agneau).—Cut your lamb in thin slices, and season it with cloves, mace, nutmeg, sugar, salt, and a little small pepper, and lay it in your coffin (pie crust), and lay on it and between it a few raisins of the sun stoned, and a few currants, and a few skirret roots boiled and blanched, and the marrow of 2 or 3 bones, candied lemon, dates, and dried citron, preserved barberries, and candied lettuce, and sliced lemon, and some butter. Close your pie, and when it is baked let the caudle be white wine verjuice and sugar beaten up with the yolks of 3 or 4 eggs, and set it on the fire, and keep stirring it till it begins to be thick; then put it in the pie, shake it together, scrape on plenty of sugar, and send it up.

Lambs' Tails.—Trim the tails. Place some slices of bacon in a saucepan, over them a layer of onions and carrots sliced, then the tails; then a clove of garlic, a sprig of thyme, a bay leaf, and some parsley tied up in a bundle, salt to taste, a few cloves, and some whole pepper. Place the saucepan over the fire for 10 minutes, then add 1 glass sherry and about 1 pint stock or water, and let the whole simmer gently for 2-3 hours. Take out the tails, strain the liquor; let it reduce almost to a glaze, put back the tails in it to get warm, and serve with a purée of spinach or sorrel.

Leg of Mutton. (*a*) Boiled.—Cut the leg of mutton cleanly across the meat and bone from the shank down, with as much meat as will suffice for the meal. Rub it and flour it all over, but specially the cut meat surface. Plunge it at once into a saucepan or pot of boiling water to cover it, together with some salt, a

few grains of pepper, and a bunch of parsley. Draw away from the fire, and allow the water to cool almost completely; then put once more on the fire, and cook slowly according to weight, till quite done to taste. Serve with parsley, onions, caper, sorrel, or any sauce preferred; garnish with meat or potato rissoles. The flour and the plunging into boiling water will prevent the juice from escaping, and the meat will cut just as finely as from a whole boiled leg of mutton.

(*b*) Braised.—Take a small leg of mutton, trim it close of all superfluous fat, saw the shank bone short off, make an incision where it joins the other bone, bend it in, and tie up the leg with string. Line the bottom of a braising pan, just large enough to hold all the ingredients, with slices of fat bacon; place the leg on this, add 2 onions stuck with 6 cloves, 3 carrots cut in pieces, a bundle of sweet herbs, whole pepper and salt to taste; pack all these things round the leg, put 2 slices bacon on the top of all, and set the pan with the lid on the fire for about 15 minutes. Be careful it does not catch, then pour in enough common cold stock or water just to cover over the contents, put a piece of buttered paper on the top, then the lid, and, having placed some hot embers on that, set the whole to braise on a gentle fire for about 3½ hours. Strain off a small portion of the liquor, free it from fat, reduce it on the fire not quite to a glaze, place the leg in the dish, pour the reduced liquor over it, and round it a stiff purée of dried haricot beans.

(*c*) Roast.—For a 7 o'clock dinner, hang your mutton before the fire, but 3 yd. distance from it, by 3 o'clock in the afternoon. Wind up the jack, and let it just be under the influence of the fire, but no

nearer, for 1 hour; then edge it a little nearer, until it is time really to begin roasting it, and then pay it constant attention until it goes to table. Dredge it well, so as to froth it, and preserve the juices, and baste it incessantly. Continue to dredge and baste it, until within 10 minutes of serving; then roll a piece of butter the size of a walnut in flour, and make it into a rich paste, and pick little bits off and stick them all over the leg of mutton, and let them melt over it for 10 minutes. Do not touch it with the basting ladle again. Then dish it on a really hot dish, not one that has been so hastily heated that it as quickly cools, but let dish and plates be heated well through. Never pour the gravy over the joint; if you do, you wash off all the brown and frothy appearance and taste that proper care in roasting should and does produce.

Loin. (*a*) Braised.—Bone and trim off from a loin of mutton all superfluous fat, lard the thin part, and roll it round; lay the joint in a stewpan over some slices of fat bacon, add whole pepper and salt to taste, an onion stuck with cloves, 2 sliced carrots, and a bunch of sweet herbs; moisten with stock, and let it braise gently for an hour or so. When done, strain the gravy, free it from fat, pour it over the joint in the dish, and serve garnished with vegetables plainly boiled.

(*b*) Stewed.—Select a loin with the flap on; it must not be a fat loin. Take off some of the fat, carefully remove the bones, which requires a very sharp knife; see that none of the lean meat is taken off at the same time. When boned, roll it up tightly, tie it round with broad tape, and skewer it also. Before serving, remove the tape; but it will be necessary to keep it skewered together. Place it in a stewpan with

¼ pint port or claret, and something less than 1 qt. stock or water. If the meat is fried a light-brown before stewing it is a great improvement. Add a small bouquet of sweet herbs, a carrot, turnip, an onion, a blade of mace, a tablespoonful of ketchup, a dessertspoonful of anchovy sauce, a teaspoonful of salt, and ½ teaspoonful pepper. Simmer all for 3 hours as gently as possible. Pour the gravy away from the meat, skim off all the fat, add a glass more wine and a tablespoonful of red currant jelly, thicken with a ball of flour and butter, rewarm the meat, and pour the gravy over when it is served. Garnish with carrot, neatly shaped with a vegetable cutter, and sliced lemon.

Minced Mutton.—Take some meat from a joint of roast, boiled, or braised mutton; remove the skin and outside parts, mince it very fine; put a small piece of butter into a stewpan, when melted add ½ tablespoonful flour; stir 2-3 minutes over the fire; add 1 gill well-flavoured stock; when boiling put in the mince; add salt, pepper, a little grated nutmeg, chopped parsley, a few leaves of thyme, also finely minced, and the yolk of 1 egg; stir all on the fire for some minutes; then serve with bread sippets or croquettes of potatoes. If put aside until cold this mince can be used in various ways.

Neck of Mutton.—(*a*) A la Duchesse.—Procure a whole neck of mutton, that is, the neck not divided down the middle, but cut entire from the sheep. This will be the scrags united, and will weigh about 3 lb. It must be perfectly fresh. Having well washed the neck, dry, flour, and fry it, turning it about until nicely browned, then place it in a deep stewpan or in the soup kettle. Cover it with nicely seasoned stock, and put in 6 onions, 2 turnips, and 1 carrot. Cover

the pot close, and let it simmer until the vegetables are tender, as they will be in 1½-2 hours; take them out and set them aside to garnish the neck, which will take 4-5 hours' gentle simmering. When done it should be as tender as chicken, and sufficient time for cooking should always be allowed, as it is rather improved than otherwise by standing at a low heat when finished. When the neck is done take it out of the gravy, which set aside to cool in a pan of cold water, in order that all the fat may be readily removed. Keep the neck hot in the meantime, by covering it close in the pot in which it was cooked. Having taken the fat off the gravy put it into a stewpan, and let it boil rapidly without the lid, until reduced to about a pint. If it is not then thick enough, add a teaspoonful of Brown and Polson's corn flour and one of flour, mixed smooth in 2 tablespoonfuls of cold water or stock. This done, return the neck to its gravy, and let it simmer gently for ½ hour. Mince the vegetables cooked with the meat, place them in a stewpan with a little piece of butter, shake them over the fire until thoroughly hot; arrange them neatly in little heaps on the dish round the neck. Peas, asparagus tops, or sprigs of cauliflower, cooked separately, may be added to the above vegetables. They not only make an improvement, but look pretty. The carver will cut the meat from the bone longitudinally in large handsome slices. A whole neck of mutton gently boiled for 4-5 hours in salted water, with 2 carrots, 2 onions, and 3 turnips, and served with caper is very good.

(*b*) Boiled.—Prepare, trim, and tie it back in the same way, but entirely removing the skin, and paring off nearly all the fat; in boiling there is no waste, on the contrary, the fat swells; ¼ in. is therefore quite a sufficient thickness to leave. Put it into a stewpan on

the fire with just enough cold water, salted to taste, to cover it. The instant it boils draw it to the side, and let it gently simmer until done, when it should be as tender and delicate as chicken. Allow ¼ hour to the lb. after simmering begins. Serve with plain melted butter, stirring a tablespoonful of slightly chopped capers, and a spoonful or two of milk into it, just before pouring the sauce over the mutton.

(*c*) Braised.—Take a piece of the best end of a neck of mutton, trim off all superfluous fat, lay the joint in a stewpan over a slice of fat bacon; add whole pepper and salt to taste, an onion stuck with cloves, 2 sliced carrots, and a bundle of sweet herbs; moisten with a little stock, and let it braise gently for about 1 hour. When done strain the gravy, free it from fat, pour it over the joint in the dish, and serve garnished with carrots cut as for Julienne, and cooked by being tossed in butter till done.

(*d*) Roast.—Take a piece of the best end of a neck, trim off all superfluous fat, saw off the chine, wrap up the joint in a piece of oiled paper. Roast it at a brisk fire, basting frequently. When it has roasted ½ hour remove the paper, sprinkle the joint freely with salt, and put it nearer the fire, and as soon as it has taken a good colour it is ready. Time of roasting must necessarily vary according to the nature of the fire, the size of the joint, and the taste of those for whom it is cooked for eating meat overdone or underdone. No hard and fast rule can be given for the time of roasting.

(*e*) Rolled.—Take a piece of the best end of a neck of mutton, with a sharp knife remove the skin, taking with it as much meat as possible from the bones except the fillet, which is to form the cutlets; saw off the bones, divide the cutlets, trim them, and gather

all the meat from the trimmings and the bones. Lay the best pieces on the skin with a few pieces of bacon, pound the rest in a mortar with any other trimmings of raw or cooked meat that may be at hand, a small piece of butter, half an onion, some sweet herbs, pepper and salt. Pass this through a sieve, and spread it on the skin, fold up ½ inch of both the long sides, then roll up the skin tight from one of the narrow sides, tie it up with thread several times round. Fry an onion with a little bacon fat, put in the meat, turn it round once or twice, and when it has taken colour moisten with a very little stock, and let it simmer till done. Remove the string, and serve with the sauce strained over it. With the cutlets another dish can be made in the ordinary way.

(*f*) Scrag of Mutton à la Russe.—Take about 1½ lb. scrag of mutton in one piece, boil it gently for about 3 hours in 1 qt. water with 1 teaspoonful salt, 2 onions, 1 turnip, 1 carrot, and a pinch of pepper. When the meat is perfectly tender, so that the bones can easily be taken out, brush it over well with yolk of egg, then sprinkle over it a mixture of finely sifted breadcrumbs, raspings, a shake of flower, a little dried and sifted parsley, and sufficient pepper and salt to season it highly. Put the meat into the Dutch oven, baste it until brown with 1 oz. butter, and serve with good gravy or brown caper sauce. The broth may be served with the vegetables minced in it, a little celery being added, and for those who like it a small quantity of chopped parsley put into the tureen and the broth poured boiling on it. Take care to remove all fat from the broth; it will rise very quickly if the basin is set in a larger one containing cold water changed frequently.

(*g*) Scrag of Mutton may be used for yet another

dish, either by simmering it gently (after flouring and seasoning it with pepper and salt, using only rice and an onion sliced in rings, and letting it stew in water), or it may be made into an Irish stew, for which it will require to be cut into small pieces, floured and seasoned, and stewed with potatoes and onions in just enough water to cover it for about 2 hours. Half the potatoes to be sent up with it should be cut into quarters, and should not be put in until the stew is half cooked.

Pasty.—The undercut of a shoulder is best for this purpose. With a sharp knife cut the lean meat away from an uncooked shoulder of mutton; let the slices be thin. This will not in the least interfere with the upper side, which may be hung as long as required after the undercut is removed. Lay the slices of meat in a pie-dish, sprinkle pepper and salt over them, and nearly fill the dish with a gravy that will jelly, made from mutton shanks and a little gravy beef, 2 nicely fried onions, a few pepper-corns, and a very small bit of mace. If for eating cold cover the pasty with a good puff paste, and bake in a quick oven. If to be served hot a cover of mashed potatoes, or a crust as for Devonshire pie, is suitable.

Patties.—Make ¼ lb. paste, roll thin, and line with it 4, 6, or 9 patty pans; the pans must be previously buttered, and the paste cut with a crimped cutter; fill them with rice. When baked remove the rice, fill the patties with mince made a little more moist with gravy. Serve on a napkin, arranging them nicely on the dish. Serve very hot. The patties can be ornamented with fried parsley, or in any way you please.

Pudding.—Get 1½ to 2 lb. scrag of mutton, take off all the fat, boil it gently for 2 hours, meat

downwards, in 1 qt. water, with 2 onions and a good seasoning of pepper and salt. Take up the meat; set the broth aside to cool, in order that you may take off the fat. Carefully remove the meat from the bones. Make a crust with the fat from the scrag of mutton or beef suet, in the proportion of 2 oz. fat to 4 oz. flour; line a pudding basin with this, slice in 2 cooked potatoes, lightly pepper and salt them, then the onions cooked with the mutton, then the meat of the scrag, and, as a great improvement to the pudding, a sheep's kidney sliced, or half an ox kidney; sprinkle pepper and salt over, and put on the top 2 more sliced potatoes. Fill up the basin with some of the broth, put on a lid of paste, and boil the pudding for 2 hours. Return the bones to the remainder of the broth, with an onion; let them boil until the pudding is ready, then serve the broth in a sauce-boat. All meat puddings should be served in the basins in which they are boiled, a napkin being neatly folded round. The carver should remove a round piece from the lid of the pudding, and pour in enough of the broth from the sauce boat to fill it up; this will ensure each person getting the same kind of gravy. This pudding may be made of sheep's head after it has been boiled. To make the crust for a richer pudding, use equal quantities of suet and flour. Mix a pinch of salt with the flour and suet, make into a paste with cold water in the proportion of ½ pint to 1 lb. of flour. Flour the paste board, and roll out the crust ¼ in. thick. Dissolve a little butter, and brush the inside of a basin thickly with it, then line with the paste.

Rissoles.—Make a short paste with 6 oz. flour, 3 oz. butter, a pinch of salt, 1 whole egg, and 1 yolk; mix all into a paste, roll it out to the thickness of a penny piece; place the mince at equal distances, say

1½ in.; egg lightly, cover with paste of a similar thickness, press the paste around each piece of mince, and cut it out with a crimped cutter. Egg each rissole, and pass it in bread crumbs; fry in hot lard, and serve.

Roast Quarter of Lamb.—Let the fire be clear, but not too fierce. Cover the joint with greased paper, and baste it frequently; ½ hour before serving remove the paper and base the joint with butter and lemon juice, lastly sprinkle a little flour and salt over it. Time of roasting 2-2½ hours.

Roast Saddle of Mutton.—Trim the joint carefully, roast it at a brisk clear fire; baste frequently, and when done dredge it plentifully with salt, and serve with the gravy well freed from fat.

Saddle of Lamb, venison fashion.—Hang a saddle of lamb as long as it will keep, having previously dusted it all over with black pepper. After it has hung, chop together some shallots, a good-sized sprig of green rosemary, a small one of tarragon, or only a few small leaves of tarragon, and a sprig of marjoram. Pound together 6 cloves, 6 juniper berries, and 1 teaspoonful black pepper; mix these with the herbs. Rub the mixture well into the lamb all over, and lay it in a deep dish; sprinkle over any remains of the seasoning; mix a glass of red wine with a glass of vinegar, pour it over the meat, and let it lie in this marinade 2-3 days, turning and basting it every day. Before cooking, wipe off the herbs. Lard the joint if preferred. Put it in an earthen baking-pan and cover it with pieces of butter. Add a little broth or boiling water to the marinade in the picking dish. Put this on the fire to simmer a minute in a little saucepan; then strain and add some by degrees to baste the meat with, and when this is nicely

browned, put the rest of the marinade in the baking dish with a good sprinkling of salt in the sauce and over the meat. The latter must be frequently basted to prevent its drying; 1½ hour is long enough to bake it. Pour a cup of cream or good milk over it a few minutes before serving it; stir this well round the crusting of the dish. Skim the fat off the sauce. Put the yolk of an egg in the same tureen, and stir the gravy boiling hot into it. Garnish the meat with slices of lemon.

Sausages.—Prick them lightly with a fork or trussing needle, and fry them in butter or lard, turning them frequently until thoroughly cooked.

Scollops.—Trim the mutton in the same way as for mince, but it must not be cut so small. It should be as thin as possible, about the size of threepenny pieces; make a sauce as for mince, and place it in scallop shells; sprinkle with baked breadcrumbs, pour a little warm butter over; arrange them on a napkin, and serve hot.

Sheep's brains.—(*a*) Prepare the brains as directed in (*b*); when cold cut them into dice, and dip them into a batter made as follows:—Mix 2 large tablespoonfuls flour with 4 of water, a tablespoonful of dissolved butter or oil, the yolk of an egg and a pinch of salt and pepper. Let it stand for 2 hours. When ready to use beat the white of the egg to a froth, and mix with the batter. Fry in oil or other good fat, taking care that it boils when you drop in the *beignets* one by one.

(*b*) Wash them thoroughly and boil them very fast so as to harden them, either in water highly seasoned and flavoured with onion or in stock. When done (they will take about 20 minutes), take them up and

allow them to stand until cold, then cut them into thin slices, dip them in egg, and afterwards in very finely sifted breadcrumbs with an equal proportion of raspings, a pinch of flour, and enough pepper and salt to season highly. Fry in a little butter, first on one side, until brown and crisp, then on the other until finished. Serve on a hot dish with a little thick rich gravy.

(*c*) Take some lambs' or sheeps' brains, and first boil them in milk; then chop them finely, and mix with them a few bread crumbs, a small quantity of cream, seasoning of salt and pepper, and the yolk of an egg to bind the ingredients. Roll this mixture into small round balls, cover them with egg and breadcrumbs, and fry them a light brown. To be served on a napkin, with fried parsley, like rissoles.

(*d*) Well wash the brains and soak them in cold water till white. Parboil them till tender in a small saucepan for about ¼ hour; then thoroughly drain them, and place them on a board. Divide them into small pieces with a knife. Dip each piece into flour, and then roll them in egg and bread crumbs, and fry in butter or well clarified dripping. Serve very hot with gravy. Another way of doing brains is to prepare them as above, and then stew them gently in rich stock, like stewed sweetbreads. They are also nice plainly boiled and served with parsley and butter sauce.

(*e*) Take off the skin, and let them soak for 2 hours in lukewarm water; when white blanch them in boiling water, to which salt and a little vinegar have been added; when quite firm lay them in cold water. Line a stewpan just large enough to hold the brains, with bacon, a very small onion stuck with a clove, a sprig or two of parsley, and a slice or two of lemon;

cover with more bacon, and pour in a little broth. 15-20 minutes are quite enough to cook them, but they should be cooked an hour or two before dinner to be properly flavoured. When wanted, have ready some fried sippets of bread, and dish with a piece of bread and brains alternately, and in the centre pour some good white sauce, with mushrooms, or truffles if you have them, a tiny onion or two, or any rich flavouring, and serve very hot; or, having dished the brains and the sippets, work a couple of spoonfuls of rich white sauce with a little fresh butter, salt, cayenne, a sprig or two of parsley finely chopped, and the juice of half a lemon, till quite hot over the fire; pour this over the brains and serve quickly. Calves' brains are very good in the same way, or served with tomato sauce, or brown butter, as follows: Fry some parsley, but keep it as green as possible; also fry some butter till it is a good dark brown; add to this a spoonful of vinegar and a little salt and pepper. Dish the brains, with the fried parsley in the centre, and pour the butter sauce carefully round them (not over), and serve.

Sheep's heads.—(*a*) Clean the head well, boil it 2 hours, remove the bones; egg and breadcrumb the meat; boil the brains in a piece of muslin ¼ hour, chop with a little parsley and onion, serve round the head; the tongue boiled and served in the dish or separately; or the tongue and brains may be sent in one dish, and the meat served with gravy.

(*b*) Get a perfectly fresh sheep's head, and having taken out the tongue and brains soak it in tepid water. With a blunt knife break all the soft bones inside the head, and take care most thoroughly to cleanse it. Put it into a saucepan, with enough water to cover it and a tablespoonful of salt. To ensure

perfect cleanliness, when it has boiled 5 minutes take the head out and pour away this water. Put the head on again to boil with 2 qts. water, and 6 onions, 2 turnips and carrots, pepper and salt. Let it boil gently for 3-4 hours, or until so tender the meat will readily slip from the bones; having taken them all out carefully, place the meat of the head on a hot dish, and pour over it either a good onion, parsley, or caper sauce. Or take all the vegetables cooked with the head, rub them to a *purée* through a sieve, have ready a little good butter sauce made with milk, nicely season it, mix the *purée*, pour over the meat, and serve. The broth is very good with the addition of a little celery and chopped parsley, and may be served either with or without the vegetables cooked with it. A slight thickening of corn flour is liked by most persons. Excellent soup of any kind may be made of this broth, and an economical one by merely boiling a few bacon bones in it with any other bones or scraps. Chapman's wheat flour makes a cheap thickening for plain soups, and tapioca is very good and nourishing.

(*c*) Steep the head for 2-3 hours, then split it, take out the brains and tongue, boil the head gently for 3 hours with a few carrots, onions, a stick of celery, a bundle of sweet herbs, a few cloves, whole pepper and salt to taste, then breadcrumb, and brown the head slightly in front of the fire. Mince the lights, cut the liver in slices, and fry them; boil the brains in a piece of muslin. In dishing up, put the mince on a dish, then the head opened out, the tongue cut in slices, the brains divided into four, and the slices of liver ranged artistically all round; judicious seasoning is essential.

(*d*) To singe.—The way in which this is done in

Scotland is by heating an iron bar of any kind red hot (a poker would do quite well), and singeing all the wool off the head with it; 2 pieces of iron would save time, one to replace the other as it cools, but the operation does not take long. A piece of stick is put up the nostrils to hold the head steady by. When there is a smith's forge convenient, the singeing is generally done there, as it would make an unpleasant smell in a house; but if there is none near, any outhouse would do. The head must be soaked and washed in cold water before boiling.

Sheep's heart.—(*a*) Place them in boiling water for a few minutes, as it prevents the greasy taste after eating them, stuff with ordinary veal stuffing (suet, herbs, breadcrumbs, lemon, and an egg), place in a pan and bake for 1 hour, and serve on toast with gravy.

(*b*) Make a forcemeat with 2 oz. beef suet and 2 oz. fat bacon finely minced, add ¼ lb. breadcrumbs, pepper, salt, a little chopped parsley and thyme, and a little grated lemon peel; if liked, the very faintest *soupçon* of onion; this quantity will stuff 2 sheep's hearts. Let the hearts lie in warm salt and water for ½ hour to disgorge the blood; then cut away as much as possible of the windpipe, and see that no clots of blood remain in the cavities of the heart. Mix your forcemeat with sufficient beaten egg to bind it—one should be sufficient for this quantity. Stuff the hearts with it, pressing it well down into the holes. Secure the flaps of skin over the top with a needle and thread, tie on a spit, and roast, basting constantly. Serve with plain gravy and red currant jelly. A sheep's heart will take ½ hour.

(*c*) Having washed the hearts, stuff each with an onion parboiled, and then minced fine; add to it 2

tablespoonfuls of breadcrumbs, ½ teaspoonful chopped and dried sage, and sufficient black pepper and salt to season highly. Press the stuffing well into the hearts, and, if necessary, fasten a little muslin over the top to keep it in. Whilst roasting baste very frequently. Sheep's hearts may be baked stuffed in this manner, but care must be taken not to let them get dry. Any heart that may be left is excellent hashed.

Sheep's Liver.—(*a*) A fresh liver to be steeped in milk 12 hours, cut in slices, brown with dripping or butter and a dust of flour, onion and pepper. Make a sauce with flour and water, cold, and pour over the liver after it is brown. Let it simmer for an hour, or longer, until quite tender. This is a Polish recipe, and no salt used.

(*b*) À la Française.—Cut some slices of liver ½ in. thick, and lay them neatly in a stewpan slightly buttered, sprinkle pepper and salt over the upper sides. Slice 2 oz. fat bacon as fine as possible, chop a teaspoonful of parsley and a small shallot very fine, and spread them evenly over the liver, cover the stewpan closely, and set it on a fire so moderate that it will draw out all the juices without simmering—the least approach to this hardens the liver and spoils it. If the range is too hot, set the stewpan on an iron stand. When the liver has thus stood for 1½ hour it will be done. Take it up, put it on a hot dish, and cover it close whilst you boil the bacon and the gravy together for 2 minutes, then pour over the liver and serve immediately. Liver cooked in this manner is digestible, and can be eaten by persons who could not venture to do so when it is fried.

(*c*) Pudding.—Take 1 lb. boiled sheep's liver, grate it, and mix with ½ lb. fat bacon or suet, ½ lb.

breadcrusts soaked in water, or breadcrumbs, ¼ lb. flour, pepper and salt, and enough water or milk to make a paste. Grease a pudding basin, put in the mixture, cover with greased paper, and steam 1½ hour. Serve with brown gravy.

Sheep's pluck.—Cut the liver and lights in thin slices, and put them in a pie-dish or jar with layers of sliced potatoes and onion, chopped sage and herbs, pepper and salt. A few slices of bacon may be added. Cover with a thin piece of suet or with greased paper, and bake 1½ hours. When there is no oven this may be stewed.

Sheep's tongues.—(*a*) These are very good cooked fresh, with the addition to the water of a little common salt, a pinch of saltpetre, allspice, and black pepper. Boil gently until perfectly tender, and when skinned split them down the middle, dip them in dissolved butter, and then in raspings, and let them brown nicely on the gridiron. When ready to serve pour a little good gravy round them. For eating cold, after skinning, glaze the tongues.

(*b*) Wash and scald the tongues, and stew in some nicely flavoured stock till very tender, drain them on a sieve; then put each tongue in an oiled or buttered paper, with a seasoning over it of sweet herbs and mushrooms chopped finely, and mixed with a good piece of butter, and pepper and salt to taste. Boil or fry them, and serve the papers on a napkin. Great care should be taken that the papers are thoroughly greased, and that each end and side is securely folded twice to prevent the juices and butter from escaping; if this is not attended to, the tongues will be like pieces of indiarubber.

(*c*) Strew salt over the tongues, and let them lie until the next day, then drain off all that has run

from them, and put them into a pickle made of a tablespoonful of salt, half a one of bay salt, a tablespoonful of saltpetre, a pinch of allspice and black pepper. Two days afterwards put a teaspoonful of coarse sugar. This quantity will salt 3 or 4 tongues, and can be used many times with the addition of a little common salt. Cook them as directed in (*a*).

Sheep's trotters.—(*a*) Clean, scald, and skin 4 trotters, boil them in salted water until the large bone can be easily removed. Next put them in a saucepan with fresh water, and salt, and let them boil away till quite tender and glutinous: pour off the water, leaving just enough to make the sauce, add a piece of butter rolled in flour, 1 doz. button mushrooms sliced, and some white pepper, then stir in the yolks of 2 or 3 eggs beaten up with the juice of half a lemon, and strained. Let the whole simmer away gently until wanted, but on no account boil.

(*b*) Stew the trotters for about 3 hours. Take out the bones, so as not to injure the skin, and fill up the places from which the bones have been removed with forcemeat. Put them into a stewpan with sufficient of the water in which they were boiled to cover them, and add a spoonful of ketchup or Harvey's sauce, and a little pepper and salt. Allow them to stew gently for ½ hour, take them out, strain the gravy, and boil it down to a glaze. With this glaze the trotters. Serve with croutons of fried bread round the dish.

Shoulder of Mutton.—(*a*) Rub it over with salt and pepper, fill the inside with a savoury forcemeat of herbs, with plenty of parsley and no eggs; roll it up and skewer it into a neat oval form, or bind it with a tape; lay it in a stewpan with 2 onions, 2 carrots,

some herbs, a bay leaf, pepper, salt and a little broth or water; stew it gently over a slow fire or in the oven, basting it often. When nearly done, take off the cover, and let the meat brown in the oven. Before serving, take up the meat carefully, remove the binding, and place it on a dish to keep warm while you strain the gravy; take all the fat off, and boil it down to a strong glazing. Pour this over the meat. Tomato or sorrel sauce may be put round the dish, or cucumber sauce served with it.

(*b*) First take out the blade bone. Have a pointed knife, a French boning knife is best; make an incision all round the thin end of the bone, keep the knife close to it, and mark all round the bone first one way and then the other, being careful not to go through the flesh or skin. When you get to the joint, take hold of the bone with a cloth and twist it round, and it will come out. The sinews may want cutting here and there. It is much more difficult to take the bone out entire, but it can be done; yet it is seldom needful to take out more than the bladebone. Now make a forcemeat with the following ingredients: 3 oz. breadcrumbs, 1 tablespoonful chopped parsley, 1 teaspoonful chopped onion, 1 teaspoonful lemon thyme (green, if possible), a slice or two of lean ham chopped fine, 2 oz. butter, 2 yolks of eggs, a little grated nutmeg, a little salt and pepper; make this into forcemeat or stuffing. Use this forcemeat to fill the place of the bone; fasten the end with 2 small skewers. Now put the mutton before a sharp fire or in a brisk oven to brown without cooking through. When done, take from the fire, lay the joint in a shallow pot that will take it, pour off the fat from the dripping-pan, and put into it a little hot water; stir the gravy, and put it in with the joint, and a little water if necessary; the stock should reach half-way

up the joint. Add an onion, a blade of mace, a carrot, and a little lemon rind pared thin. Let it stew about two hours, basting it now and then. When the joint has stewed about an hour, turn it over on the other side, and, when done, take it up on the dish in which it is to be served; take a little of the stock in which the mutton has been cooked, and thicken it with a little butter rolled in flour, adding 1 tablespoonful mushroom ketchup, a little lemon juice, pepper, and salt; pour this over the mutton, and serve. The stock would make a very good soup the next day, with the addition of a little sago or vermicelli. (E. A. Robbins.)

(*c*) Boned.—Take a shoulder of mutton not too fat, remove the bone as far as the first joint from the knuckle, sprinkle the incision with pepper and salt. Make a stuffing the same as for veal, with ½ lb. breadcrumbs, 4 oz. beef suet chopped fine, a little chopped parsley and thyme, a little onion minced, salt and pepper, also a little grated nutmeg, and one egg; place the stuffing into the above incision, fold over the meat into its former place, and tie it up tightly with string. Shoulder of mutton done in this way may be roasted, but should properly be braised —that is, first fried of a golden colour in oil or clarified butter, and then put into a stewpan with 1½ pint stock, and any trimmings of vegetables at hand; 4 or 5 cloves, 6 peppercorns, salt, thyme, parsley, and bay leaf. Leave it to boil gently for 2 hours, strain off the stock, remove the fat, let it reduce on the fire until it becomes like glaze poured over the mutton, and serve. Another very nice stuffing can be made by putting butter instead of suet; a little shallot and garlic may also be used. Another way of doing a shoulder of mutton when boned and stuffed as above is to tie it tightly in a cloth before putting it to

braise, care being taken to arrange the shank bone and first joint so as to appear like a duck's head, the shank bone making the beak. This is more appropriate for a cold dish, as it can be very prettily ornamented with white of eggs and beetroot, aspic and parsley. The shoulder should be glazed before being ornamented. (Jane Burtenshaw.)

(*d*) Cavalier's Broil.—Half roast, or stew, or parboil a moderate-sized shoulder of mutton, lift it into a hot dish, score it on both sides down to the bone, season it well with fine salt and cayenne or pepper, and finish cooking it upon the gridiron over a brisk fire. Skim the fat from any gravy that may have flowed from it, and keep the dish which contains it quite hot to receive the joint again. Warm a cupful of pickled mushrooms, let a part of them be minced, and strew them over the broil; when it is ready to be served arrange the remainder round it, and send it to table instantly.

Squab Pie.—(*a*) Season mutton chops (those from the neck are best) pretty highly with pepper and salt, and place them in dish in layers, with plenty of sliced apples sweetened, and chopped onions; cover with a good suet crust and bake. When done pour out all the gravy at the side, take off the fat, and add a spoonful of mushroom ketchup, then return it to the pie.

(*b*) The quantities depend on the size of the pie. The following are the ingredients: Take the best end of the neck of mutton, cut it into chops, trim the fat; pare, core, and slice as for a tart 6 or 8 apples; chop up a small onion; put a layer of apples and a little onion at the bottom of the dish, then a layer of chops, next a layer of apples and onions, and so on till the dish is full. Scatter among the apples ½

teacupful moist sugar, and shake a very little pepper and salt over the meat. Put on a crust and bake as an ordinary meat pie. It may be eaten with either sugar or salt.

(*c*) Take 1½ lb. scrag of mutton, cut it up into convenient pieces, and put it into a stewpan with ½ pint water, 2 large pinches of salt and 1 of pepper, and 2 large onions sliced. Let it simmer for 2 hours or until perfectly tender, then set the gravy to cool. Draw all the bones out of the meat, and arrange it neatly in a pie dish, place on the top the onions cooked with it, sprinkle lightly with pepper and salt, and spread over a thin layer of nicely sweetened apple sauce or marmalade, and having removed the fat from the gravy pour it over the whole. Make a crust as follows: use suet finely shred, not chopped, in the proportion of 3 oz. to 5 oz. flour, and water in that of ½ pint to 1 lb. flour. Having mixed these ingredients with a pinch of salt into a smooth paste, roll it out and beat it until the suet and flour are thoroughly incorporated. Then roll it out in the usual manner and put it on the pie. This crust is very good eaten hot, and is wholesome and digestible. If a richer crust is desired, 1 oz. butter or lard may be added to the given proportions, which are about sufficient to make a crust for 1½ lb. mutton. If pie-crust is objected to, a layer of well mashed potatoes may be substituted, or slices of bread fried a light brown and laid on as a cover are very good. The whole of the contents of the pie having been thoroughly cooked it will be ready so soon as the crust, of whatever kind, is nicely baked.

Pork, &c. Bacon. With cabbage.—Take equal quantities of onion and bacon (fat and lean), chopped finely; fry the onion in butter, and before it

takes colour add the bacon; when this is cooked, add some cabbage, parboiled and shredded; then put in pepper to taste, and toss the whole on the fire till quite done. Serve as a garnish, more particularly to goose or duck.

With potatoes.—(*a*) Mash some cold (previously boiled) potatoes roughly (not too fine) with a lump of butter and a little pepper, form them into a flat round cake about 2 in. thick; fry it in a frying-pan to a rich brown, turning both sides, and place slices of fried bacon round it in the dish. Serve hot; a little beef gravy put into it when done will give a good flavour. The bacon may be inserted into the mass of potato as in a pie, instead of being set round the edges.

(*b*) Slice up raw potatoes into round slices ¼ in. thick (or chop them into moderately sized dice), fry with butter, and serve hot with bacon, in same way as (*a*).

Boiled.—Take a square piece of bacon, scrape the rind quite clean, and cut off any part that is the least tainted or rusty. Soak the bacon for 2 hours in water, then turn it, and set it on the fire in a saucepan with plenty of cold water. Let it boil very slowly by the side of the fire, removing any scum as it rises. When thoroughly done drain it, remove the skin (to be preserved to flavour the stock pot), and cover the bacon with baked breadcrumbs.

Broiled.—(*a*) Cut thin slices from a piece of streaky bacon, trim them carefully, put them in a double gridiron, and broil them a few minutes on or in front of a clear fire, turning them frequently.

(*b*) Cut the slices all of a size, roll them up one by one on a thin skewer; then either broil them before

the fire, or put them in a tin in the oven for a few minutes.

Fat.—The fat of cold boiled bacon is much better than anything else in which to fry onions for making curry. It should be cut into small pieces, and when melted in the frying-pan the slices of onions should be added and fried in the usual way. The flavour is much better for curry than when dripping or even butter is used. If there be not enough bacon to do the entire frying, whatever there may be should be added to the fat used. Cold bacon fat is also much better than when uncooked for wrapping round oyster or small balls of mince for frying, it is so much more delicate, and less greasy. It should be cut as thin as possible. The fat in which bacon has been fried is the best thing in which to fry liver, veal cutlets, or anything with which bacon is to be served. Slices of bread fried in it are excellent for breakfast, served quite hot with a slight shake of pepper over each; and if neatly cut and dished up, and garnished with a little parsley, they look as appetising as they taste.

Fried.—(*a*) Trim some slices of bacon, dip them in hot water, dry them in a cloth, then put them in a frying-pan, and turn them frequently till done.

(*b*) Slices from a piece of boiled bacon can be cooked as in (*a*), or broiled, and are better than those cut from raw bacon.

(*c*) Cut some thin slices of streaky bacon, cut off the rind, and trim them. Put them into a frying-pan on the fire, and turn them often, until quite hot; then roll up each slice, and garnish the dish.

With spinach.—Line a pudding-shape all through with thin slices of bacon. Take some boiled spinach,

seasoned and chopped as if for table. Cut some carrot and turnips into square pieces, and a few small onions (if liked); whip up the yolk of an egg with a little pepper and salt. Mix the carrots and turnips well with the egg and seasoning, stick them thickly alternately at the bottom and round the sides of the tin, and fill up the middle with the dressed spinach. When the tin is full cover it with thin slices of bacon, steam it one hour, turn it out in a corner dish, and lift up the bacon whilst you pour in some rich brown gravy, then replace the bacon neatly.

Boar's Head (*Hure de sanglier*).—To cure and prepare an ordinary pig's head to have the appearance of a wild boar's head, the head should be cut off deep into the shoulders before the pig is scalded. The bristles must be singed off with lighted straw. Bone it carefully, beginning under the throat; spread the head out on a large dish, and rub it well with the following ingredients, previously mixed together: 5 lb. common salt, 3½ oz. saltpetre, 5 oz. coarse brown sugar, rather less than ½ oz. juniper berries, 4 bay leaves, cloves, mace, marjoram, basil, and a small handful of thyme. Rub the head thoroughly with this, then pour over it a bottle of port wine (port wine lees will do as well), and let it remain in this pickle a fortnight, taking care to turn it over every day; it will then be ready for dressing. Take it out of the brine, wash it well and then thoroughly dry it with a clean cloth. Prepare a forcemeat as follows: Chop up about 1 lb. veal, and the same of fat bacon, season with chopped mushrooms, salt, pepper, nutmeg, and parsley. When all are finely chopped, put them into a mortar, and pound them together with the yolks of 3 eggs to make it bind. When pounded, remove the forcemeat into a basin. A boiled red tongue and about 2 lb. cold

boiled fat bacon will also be wanted, and some truffles. Spread the head out on a board, pare off all the uneven pieces from the cheeks, cut these pieces into narrow slips, cut the tongue up into pieces of a similar shape, avoiding the skin and gristle. Spread the inside of the head with a thick layer of forcemeat, then place on it the fillets of tongue, fat bacon, &c., inserting rows of sliced truffles between, and here and there some pistachio nuts, of which the skin must have been removed by scalding; again spread a layer of forcemeat above these, then another layer of the fillets and truffles, and so on, until there is enough to completely fill up the head and keep it in shape; then close it, sew it up with fine twine, for which use a trussing needle, being sure to take up enough of the skin with each stitch to prevent the possibility of the forcemeat escaping. Spread a strong clean cloth with butter, sew the head up in this, giving it as much as possible its original form. Put it into a large braising pan together with 2 prepared cowheels cut into pieces, and any trimmings of meat there may be; if there should be any bones or remains of cold game in the house, especially grouse, they should be added and would much improve the flavour. Over this pour a sauce prepared in the following manner, and of which there should be enough to cover the head. Chop about 1 lb. beef suet, and the same of fat bacon; put them into a stewpan with a handful of parsley, 6 green onions, a bay leaf, and a sprig of thyme, these all being tied together, 2 carrots, 2 onions, each stuck with 4 cloves, the pulp of two lemons, salt, and a teaspoonful of whole pepper. Stir all these over the fire for about 10 minutes, watching that they do not get brown; then add a bottle of sherry or Madeira, and about 1 qt. or more of good broth; boil this by

the side of the fire gently for 1½ hour, then strain it through a tammy, pressing it well to extract all the goodness, and pour the whole over the boar's head. Set the braising pan over the fire, and as soon as it boils draw it to the side and allow it to gently simmer for about 5 hours. When nearly done, take the pan off the fire, and when the steam has passed off a little remove the head on to a dish. It will be probably found that it has shrunk a good deal in the cloth, so it will be necessary to tighten this to keep it in shape; having done this, put it back into the broth, and let it remain there until it has become quite cold and firm. The head must then be taken out of the stock, which will have set into a jelly; place it on a large baking dish, and put it in the oven for a few minutes to melt the jelly which has adhered to the cloth; when this has melted, at once take it out of the oven and remove the cloth carefully. Glaze the head with some rich brown glaze; place it on a dish standing on a bed of chopped aspic jelly. Garnish with slices of hard-boiled white of egg, and black truffles cut into diamonds, or any other shapes, also some sprigs of parsley. A little of the chopped aspic may also be put on the top of the head, small slices of cut lemon and cucumber are an improvement placed on the border of the dish beyond the chopped aspic.

Brawn (*Fromage de cochon*).—(*a*) The head, feet, tongue, and ears of a pig, having been salted, are boiled with the outside skin of a loin, also salted for a few days. Boil very gently for a long time, till the bones will easily slip out. Take great care that every one is carefully picked out. Keep the skin of the loin whole, but cut the rest into pieces about 2 in. square. Line the brawn mould with the skin, then roll each piece lightly in mixed spice and powdered herbs,

flavoured to taste. Pack them tightly in the brawn tin, put on the top, and press it with a heavy weight 24 hours. It is then ready for turning out. Keep it in the following pickle:—Take a sufficient quantity of water (more than will be enough to cover your brawn), add to every gallon of water 2 handfuls of whole malt, and salt enough to give it a strong relish. Let the mixture boil for 1 hour; then strain it into a clean vessel. When quite cold, pour it off into another vessel, keeping back the white sediment; then put in your brawn. A little vinegar may be added, if liked. Fresh pickle should be made about once in 8 days, if the brawn is to be kept long. A common brawn tin is a cylinder of tin without top or bottom, but with 2 round pieces of tin which fit loosely inside it. The tin is about 5 in. in diameter and 1 ft. in height. A heavy weight must fit inside it.

(*b*) Take 4 pigs' feet, the ears, the tongue, and any pieces you may have, and soak them in salt and water overnight till thoroughly cleansed. Boil them gently for 3 hours, with only enough water to moisten the meat and prevent it from burning; then take out all the bones, cut the tongue into slices, and the ears and bits of skin into strips. Season with pepper, salt, and allspice, and boil in the same liquor for an hour; 6-7 minutes before finished, add a carrot cut into small pieces and a little parsley, chopped fine and scalded. Put into moulds when done.

Ham (*Jambon*) Boiled.—Although the same principles apply to the boiling of hams as do to joints, it is very essential that hams should be soaked in water 24-48 hours, and the water should be changed 2 or 3 times; then they should be washed and scraped and scrubbed perfectly clean, and, being properly trimmed, they should be laid in a boiler

filled with cold water, with the addition of carrots, celery, onions, garlic, parsley, thyme, marjoram, bay leaves, cloves, and mace—the proportions of which things must be regulated by the size of the ham and the skill or taste of the cook. Many other things are put in by those who like them—coriander seeds, juniper berries, a small wisp of hay, and even leather shavings, which latter, in the words of an ancient authority, are supposed to give the ham a high flavour. A small handful of saltpetre some put in, to give the flesh a good colour. If the ham is a good one, the colour will be good without the addition of saltpetre, neither is it necessary to tie up a ham in cloth; but what is undoubtedly an improvement to a boiled ham is the addition of a bottle of sherry to the water it is boiled in. Great attention must be paid to the removal of the scum, and the temperature of the water should never be allowed to rise above simmering. An ordinary sized ham will take 4-5 hours to cook. When it is done, it should be allowed to remain in the liquor until it is nearly cold, then it is taken out, the skin is removed, and the top is covered with baked breadcrumbs, glazed, or ornamented as fancy may suggest, with lard, aspic, &c. If it is intended to cut a ham hot, then it should only be partly boiled, and finished by braising.

For a glaze, take 4 lb. shin of beef, 4 lb. knuckle of veal, and 1 lb. lean ham; cut them into small pieces, and put them into a stock pot, with about 2 qt. cold water—enough to cover the meat—let it come gradually to the boil, skim carefully, occasionally adding a dash of cold water; when clear, boil it for 8 hours more, and then strain it through a sieve into a pan. Remove the fat when cold. Pour it into a stewpan—be careful not to let the sediment go in—with 1 oz. whole black pepper, ½ oz. salt, and boil it

over a clear fire, leaving the pan uncovered; skim, and when reduced to 1 qt. strain it through a tammy into another stewpan; then let it simmer till, on taking out some with a spoon and allowing it to cool, it will set into a jelly; great care is required to keep it from burning. It should be kept in earthenware pots, and when required for use melted by putting the pots into saucepans of boiling water. To glaze the ham and tongue, wash them over with the melted glaze, using a brush kept for the purpose.

Boned.—Boil the ham, remove the bone, then roll it and put it into a basin or large mould. Put a heavy weight over it, and when cold turn it out and garnish. Forcemeat may be inserted before rolling if liked, or it may be well soaked, then boned and braised, and either served hot or treated as above.

Cake.—A capital way of disposing of the remains of a ham, and makes an excellent dish for breakfast: Take 1½ lb. ham, fat and lean together; put it into a mortar, and pound it; or, if you have that invaluable auxiliary to a kitchen, a sausage machine, pass it through the latter; boil a large slice of bread in ½ pint milk, and beat it and the ham well together; add an egg beaten up. Put the whole into a mould, and bake it a rich brown.

Omelet.—Beat up 3 eggs with pepper and salt to taste, a pinch of parsley, the least bit of shallot, but chopped fine, and as much ham, half lean and half fat, cut up in very small dice as will fill a tablespoon. Cook in butter the usual way, but do not over do it.

Sandwiches.—(*a*) Use English mustard, and no salt; but be very careful not to have too much fat on the slices of ham, and, above all, to cut out every particle that is at all rancid.

(*b*) Grate finely as much well-cooked ham as you are likely to require, flavour it with a very little cayenne and some nutmeg. Roll out some good puff paste very thinly, cut it into two perfectly even portions, prick in one or two places to prevent it rising too highly, and bake in a quick oven till of a golden brown. Then take out and let it stand till cool, when spread a little fresh butter lightly over the whole. This should not be done till the paste is perfectly cool. Now spread the grated ham evenly over the paste, lay the second piece of puff paste over it, and with a very sharp knife cut into small-sized sandwiches. This is a charming supper dish.

Toast.—(*a*) Mince finely ¼ lb. cooked ham with an anchovy boned and washed; add to them a little cayenne and pounded mace. Beat up 2 eggs, mix with the mince, and add just sufficient cream to keep it moist; make it quite hot, and serve very hot on small rounds of toast or fried bread.

(*b*) Chop some ham (which has been previously dressed) very small, and to a large tablespoonful of it add an egg well beaten up, a small bit of butter, and a little cream. Mix all together over the fire till quite hot. Have ready some neatly cut pieces of bread, about the size of a crown piece, but a little thicker, fried in good butter; spread the mixture on these, and serve them on a napkin.

Westphalia Loaves.—Mix 4 oz. grated smoked ham with 1 lb. mealy potatoes, well beaten till quite light, a little butter and cream, and 2 eggs. The mixture must not be too moist. Form into small loaves or balls, and fry in butter a light brown. Serve in a napkin, dry; or if preferred, they may be sent up in a dish with brown gravy.

Pigs' Feet.—(*a*) Put the feet into a stewpan with a

thin slice of bacon, 1 blade of mace, 6 peppercorns, 3 sprigs of thyme, 1 onion, and 1 pint good gravy, and stew them till perfectly tender; the time this will take must depend upon the size of the feet. When they are so tender that the bones separate easily from the flesh, strain the liquor; reserve the bacon, chop it up finely, and add it to the sauce with a thickening of butter and flour. Split each foot in two lengthways, and serve with the gravy poured round, and with nicely-cut sippets of fried bread.

(*b*) Stew 4 pigs' feet till perfectly tender; if the feet are small they will only require 3 hours, but if large 4 will not be too long. Take them out of the stewpan most carefully, drain thoroughly, and cover them with some freshly made mustard, pepper and salt to taste, the mustard being laid on rather thickly; then put them in front of a very clear hot fire, and let them toast quickly. If this operation is carried out slowly, the feet will become so tough as to be perfectly uneatable. When they are a rich brown colour serve them on a very hot dish, with a good thick brown gravy. This dish is little known, but is most excellent.

Pigs' Liver.—Wash and soak a pig's liver till it is quite clean and free from blood; cut it into slices rather less than ½ in. thick, season with pepper; lay them in the sauté-pan with a little butter, and fry over a good fire. When done on one side turn them; put into the pan, and fry with them some shallots and a few sprigs of parsley. When done drain the liver and lay it on a very hot dish. Mix with the butter in which it was fried ½ wineglassful white wine and 1 teaspoonful flour well beaten up together. Do not let it boil. When the sauce is poured over the liver add the juice of a lemon, and serve

very hot and quickly. Should the dish be ready before it is wanted, keep it hot over steam or in a bain-marie, but never put it in an oven.

Pork (Porc). And Kidney Pudding.—For a quart basin, mix a ¼ lb. suet, finely shred, with 1 lb. flour, make it into a paste with 1½ gill water. Roll it out and beat it, in order to break up any lumps of suet; line a greased basin with the paste, reserving sufficient of it to make a cover to the pudding. Cut thick slices from the chump end of a fore loin of pork, put a layer at the bottom of the basin, sprinkle pepper and salt over, then a layer of sausage meat, and a layer of mutton or pork kidneys cut in quarters, and so on until the basin is nearly full. About 1½ lb. pork, 1 lb. sausage meat, and 3 kidneys will be enough for a quart basin. Pour in as much stock, water, or gravy made from the bones of the pork as the basin will hold, put on the lid of paste, and having tied the pudding over with a cloth, boil it for 2 hours.

Chops.—Cut some cutlets from a neck of pork, trim them neatly, and take off the chine bone; give them a few blows with the bat, and grill them on, or in front of the fire; sprinkle them with salt, and arrange them in a circle on a dish with mashed potatoes in the centre and the sauce round them.

Croquettes.—Cold roast pork is the best for this purpose. Take about ½ lb., chop it very finely, mix with it 1 tablespoonful flour, well chop a small onion and a shallot, and boil them in a teacupful of good stock; add to this the floured meat, flavouring it with pepper, salt, and a tiny bit of sage, also well chopped. Make this up in the form of sausages, slightly flattened; egg and breadcrumb them, and fry them a light-brown colour. The remains of any cold

meat may be used for croquettes made in the same way, omitting the sage, and adding a little mushroom ketchup or Harvey sauce; in doing so, care must be taken not to make the mixture too moist. A few spoonfuls of cold mashed potato, of bread crumbs, or of cold well-boiled rice may be mixed with the mince; less meat will then be required, and the croquettes will, if anything, be nicer.

Pie.—(*a*) Make a paste with ¼ lb. lard and ½ oz. butter to every lb. of flour. Rub a little of the lard into the flour, and then melt the rest of the butter and lard in hot milk and water. When it rises skim it off and mix it warm with the flour, adding sufficient milk or water to make the paste, and a little salt to taste. Knead it well, and then raise the crust in an oval shape. Take some pork with a little fat, cut it into small square pieces, season them with salt, pepper, and cayenne, a little mace, and some finely-shred sage; fill the pie closely, cover it and decorate with paste ornaments, then bake in a slow oven for about 2 hours or more, according to the size of the pie. When done, pour a little gravy made from the trimmings of the pork in through a hole at the top.

(*b*) For making little pork pies for breakfast, like those sold in the shops: 3½ lb. flour, 1 lb. lard, 1½ pint water, 3 teaspoonfuls pepper, 6 of salt, 5 lb. of meat. Boil the lard and water together, pour boiling on the flour, having first made a hole in the flour; mix well, and let it stand by the side of the fire—it must not be too cold or too hot, or it will not raise nicely; mould it as an ordinary raised pie the size you wish, fill the pies with the meat cut in very small square pieces, season it, pour a little water in, put on the lid, pinch the edges together, trim round with

scissors, and ornament with leaves formed with a paste cutter; let the pies stand at least 4 hours before baking, put them in rather a slow oven, bake 1½-2 hours; when brought out of the oven, pour in the hole of the lid of the pies, through a funnel, as much gravy as they will take, previously made from the bones and trimmings of the pork.

Roast.—To ensure the crackling being crisp and eating short, care must be taken not to put the joint too near to the fire at first; it should be placed at some little distance, if not the crackling would harden before the meat would be warmed through. If very lean, a little good salad oil should be rubbed in before putting down to roast, and it must be kept thoroughly well basted during the time of roasting.

Sausages (Saucisses).—(*a*) Take of fat and lean about equal portions, rather less of fat; chop very fine, season with pepper, salt, nutmeg, and mace. When filling up the skins, have some warm water, and put in with the meat by degrees, just to soften the meat and make it go in easily.

(*b*) Take 2½ lb. lean of pork, 3 lb. fat, 3 tablespoonfuls finely-powdered sage, 1 oz. salt, 1 oz. pounded pepper; having cut the meat and fat into pieces, mix well together, and press it through some well-cleaned skins with a sausage machine, and twist the links into the lengths required.

(*c*) Mix equal quantities veal, pork, and beef suet, chopped up. To every 1 lb. of each add ½ lb. breadcrumbs, a little lemon peel and nutmeg, a few sage leaves, and a very little savory and marjoram. Season highly with pepper and salt, and proceed as in (*b*). Lovelock's sausage-making machine greatly facilitates operations.

Sucking Pig (Cochon de lait).—Take a sucking pig about 3 weeks old the day it is killed; be particular to see it is well cleansed; when this is done and the stuffing sewed into the belly—before doing which the inside must be well wiped with a clean damp cloth—wipe the outside of the pig, and rub it well all over with some salad oil; while it is roasting baste it well very frequently with dripping, to keep the skin from blistering, till within ¼ hour of its being done, when you must baste it with a little fresh butter. When you serve the pig the 2 sides must be laid back to back in the dish, with half the head on each side, and one ear at each end, all with crackling side upwards; garnish the dish with slices of lemon, and serve it up with a rich brown gravy in the dish, and also a sauceboat of the same, with one likewise of bread sauce with a few currants in it. Some add a little port wine to the gravy. When the pig is baked, which is the best way of dressing it, you must mix the yolk of a raw egg with a tablespoonful of salad oil to rub it well all over with, basting it frequently with 2-3 oz. butter tied in a piece of clean rag. Stuffing for the pig:—4-5 oz. breadcrumbs, 2 oz. chopped sage leaves, one egg, a little butter, pepper, salt, and cayenne.

Tripe.—This requires to be well cooked and nicely served, and it is then both light and nutritious, and can often be eaten by invalids, or persons having a delicate digestion. Choose a nice white piece; wash it well, and put into a stewpan with sufficient milk and water in equal parts to cover it; let it simmer gently for about ½ hour after it has boiled up. Serve with white sauce, made as above, but omitting the parsley, and garnish the dish with slices of beetroot. Onion sauce may be substituted if preferred, or it may be served simply with a little of the liquor in

which it has been cooked poured over it, and some plainly boiled Spanish onions handed round in a vegetable dish; but the first recipe is the most appetising way of sending it to table. It should always be remembered that a little time expended in garnishing tastefully goes far towards making economical cookery a success.

Veal (Veau).—Braised Loin.—Take about 2 oz. butter, 1 carrot, 1 onion, a little parsley, sweet herbs, a leaf or two of basil, and a bay leaf; brown a large crust of bread, and put it in a stewpan with the above things, and fry them until they are brown; then flour the meat, and brown it well, putting it back in the saucepan; add a little stock, and baste it in the gravy till done, and keep turning the meat. Simmer 4 lb. for 3-4 hours.

Calves' Brains (*a*).—Lay the brains in cold water to whiten. Put them in a stewpan with a little water, a tablespoonful of vinegar, an onion, 2 or 3 cloves, a little white wine, salt, and white pepper. Simmer the brains ½ hour, then lay them on a sieve to drain. When cold cut them in slices, and dip them either in butter or egg and breadcrumbs, seasoned with salt and white pepper; fry them in butter. Serve as a side dish or accompaniment to any delicate vegetable.

(*b*) and Tongue.—After the brains have soaked with the head in cold water 6-8 hours, remove the thin pellicle covering them, and let them soak some time longer in cold water. Have ready a saucepan just large enough to hold the brains covered with water. Put into it a sufficiency of boiling water, and the juice of a lemon, salt to taste, and a bay leaf; lay the brains in this, and let them boil gently about 20 minutes. Lay the brains on a dish, with the tongue (previously boiled with the calf's head) split in two,

on either side of them. Serve with tarragon, tomato, or piquante sauce.

Calves' Feet. Fritters.—If calf's foot jelly has to be made, the meat remaining after the boiling down may be well utilised in this way. They must not be allowed to boil for jelly until they fall to pieces, nor would it be necessary for the jelly's sake to do this; but while firm, though well-boiled, remove them from the stock, take out the bones (returning these to the stock to continue boiling for the sweet jelly), and lay the meat flatly on a dish to get cold. When cold cut them into small pieces, dip each in batter, and fry them a light brown colour; these must be well drained from the fat, piled high on a dish, and sent to table as hot as possible, with the following sauce poured round them: Thicken ½ pint stock with corn flour or arrowroot, add 2 tablespoonfuls tarragon vinegar, one of Mogul or other sauce, a little salt, and a lump of sugar, with a little browning, if necessary, to make it a good colour.

Jelly.—(*a*) Add to 2 feet 1½ pint water, and boil them for several hours. To 1 pint of this stock add nearly ½ pint wine and a little brandy, the rind and juice of a lemon, 3 oz. lump sugar, the white and the shell of one egg well beaten, and a small quantity of saffron, which improves the colour. Let all the ingredients boil, then let the stock stand in the saucepan a few minutes to settle, before straining it through a jelly bag till quite clear.

(*b*) Ditto.—To 4 calves' feet, well cleaned and broken, pour 4 qts. of water, and let them stew until the stock is reduced to rather less than 2 qts. Put the stock in a brass pan, and when quite firm and cold clear it from all fat. Add to it a bottle of good sherry (or 1 pint brandy and 1 pint sherry) ¾ lb. white

sugar, the juice of 6 lemons, and the whites and shells of 8 eggs, well beaten. Heat this over a clear fire, but do not stir it; just as it boils throw in ¾ oz. isinglass. When it has boiled 16 minutes take it off the fire and let it stand 3 minutes to cool. Put the rinds of 3 lemons, pared thin, into the jelly bag before the fire, and pour the jelly through. Once or twice put through the bag will render the jelly quite clear. The jelly should be put in wet china moulds.

Pie.—Put into a saucepan on the fire as many calves' feet as you think you shall have occasion for, and water sufficient to cover them, with 2 or 3 blades of mace, and boil them till they are tender; then take out the feet, and strain off the liquor; lay a thin sheet of puff paste at the bottom and round the edge of a deep dish; then pick the flesh off the bones, and lay half of it in, strew ½ lb. currants clean washed and picked, and ½ lb. raisins stoned, overlay on the rest of the meat; skim the liquor, and sweeten as much of it as will nearly fill the pie with ½ pint of white wine, and pour it into the dish. Put on a lid of good puff paste, ornament the top, and bake it 1½ hour.

Pudding.—Take 1 lb. flesh of calves' feet finely shred, ½ lb. suet shred as small, a nutmeg grated, some candied orange peel minced, some salt and some currants, a little grated bread, and 7 eggs, leaving out the whites of 3; mix all well together, tie up in a floured cloth, and boil 3 hours. The sauce is white wine, sugar, and butter melted.

Calf's Head (*a*) Boiled.—Take a calf's head, divested of hair by the butcher, let it be split in two lengthwise, and lay it in cold water to soak for 6-8 hours. On taking it out of the water, remove the tongue and brains, bone the head carefully, and cut

it up in comely square pieces, making, say, 3 or 4 out of each half; lay the pieces in a saucepan full of cold water on the fire, and as it comes to the boil remove the scum. When it has boiled 20 minutes, lift up the pieces and lay them in cold water, to remain for an hour or two. Mix in a large saucepan on the fire ½ lb. cooking butter, or clarified beef suet or dripping, with 4 heaped tablespoonfuls flour, fill up with sufficient boiling water to well cover up the pieces of head, add 2 onions stuck with 6 cloves, a good-sized bunch of sweet herbs, and parsley, whole pepper and salt *quant. suf.*, and the juice and thin rind of 2 or 3 lemons; stir well, and when the whole boils fast put in the pieces of head tied up in a thin cloth, as well as the tongue, skinned. Let the whole boil slowly for 2-3 hours. Drain the pieces of head, arrange them tastefully on a napkin in a dish, and serve hot or cold, with any of the following sauces in a boat: caper, parsley, piquante, poivrade, ravigote, remoulade, tarragon, tartare, tomato, &c.

(*b*) Fritters.—Cut into small round slices, lay them in a pie dish, strew over them some chopped chives, tarragon, and parsley, the juice of ½ lemon, and 2 tablespoonfuls vinegar. After remaining in this pickle for 2-3 hours—not forgetting to turn them occasionally, so that both sides may obtain the flavouring—take them out, drain them well from the moisture, dip in batter, and fry a light golden colour in enough boiling fat to well cover them. They must be served very hot, piled high in a dish on a napkin.

(*c*) Hashed.—Cut the remnants of a boiled head into uniform pieces the size of half an apple. Melt in a saucepan 1-2 oz. butter, according to the quantity of meat to be hashed; amalgamate with it 1-2 tablespoonfuls flour, then stir in ½ pint, more or less,

white stock. Stir well, then add a few button mushrooms, white pepper and salt to taste, and let the sauce boil for 10 minutes. Put the saucepan by the side of the fire, and lay the pieces of calf's head in it; let them get hot slowly, but not boil. Just before serving stir in off the fire the yolks of 2 eggs, beaten up with the juice of a lemon, and strained; also a small quantity of either tarragon or parsley very finely minced.

(*d*) Pie.—Stew a knuckle of veal till fit for eating, with 2 onions, a few isinglass shavings, a bunch of herbs, a little mace, and a few white peppercorns in 3 pints water; keep the broth from the pie. Half boil the head, and cut it in square pieces; put a layer of ham at the bottom of your dish, then some head, first fat, then lean, with forcemeat balls and hard eggs cut in halves, and so on till the dish be full, but be careful not to place the pieces too close, or there will be no space for the jelly. The meat must be well seasoned, then put a little gravy and a little water in, and cover with rather a thick crust; bake in a slow oven, and when done put in as much gravy as it will possibly hold, and when perfectly cold turn it out. The different colours and clear jelly have a very pretty appearance.

Liver.—Cut up into slices ½ lb. calf's liver and the same quantity of fat bacon; put first a layer of bacon at the bottom of a pie dish, then one of liver, sprinkle with pepper and salt, add 1 medium-sized onion and 1 apple, both cut up; cover down, and let it stew gently in the oven for about 1¼ hours. No water is required, as the liver makes sufficient gravy.

Croquettes.—Take some cold veal, remove carefully all fat and outside parts, and mince it finely; melt a piece of butter in a saucepan, add a

little flour, stir; then add a small quantity of stock and the minced meat, with some parsley, finely chopped; season with pepper, salt, and a little powdered spices; stir well, and as soon as the mixture is quite hot remove it from the fire. Beat up and strain into a basin the yolks of 1 or 2 eggs with the juice of half or of a whole lemon, according to the quantity of mince; put 2-3 tablespoonfuls mince into the basin; mix them well with the egg and lemon; then add the whole to the rest of the mince; mix well, and turn it out on a dish. When cold, fashion it in breadcrumbs to the shape of corks, taking care to make them all of a uniform size; then roll them in egg, and again in breadcrumbs. Let them dry a short time; then fry in plenty of hot lard, and serve with fried parsley.

Curried.—Take a 2 qt. saucepan, put into it 2 tablespoonfuls fresh butter, place on the fire, and, when the butter is melted, throw in a middle-sized onion, sliced, and fry it until of a light brown colour. Add 1 tablespoonful curry powder, and 1 teaspoonful salt. Let the curry powder get well mixed with the butter and onions, then add a coffee-cupful of gravy; keep stirring, so that all may be well cooked; then put in the meat cut into small squares, each about the size of a small walnut, and with the most pour in ½ pint good gravy. Keep over a brisk fire for 5 minutes, stirring all the time; then cover up and leave it to stew gently till the meat be quite tender. If necessary, add a little more gravy while thus stewing, unless a dry curry be preferred. Serve hot, with rice in a separate dish. It will be an improvement to fry the pieces of meat in butter before putting them in the curry sauce.

Cutlets.—(*a*) Prepare some thin cutlets, trim them

neatly, season with salt and pepper. Take some fat bacon, and some of the trimmings of the cutlets, chop them up very finely, add breadcrumbs, sweet herbs, a little shallot, all finely minced; beat them up with an egg, and cover the cutlets over with the forcemeat; then egg and breadcrumb them and fry to a golden brown colour. Serve with rich brown gravy round them, and garnish them with half-quarters of lemon.

(*b*) Remove every bit of skin, vein, or sinew from the veal, and chop it fine; well salt, pepper, and a little minced parsley, shape like cutlets (use an egg to bind them, if needed), and if you have them use the bones; egg and breadcrumb them twice, and fry in boiling butter; serve with sorrel, spinach, or tomatoes.

Fritters.—For these the remains of cold veal should be cut in small neat pieces; dip each in batter and fry a light brown; in serving pile them high on a dish, pouring over them a good brown sauce, well thickened with tomatoes when in season, or, if not, the gravy must itself be thick and strongly flavoured with tomato sauce. Fritters of cold calves' head or feet both make a nice savoury dish; for the former, cut the pieces of calves' head into round slices, laying them in a pie dish, and sprinkling over them chopped parsley, tarragon, and chives; squeeze over them the juice of a lemon, and add 2 tablespoonfuls vinegar. After remaining in this mixture for 2-3 hours, turning them over from time to time, take them out, drain them well from the moisture, dip each piece into batter, and fry them a nice light golden colour, in plenty of hot fat. Serve very hot, and piled high, on a napkin. Fritters from calves' feet may be made when the feet are being used for

making jelly. When the meat is about half cooked, take off some of the best portion of it, returning the bones to the stock for jelly; let it simmer on a dish to get cold; when cold cut it into long or cutlet-shaped pieces, dip them in batter, and fry them a light colour; they must be well drained from the fat and piled high in the centre of the dish, pouring round them the following sauce, which should be ready prepared, and they must be sent to table very hot. For the sauce, take ½ pint stock, add to it 1 tablespoonful Mogul sauce, 2 of tarragon vinegar, a lump of sugar, a little salt, and enough browning to make it a good colour; thicken it with corn flour, and boil the sauce well, so that the flour may be well cooked before using.

Hashed.—Take some remnants of roast or braised veal, trim off all browned parts, and mince it very fine. Fry a shallot chopped small in plenty of butter; when it is a light straw colour add a large pinch of flour and a little stock; then the minced meat, with chopped parsley, pepper, salt, and nutmeg to taste; mix well; add more stock if necessary, and let the mince gradually get hot by the side of the fire. When quite hot stir into it off the fire a yolk of egg and the juice of a lemon strained and beaten up together. Serve with sippets of bread fried in butter round it, and 3 or 4 poached eggs on the top.

Minced.—(*a*) Remove all outside pieces, gristle, and fat from any cold veal, roast or boiled. Mince it finely either with a knife or mincing machine; season with pepper and salt, chopped lemon peel, and a blade of mace. Put it in a stewpan with sufficient white stock to moisten it well, and let it simmer gently until quite hot, but not boiling. Remove the mace, add sufficient cream to make it quite white,

stir it over the fire, and serve in a dish with a border of mashed haricot beans, potatoes, or spinach. Poached eggs may be served on the top, or tiny rolls of bacon may be arranged symmetrically, either with or without the eggs.

(*b*) Take some remnants of roast or braised veal, trim off all brown parts, and mince it very finely. Fry a chopped shallot in plenty of butter; when it is a light straw colour, add a large pinch of flour and a little stock; then the minced meat, with chopped parsley, pepper, salt, and nutmeg to taste; mix well; add more stock if necessary, and let the mince gradually get hot by the side of the fire. When quite hot stir into it, off the fire, the yolk of egg and the juice of a lemon strained and beaten up together. Serve with sippets of bread fried in butter round it, and 3-4 poached eggs on the top.

Patties.—Prepare some patties; take some cold veal, trim off all browned parts, gristle, and fat, and mince it very finely with a little fat bacon; add a little cayenne, salt, mace, and the grated rind of half a lemon; mix well, and moisten with some white stock; simmer by the side of the fire till quite hot, then stir in (off the fire) the yolk of an egg and a little strained lemon juice. Fill the patties with the meat, put on the covers, and serve hot.

Pie.—(*a*) Cut the veal into square pieces, and put a layer of them at the bottom of a pie dish. Sprinkle over them a portion of minced savoury herbs, a little spice, lemon peel finely chopped, and some yolk of egg hard boiled, then a layer of ham cut thin. Proceed in this manner until the pie dish is full. Lay a puff paste on the edge of the dish, and pour in ½ pint water; then cover with crust, ornament with leaves, brush over with the yolk of an egg, and bake

in a well-heated oven for 1-1½ hour—longer if the pie be very large. When you take it from the oven, pour in at the top, by means of a funnel, ½ pint strong gravy. This should be made sufficiently good that when cold it may be cut in a firm jelly. This pie may be very much enriched by the addition of mushrooms, oysters, or sweetbreads.

(*b*) Cut steaks from a neck or breast of veal, season well, slice 2 sweetbreads, lay a puff paste rim round the dish; then put in the meat, sweetbreads, some yolks of hard-boiled eggs, and some oysters when in season, on the top; lay on the whole some very thin slices of ham, and fill up the dish with water; cover with puff paste; bake, and when taken out of the oven pour in at the top a few spoonfuls of good veal gravy, and some cream to fill up; but first boil it up with a teaspoonful of flour.

(*c*) And Ham Pie.—Cut some thin slices off the leg or neck of veal, free them from skin and gristle, lard them well, and season with salt and pepper. Have some eggs boiled hard and some thin slices of ham. Make some forcemeat balls with fat bacon, the trimmings of the veal, chopped onions, parsley, and sweet herbs, grated lemon peel, salt, cayenne, and pounded mace. Pound all in a mortar, and bind with one or two eggs. Line a pie dish with good paste, and fill it with layers (not too close)—first one of ham, then one of veal—of forcemeat balls, of the eggs (cut in halves), and so on; a few mushrooms may be added; put in some gravy; lastly a layer of thin bacon; and cover all with tolerably thick crust, glaze. Bake for about 4 hours in a moderate oven. Make a hole in the top, and pour in some good savoury jelly, made with ox or calf's foot, knuckle of veal, and trimming of bacon and ham, well flavoured with

onions, more herbs and lemon peel, cleared with the whites of egg.

(*d*) Ditto.—Take 2 lb. veal cutlets, ½ lb. boiled ham, 2 doz. oysters, ½ lb. fresh-made sausages, 2 tablespoonfuls savoury minced herbs, ¼ teaspoonful grated nutmeg, a little mace, pepper and salt to taste, with a strip of lemon peel finely minced, 2 hard-boiled eggs, and ½ pint water; cut the veal into square pieces, put a layer of them at the bottom of a pie-dish. Sprinkle over this a little of the herbs, spice, seasoning, and lemon peel. Cut the eggs into slices, put some of the slices and about 8 oysters with part of the sausages, cut into 3, then a layer of the ham in thin slices. Proceed thus until the dish is full, arranging it so that the ham is at the top. Put puff paste on the edge of the dish, then pour in ½ pint cold water. Cover it with crust, and ornament with leaves, cut from the remaining paste; brush over with yolk of egg, and bake in a well-heated oven for 1-1½ hour. When removed from the oven, pour in at the top, through a funnel, ½ pint rich gravy, so that when cold it will form a jelly. Mushrooms may be added to this pie.

Quenelles.—Remove the skin from 1 lb. veal cutlet, and cut it into small pieces. Put into a stewpan 1 gill water, a pinch of salt, and a small piece of butter; when boiling stir in as much flour as will form a paste; when it is smooth put it away to get cold, then take half the quantity of butter that you have of veal, and half the quantity of paste you have of butter; put the paste into a mortar, pound it well, then add the butter, pound it, then add the veal; pound well for 10 minutes, add one whole egg, 3 yolks of egg, salt, pepper, a little grated nutmeg; work well together, pass through a wire sieve, stir in

½ gill cream, shape the quenelles with 2 tablespoons, place them in a well-buttered sauté pan, leaving a clear space on one side; put a good pinch of salt in that space, pour in sufficient boiling water to cover the quenelles, and leave them to poach for 10 minutes; then drain them carefully on a cloth, arrange on a dish, and serve with rich gravy or any sauce you like. (Jane Burtenshaw.)

Roast.—Take 4-6 lb. best end of neck of veal, trim it neatly, and joint the cutlets. Put it to roast at a very moderate fire, and baste it plentifully every 10 minutes, first with butter and then with its own gravy. It will take 1½-2 hours. During the last ¼ hour bring the joint nearer to the fire, and sprinkle it plentifully with salt. Serve with the gravy over, carefully strained and freed from fat, and with the juice of a lemon and a small piece of fresh butter added to it.

Rolled.—Neck of veal, best end, 5 lb.; bacon, a few rashers; parsley, minced, 1 tablespoonful; breadcrumbs, 4-5 oz.; 1 good-sized onion, ¼ nutmeg, 3 cloves, 1 blade of mace, 1 egg, 1 oz. butter, a little glaze, pepper and salt, and little lemon thyme. Get the butcher to bone the veal; lay this on the table, the skin to the table. Split or cut nearly through the thick part of the veal, and turn the upper half over on the thin part, to make it all one thickness. Cut a few thin slices off it, about 5-6 oz., flatten the veal with a chopper or rolling pin, and prepare the forcemeat. Chop very fine the parsley, thyme, a very small bit of onion, and about 1 oz. of the lean of the bacon. Chop all these ingredients separately, and then all together. Next, with a sharp knife scrape the pieces of veal free from skin and fibre, also scrape about 2 oz. of the fat of the bacon; chop this and the

veal together very fine, and pound in a mortar, adding to it the other ingredients, with butter, the nutmeg grated, and a little salt and pepper, and the breadcrumbs, and the egg to bind it. Mix well together, then take this forcemeat out of the mortar, and spread it on the veal; over this lay 2 or 3 rashers of bacon out of the back. Roll the veal up tight, sew it up with a needle and thread, and bind round with a piece of tape; place the meat in a stewpan just the size to hold it, and pour into it sufficient water or stock to nearly, but not quite, cover it, put round it any pieces of bacon or trimmings of the veal that may be left, the stalks of the parsley and thyme, the onion and cloves, a little celery, and a couple of bay leaves if you have them. Set the stewpan on the fire, and let the meat stew gently about 2 hours. When done take it from the fire, and let it remain in the stewpan till nearly cold, then take it up on one dish, lay another on it, with some heavy weights on it to press the meat. In the evening remove the top dish and weights, take off the tape, cut and draw out the threads, melt a little glaze, and glaze over the veal, and it will be ready to serve. It will cut and eat well, and the stock will make soup or aspic.

Scallops.—Let the meat be cut into very thin slices and then chopped, but not too finely; put it into a stewpan with a little white sauce, or, if here is none ready made, in another saucepan, thicken a little stock with flour, and add a tablespoonful of cream or good milk (if milk, a little bit of butter must be added); season with salt and pepper, and a very little nutmeg; let this boil, stirring constantly, until thick enough; add this sauce to the meat, and let it remain simmering, stirring it the while, for a few minutes; fill scallop shells with this, cover with fresh breadcrumbs, sprinkle them over with oiled butter,

and put them in the oven until they are a light brown colour.

Shape.—Take 1½ lb. veal and stew gently with an onion, a stick of celery, carrot, bunch of herbs tied in muslin, pepper and salt, in water sufficient to cover it. It will take about 1¾ hours to cook, and should not be overdone, or it will lose flavour. While the meat is cooking take a mould, and set 2 cut hard-boiled eggs, some pieces of olive, and diamonds of beetroot, in aspic jelly, allowing about an inch of ornamental jelly to stand until firm. Mince the cooked veal, carefully excluding all fat, mix 1 pint liquid jelly with the veal, ornament with 2 hard-boiled eggs, olive, and beetroot round the sides of the mould, and when the mince is nearly cold place it carefully on the set jelly. Decorate with parsley and rings of finely sliced tongue. If aspic is not at hand, strain 1 pint of the stock from the stewing, dissolve ½ oz. Nelson's gelatine in ½ tumbler cold water, boil it up, mix it with the mince; add 1 glass sherry and a squeeze of lemon, pour into a mould arranged with hard-boiled egg and a nice savoury shape will be obtained, though it will not look so well as with clear aspic. If the liquor is not wanted, it does for a white stock.

Stewed Breast (Blanquette).—(*a*) Put a breast of veal, after being blanched, into a stewpan, with a bunch of herbs, onions, cloves, pepper, salt, a blade of mace, some lemon peel, a good piece of butter (about 2-3 oz.). Let it simmer gently, then add a pint of veal broth, or hot water; when almost tender take it out, put it in a dish, get out the long bones, and strain the liquor to the veal again. If liked, add some fresh mushrooms, or some oysters blanched in their own liquor. Thicken it when done with a little flour,

butter, some very thick cream, and the yolks of 2 eggs; stir it well together. It must not boil, but simmer, for fear the sauce should curdle. Squeeze some lemon juice just as you serve it, and stir it well. Garnish the dish with sliced lemon or fried oysters.

(*b*) Take 3-4 lb. breast of veal, cut it up into pieces 2 in. long, and put them into a saucepan with 2 carrots, an onion, and a head of celery cut into small pieces; add parsley, thyme, bay leaves, cloves, pepper and salt to taste, and sufficient stock or water to cover the meat. Simmer about an hour, or until quite tender. Take out the piece of veal and strain the gravy through a colander. Melt in a saucepan 1 oz. butter, and add 1 oz. flour; mix well, and put in as much liquor from the veal, well freed from fat, as will make sufficient sauce; let it get quite hot, then stir in, off the fire, the yolks of two eggs beaten up with a little lemon juice and strained. Put in the piece of veal, when quite hot add a little chopped parsley and a few mushrooms, and serve.

Suet Pudding (baked or boiled).—Chop ½ lb. veal suet, put it into 1 qt. rich milk, set it upon the fire, and when pretty hot pour it upon 8 oz. bread crumbs and sugar to your taste; add ½ lb. currants washed and dried, and 3 well-beaten eggs; put it into a floured cloth or buttered dish, and either boil or bake it an hour.

Sweetbread (Ris).—(*a*) Prepare the sweetbreads in the usual way for cooking. Place them on the fire in a saucepan with a piece of butter, sprinkle them with flour, stir and moisten with a little water, add salt and pepper, and a bunch of parsley. Cook them gently, and just before serving add some small onions and some mushrooms which have been previously cooked. Thicken the gravy with the yolk

of 2 eggs and a little lemon juice, and serve hot.

(*b*) When well washed and cleared from skin, they may be larded with delicate strips of very fresh bacon or not, according to taste. Boil till nearly done, then put them into a thickly buttered deep dish which will stand the oven (metal or earthenware), strewing the bottom of the dish with thin slices of carrot and onion, add a ladlefull of good broth, salt and pepper, and brown in the oven till of a dark golden colour. Take out the sweetbreads, strain the juice, adding some good veal stock and a few drops of lemon juice, and serve.

(*c*) Butter a stewpan or good-sized saucepan thickly, line it with slices of carrot and onion, put in the sweetbreads prepared as above, i.e. washed and freed from skins, and larded, but not boiled. Let them brown well over a brisk oven, shaking occasionally to prevent adherence, and turning. When of a deep golden hue all over, moisten with 3-4 tablespoonsfuls thick cream, or cream of the previous day, slightly on the turn, add enough veal stock to nearly cover the sweetbreads, cover hermetically, and put charcoal on the lid; place over a moderate fire, as it were between 2 fires, which is the French equivalent for our oven-cooking, and let them stew gently for nearly an hour. To serve them, strain the sauce, add a little lemon juice. They are very good done in this way also, and served upon fresh young peas, spinach, or sorrel, done in the French way. It is essential that the stock used should be *blond de veau* or veal stock, because one of the first rules of all good cookery is that all meats should be cooked in their own sauces, i.e. that the sauce should be of the same meat as the thing cooked.

(*d*) Stewed.—Trim some sweetbreads, and soak

them in warm water till quite white, blanch in boiling water, and then put them in cold water for a short time. When cold, dry them, and put them in some well-flavoured white stock, stew for ½ hour. Beat up the yolks of 2 or 3 eggs with some cream, a little finely-minced parsley, and grated nutmeg, pepper and salt to taste; add this to the sauce, put it on the fire to get quite hot; dish the sweetbreads, pour the sauce over, and serve.

Tea.—Cut into small dice 1 lb. lean meat, place on the fire with 2 tablespoonfuls water, 1 teaspoonful salt; stir this gently until the gravy is drawn, then add 1 qt. boiling water, simmer slowly for ¾ hour, skimming off the fat; when done strain through a sieve. It may be made richer and more tasty by adding, when first warming the meat, a little butter, onion, and parsley.

Vol-au-vent.—Roll out a sufficient quantity of good puff paste 1 in. thick, and stamp it out with a fluted cutter to the size of the dish upon which it is to come to table. Mark it out with another of a smaller size, leaving about 1½ in. at the edge of the paste, which brush over with a beaten-up egg. Put it into a quick oven to rise and become a good colour. When done, remove with the point of a knife the piece marked out for the top, and scoop out all the soft part from the inside; then turn upon a piece of writing paper to dry. Fill it with minced veal and a small quantity of white sauce. As it is only a professed cook who can make a vol-au-vent, it is much best to order it from a confectioner's and only fill it at home.

Game, **Poultry**, **&c.**—The cooking of game and poultry demands especial care on the part of the cook, from the delicacy of flavour and tenderness of

flesh of these viands. The fine aroma of all feathered game is best developed by roasting, and it may be observed that in the case of young birds a few days "hanging" will be found sufficient to render them tender, while in the case of old ones it is far better to first roast them slightly—to bring out the flavour—and then make them into a *salmis*, or to cut off the breast for fillets and use the remaining portions for making soup. The average time for hanging will vary as follows:—

	In Mild Weather.	In Cold Weather.
Capon	3 days.	6 days.
Chickens	2 "	4 "
Duck, Goose, Turkey	2 "	6 "
Hare	3 "	6 "
Partridge	2 "	6 to 8 "
Pheasant	4 "	10 "
Pigeons, young	2 "	4 "
Pullet, young fat	4 "	10 "
Rabbit	2 "	4 "

When the weather is moist or rainy, the articles must be kept somewhat less time. Keeping may be prolonged by putting a little finely powdered charcoal in a muslin bag inside the game, changing the charcoal daily.

The following general methods of dressing game may conveniently precede special recipes for each kind.

Aspic.—Cut the breast of a brace of birds into fillets, cook them in the oven, smothered in butter, in

a tin with pepper and salt, and put them between 2 plates under a weight to get cold. With the rest of the flesh of the birds make a forcemeat as follows: Pound it in a mortar with an equal quantity of lean veal; add as much butter as there is game meat, and as much breadcrumbs soaked in stock and squeezed dry; mix the whole thoroughly well in the mortar, then pass the mixture through a sieve; return it to the mortar; work into it 1 tablespoonful Spanish sauce or chaudfroid sauce, pepper and salt, a little powdered sweet herbs or spices, then the yolks of 2 and the white of 1 egg. Put this composition into a plain buttered mould, steam it for ½ hour, and turn it out. When cold cut it in slices, and cut the slices into rounds all of a shape; cut all the fillets to the same size; cut also some ready-cooked truffles into slices; set some white of egg in a jam pot placed in a saucepan full of boiling water, turn it out, cut it in slices, and from them cut pieces all of a size. Pour a little well-flavoured aspic jelly into a mould: when it begins to set arrange the above materials, filling it up with jelly until the mould is full, and when quite set turn it out.

Boudin.—Pick out all the meat from any kind of cooked game, pound it in a mortar. To 4 oz. of this add 4 oz. of the raw flesh of veal or of fowl, also pounded; work the two together in a mortar, and add 4 oz. butter and 4 oz. paste made as for fish boudin, season with pepper and salt, a very little powdered sweet herbs, then pass the whole through a sieve. Return the composition to the mortar, work into it 1 tablespoonful brown sauce (Espagnole), the yolks of 2 and the white of 1 egg. Put the mixture into a buttered mould, and steam it for 1 hour, then serve with brown sauce.

Chaudfroid.—Roast 2 partridges, and when cold divide them into joints; trim each joint neatly, removing the skin from it; dip them in some chaudfroid sauce, made hot for the purpose, and if when cooled the pieces of partridge are not well covered over with it, repeat the operation. Arrange the pieces pyramidally on a dish, with a border of chopped-up aspic jelly round them. The wings and breasts cut from the birds used to make the sauce can be served in various ways in the form of fillets, and the legs can also be utilised, either to make a stew, or for the stock pot.

For the sauce, remove the legs, breast, and wings from 2 uncooked birds, pound the carcases in a mortar, put them into a saucepan, with a piece of ham or bacon chopped up, an onion, a carrot, 1 oz. butter, a bundle of sweet herbs and spices, pepper and salt to taste; put the saucepan on the fire, and when the contents are quite hot add a small cupful of white wine (sherry or marsala), and a few minutes after add rather more than a pint of good ordinary stock; let the whole gently simmer over an hour, then strain and remove all fat carefully; mix a little butter and flour in a saucepan, and stir on the fire till the mixture browns, then gradually add the liquor and a cupful of unclarified aspic jelly. If at hand a cupful of well-made Spanish sauce may be used instead of the thickening of butter and flour.

Croquettes.—Pick out from the remnants of any roast white game a quantity of meat from the breasts, mince it all finely, and put it into a saucepan, with a piece of butter previously melted, and amalgamated with a pinch of flour; add pepper and salt, and a grate of nutmeg. Stir well, and add, off the fire, the yolk of an egg beaten up with the

juice of a lemon, and strained. Spread out this mince (which should be pretty stiff) on a marble slab, and when it is nearly cold fashion it in breadcrumbs into small portions in the shape of balls or of corks. Dip each in a beaten-up egg, and then roll it in very fine baked breadcrumbs. Let the croquettes rest a while, then fry them in hot lard, to a golden colour. Serve on a napkin with plenty of fried parsley.

Croustades.—Boil a quantity of rice in salted water till done. Strain off the water, put the rice in a saucepan, and keep moistening with as much milk or stock as it will absorb; add a handful of Parmesan cheese and a little pepper. When the rice is thoroughly done, or rather overdone, spread it out evenly to the thickness of about 2 in. on a slab or dish. When quite cold, cut with a 2 in. patty cutter as many "rounds" as the layer of rice will admit. Beat up an egg, roll each "round" or "croustade" in it, and then cover it well with breadcrumbs, repeating the operation if necessary. Make an impression with a smaller patty-cutter on the top of each croustade, dispose them carefully in the frying-basket, and plunge it into very hot lard. When the croustades have taken a good colour, drain them, and, lifting the cover (formed by the impression of the smaller cutter), scoop out the rice from the inside of each croustade with a teaspoon. Fill them quickly with game *purée*, and serve.

Kromeskies.—Pick out all the meat from the remnants of any kind of game, pound it in a mortar with a little butter, and pass it through a hair sieve; put it into a saucepan with a little butter, pepper, salt, and spice to taste, give it a turn on the fire, then take it off; stir in, off the fire, the yolk of 1-2 eggs and some lemon juice. Spread out the mixture to get

cold, and divide it into very small portions. Cut some slices of bacon as thin as possible, and to the size of 1½ in. by 2½ in., place on each slice a teaspoonful of the mince, and roll it up neatly in the bacon; beat up together the yolks of 2 eggs, 1 tablespoonful brandy, 1 of olive oil, and 4-5 of cold water; incorporate with this about 3 tablespoonfuls flour and a good pinch of salt; keep on beating the mixture for a little time, then add as much water as will make it of the right consistency. When ready to use this batter, stir into it quickly the whites of 2 eggs beaten up to a froth. Dip each kromesky in it, and fry them a nice colour in hot lard.

Pie.—(*a*) Have ready a forcemeat as follows: Chop equal quantities of veal and fat bacon, with a little lean ham, and season it highly with pepper, salt, and spice, and, if at hand, a few truffles. Line a pie-dish with a layer of veal highly seasoned with pepper, salt, and spice, and pieces of bacon or ham. On this lay the game, either whole or in joints, as you choose, and fill up with forcemeat, and, if necessary, a little more veal and ham in pieces, and some truffles if handy. Cover with a good crust and bake.

(*b*) Can be made of a fowl, a rabbit, and 2 partridges (fowl only if a pheasant is not at hand). They must be dressed, and put into a large stewpan, and boiled until the flesh comes easily from the bones; then the different meats of each must be passed separately through a potting machine, or beaten well in a mortar (it is of little consequence which), and spread in layers in an ordinary game pie dish, with a layer of forcemeat between each layer—say a layer of chicken, then one of forcemeat, then one of partridge, then one of forcemeat, and so on—but on each layer pepper, a little salt, Worcester

sauce, tomato sauce, chili vinegar, or other flavourings must be placed, and a few slices of shallot or truffles also. Then take the inner pie dish in which the layers are placed, and put it in the oven for 10 minutes. The jelly, which is generally served on the top, can be made of the liquor in which the game has stewed, flavoured to taste with vinegar, ketchup to taste, with gelatine added, and passed through the jelly bag as ordinary jelly.

Shikaree Pie.—Make a rich soup with 3 or 4 brace of partridges or grouse, and the knuckle of a ham cut in pieces; stew slowly until the breasts of the birds are done; take out the same, and some of the lean of the ham; pound these when cold in a mortar, with a little pepper, salt, allspice, lemon peel, and mushroom powder. When the soup is reduced so as to form a rich consommé, let it cool and take off the fat. Take a pheasant and 2 brace of partridges, or 3 brace of grouse, cut into nice pieces, stew slowly for a short time in the soup until tender; make a raised pie crust; when the game is cool place a layer of game, then of the forcemeat, then more game, and so on until the pie is full; add the gravy, place on the cover, and bake; when cooked carefully remove the cover, pour in the rest of the gravy; place the pie in a cool cellar or larder, so as all may be jellied next day when required. This may be made of any game.

Vol au Vent from cold Game.—Take the meat from a cold pheasant or a brace of partridges, and a little cold ham or tongue; cut up small into dice. Break up the bones and stew them with the trimmings in about a gill of white stock seasoned with a blade of mace, 3 or 4 allspice, a little nutmeg and salt. Let it simmer for ½ hour, strain; then add, if procurable, ½ pint of the smallest button mushrooms. These should

be first rubbed with a bit of flannel and a little salt to take off the skin. When nearly done stir in 1 gill rich cream, and a large piece of butter into which some flour has been rubbed. Put in the meat and a few minced truffles; stir slowly until it boils. When the sauce has well thickened pour it into the paste. Garnish, and serve at once. Make some brioche paste into shapes by putting a piece of bread into the centre of a mould; also cut out a few flowers, leaves, &c., for ornament. Bake and take out the bread or mould. Some persons make a few little balls of the paste as well, boil, and serve them with the sauce. If button mushrooms cannot be had, use a small tin of French champignons or a few white pickled mushrooms.

The following are special recipes.

Cygnet (Cygne).—(*a*) The cygnet must not be skinned; pick the bird, and truss it like a goose. Take 2 lb. rump steak, which chop fine, and season with spice, a piece of onion or shallot, and butter; rub the breast of the bird inside and out with beaten cloves, then stuff it with the above, taking care to sew it up carefully and tie tightly on the spit, that the gravy may not escape; inclose the breast of the bird in a meal paste, after which cover it all over with paper well greased with beef dripping. About ¼ hour before the bird is taken up, remove paper and paste, and baste with butter and flour till brown and frothy. For gravy—strong beef and ½ pint port wine; pour over the bird, and serve with hot currant jelly. A squeeze of lemon is an improvement.

(*b*) Truss it as a turkey, cover it with strips of fat bacon, and roast it for 1 hour, then take it up and put it into a stewpan just large enough to hold it, at the bottom of which lay 2 blades of mace, 2 onions

sliced, 1 carrot, 1 head celery, ½ lb. butter, 1 tablespoonful soy, 1 gill mushroom ketchup, 1 pint good gravy, 1 pint port wine. The bird to be stewed in the above until tender (about 1½ hour). When done, place it on a dish with a cover; strain the liquor into a stewpan, and boil away until only sufficient is left to serve with the bird; of course judgment must be used as to the quantity required. During the boiling of the sauce add ½ lb. Sultana raisins, and season the whole with a little lemon juice and cayenne to taste, then thicken with a little flour and butter mixed together, and boil with the sauce; pour over the bird, and serve very hot.

Duck (Canard, caneton). Roast.—Pluck, singe, and draw, blanche the feet and remove their skin; make a stuffing with sage, onions (previously blanched and chopped fine), and breadcrumbs, using twice as much onion as sage, and twice as much breadcrumbs as onion, add a little butter, pepper, and salt to taste. When stuffed, truss them, tie some thin slices of bacon over the breasts, roast for 15 minutes before a brisk fire, basting well with butter, remove the bacon from the birds a minute or two before they are ready. Serve with gravy in the dish, but not over the birds.

Stewed.—Half roast the duck, place it in a stewpan with 1 pint good gravy, 3 glasses red wine, an onion, a bit of lemon peel, a bunch of sweet herbs, an anchovy or a teaspoonful of the sauce, pepper, and salt. It will not need stewing more than an hour, and should be done very slowly. When done, strain the gravy, skim it, and add a dessertspoonful of Worcester sauce. Thicken with butter and flour, return the gravy to the stewpan, make the duck hot, and serve.

Fowl (Poulet, poularde, volaille). Boiled.—Place 2

fowls trussed for boiling, with an onion and a piece of butter inside each, into a saucepan with sufficient water and 3 oz. butter, 2 carrots, a bunch of sweet herbs (parsley, thyme, and celery), whole pepper and salt to taste; let them boil slowly till done—about 1 hour. Serve within a border of plainly boiled brussels sprouts, and with onion sauce poured over them.

Braised Drumsticks.—Braise some drumsticks of fowls, and arrange them upright round the outside of a small basin, which may contain finely chopped salad with its dressing. Slices of tongue and curled ham may be placed alternately between the drumsticks. The plate and lower part of the basin should be hidden by mustard and cress, relieved by thin slices of beetroot.

Chaudfroid.—Cut from the white part of a boiled chicken oval pieces about 2 in. long. Make some sauce with 1 oz. butter, 1 oz. flour, and ½ pint very strong stock. Let it boil up once, add ¼ oz. of gelatine if the stock is not quite a stiff jelly when cold. When the sauce is beginning to set, mask each piece of chicken thickly with it. Place a layer of aspic jelly, roughly broken up, on a dish, and when the sauce on the pieces of chicken is quite cold and set, lay them neatly on the aspic; in the centre of the dish heap up cold cooked peas or beans, or a macédoine of vegetables.

Cold Fowls.—(*a*) Boil the fowl in the stock-pot and let it stay in the stock till both are cold, it will be much better flavoured. For the sauce, either of these will do. (1) Melt 2 oz. butter, add 1½ oz. flour, and 1½ gills white stock or milk. When it boils, add ½ teaspoonful lemon juice, and 2 tablespoonfuls cream. (2) Like the above, but with the yolk of an egg instead of the cream. (3) Boil 1 or 2 heads of celery

tender in white-stock or milk and water, and rub them through a fine sieve. Take ½ pint of the liquor, thicken with butter and flour, add the celery, and just boil. All these sauces must be thick enough not to run off the fowl into the dish. Crumbs coloured with cochineal, and then dried to crispness in a very slow oven, or tinted with beetroot juice or horseradish dyed red, makes a pretty garnish. The boiled liver rubbed through a sieve over the fowl, and contrasted with slices of boiled carrot cut into fanciful shapes, and put at intervals round the dish with parsley, makes a change in the mode of serving, and has the recommendation of being an eatable garnish.

(*b*) The meat of large cold roast fowls, however dark in colour, and however tough, may be made tender by gently simmering in a stewpan over the fire in the usual way, or better still, in the oven; for the latter, cut the fowl into joints, place them in a deep pie-dish with enough cold water to completely cover them; place the dish on the bottom shelf of the oven, which should not be too hot, and let it remain until sufficiently tender to draw out the bones; watch it in order to add more water as the first reduces. It must be kept quite under water all the time, or it would dry up and become hard and brown; at the same time it does not do to put it in too much water at first, as it would draw the goodness from the meat. It will probably take about 1½ hour to do; and prepared in this way, it will be ready to use for rissoles, croquettes, curry, or mince, taking care to chop up a little fat streaky bacon with it. The liquor in which it has been cooked will be very good to moisten it as required, or it may be added to the stock-pot.

Country Captain.—Cut up a chicken into small pieces, melt some butter in a saucepan, and put into it an onion shred very fine, fry until quite crisp, sprinkle the fowl well with curry powder, add some salt, and fry until thoroughly cooked, turning the pieces frequently. Serve very hot, with the fried onions on the top.

Curried.—Mix together 1 tablespoonful mild curry powder, 1½ tablespoonful dried flour, and 2 large saltspoonfuls salt; skin and cut in neat pieces the remains of cold fowl, dip them into the curry powder, pressing the powder in. Thinly slice one large onion, peel, core, and chop a sharp apple. Have in a fryingpan a piece of butter larger than a walnut; when hot, cook the onion in it, turning often. It should not be brown, and may require a little more butter. When tender, add the apple, just to make hot; then put the onion and apple into a hot stewpan, and keep warm. You will now require about 2 oz. butter, made hot in the fryingpan. Put in the fowl, turn frequently to prevent browning or burning, for the fowl should only be a deep yellow. When of that colour, and enriched with the butter, place it in the stewpan with the onion and apple. Pour over by degrees 1 pint hot, not boiling, milk. Shake the stewpan over a clear, slow fire 2-3 minutes, and leave by the side of the fire to simmer gently for ¾ hour. Skim from time to time. The curry should be as smooth as cream, but a little thicker. These quantities are for half a fine fowl. Send to table very hot, with a dish of rice and a cut of lemon. By strictly following this recipe, it will be scarcely possible to discover that the fowl has been previously cooked. Mild curry powder should be used.

Cutlets.—(*a*) Take the fillets of 3 chicken, which

will give you 6 large and 6 small ones; flatten them with the handle of a knife which has been dipped in cold water; pull off the upper skin from the large fillets with the knife, and take the sinews from the smaller ones; dip them in oiled butter, and place them in a sautépan, shaking a little fine salt over them. Have ready prepared a rich white sauce, in which a few prepared cockscombs, quenelles of veal or chicken shaped into balls the size of a marble, some button mushrooms, and a few dice of truffles have been stewed. When it is time to dress the cutlets, fry them lightly and quickly, drain the butter from them, pour over them a few spoonfuls of white sauce, and just at the last a spoonful of thick cream; arrange them in a circle in the dish, alternately a large and a small fillet, filling the centre with the sauce of cockscombs, &c., which has been preparing. If you wish to have 10 cutlets, 5 chickens will be wanted for this dish. (*b*) Take the 10 fillets, pare them well; then take the small bones from the pinions, scrape them, and stick one of these bones into the point of each fillet—this must be very nicely done; season them with pepper and salt, dip them into yolk of egg (2 will be required), then into breadcrumbs, next into some melted butter, and breadcrumbs again; see that they are quite covered. Cut the small fillets into dice, and stew them in a purée of cucumbers and onions, thickened with the yolk of egg, and seasoned with salt and a very little sugar, also some mushrooms cut into dice; put this into the middle of the dish, and having broiled the cutlets, arrange them in a circle round it. They should not be broiled a minute before they are wanted. If preferred, the small fillets may also be broiled in the same way as the others; in that case the purée of cucumbers should be omitted, and they

should be served with a good white sauce, into which a little cream has been stirred just at the last, and some slices of truffle lightly fried.

Devilled.—Cut the inner part of the leg in 4 long slits, taking care not to cut them through. Put in each cut a little piece of butter, some mustard, pepper, and salt, and a little lemon juice. Place the legs in a tin in front of the fire for about ¼ hour, taking care they do not get too brown; the last thing turn them over, and finish on the top side with a little more butter, pepper, salt, and mustard.

Fricassée.—The fowl is usually divided into 12 or 14 pieces. What are called the legs make 2 and sometimes 4, but this is seldom done; the wings make 4, and the breast and back are cut up, according to the size of the fowl, into 2 or 3 pieces respectively. The mode of proceeding is this: Having plucked and singed the bird, lay it on its side on a table, grasp the thigh and leg together with the left hand, and with a sharp knife cut down to the socket of the thigh bone; pull the limb back with the left hand, disengage the thigh bone from the socket, cut the skin neatly round the thigh, and put the limb on one side. Do the same with the other leg and thigh. Cut off the head and neck close to the body. To remove the wings, lay the fowl on its back, and make an incision along the breast bone 1 in. from the ridge of it, cutting down to the joint of the wing bone, which you disjoint from the carcase; Then cut right down, and remove the wing. Take off the other wing in the same way.

You now grasp the fowl with the left hand, and inserting the knife, cut right through towards the vent, then pull the breast back, and cut it off altogether. Having removed the inside of the fowl,

you chop off the ribs on either side of the back, and trim this piece neatly as well as the breast piece. The breast and the back are each cut across into 3 or 2 pieces, according to circumstances. Taking now each leg in turn, you make an incision round the heel, and pull the flesh back, chop off the bone above the heel, and pull back the flesh; then chop off the head of the thigh bone. The 2 wings are divided at the second joint, the head of the bones being cut off, as well as the spur at the end of the second joint.

Care must be had in chopping off the bones to do so at one blow, and to have a sufficiently heavy knife to make a clean cut. The blow should be given with the part of the knife next the handle; a meat chopper would be too heavy. Another point which requires attention is to let each piece, especially the wings and legs, have its proper allowance of skin. The cuts should be given freely, and at one stroke, as it were, so as to avoid any little bits of flesh or skin hanging from any of the pieces.

Fillets.—Take 3 small fowls—the backs and legs cannot be used for this dish, but they will come in usefully in making white soup, and in many other ways. The fowls should be fat and white. Clean and pick them well, scalding the legs in boiling water. Having singed the chickens, cut the fillets from the breasts; flatten and trim the 6 large fillets; of the 6 small ones make 3, by sticking 2 together. Then lay them in a sauté or frying-pan (a delicately clean one), covering them with melted butter, and sprinkling fine salt over them, and let them remain until just before dinner time; then put the sautépan on the fire, and fry the fillets lightly on both sides until they are firm, which will show that they are done. Having drained off the butter gravy will be

found at the bottom of the pan; add to this 3-4 spoonfuls of rich white sauce well seasoned, moving the pan over the fire, and not letting the sauce boil at all; were it to boil, the fillets of chicken would be spoiled. Cut some slices of stale bread, rather thicker than a penny piece, stamp it out either into rounds, or into pear-shaped pieces, one on the other; fry these pieces of bread in butter until of a light brown colour. Dress the 9 fillets in a circle, with a piece of the fried bread between each. Put the sauce into the middle of the dish, and put a little of it over each fillet with a spoon, taking care not to let it touch the fried bread, which should be nice and crisp. Serve them up at once very hot.

(*b*) Having prepared the fillets as (*a*), flatten them and garnish the larger ones with truffles as follows: Cut thin small rounds of truffles, and having made 3 or 4 round slits in each of the fillets, place a round of the truffle in each of these slits, taking care not to carry it through the fillets, which would break them. After garnishing, dip each fillet into melted butter, as also the smaller fillets, and fry them lightly, so as to leave them slightly underdone. Take them off the fire, drain off the butter, reduce the sauce as before, and add to it a few spoonfuls of well-flavoured white sauce; put the fillets into this, and let them simmer gently, moving them during the time until they become firm, which will show that they are done enough. Dish them up alternately, a large garnished fillet and then a small plain one. Stir a good spoonful of thick cream into the sauce, pour it into the centre of the dish, and with a spoon put some of the sauce over each of the small fillets, but not over those which are garnished. Serve very hot.

Galantine.—(*a*) Bone a large fowl, sprinkle the

inside with salt and pepper, take 1½ lb. lean veal, ½ lb. fat bacon; pound together, and pass them through a wire sieve, add a little chopped parsley and thyme, a little grated nutmeg, salt, and pepper; when this is well mixed place it on the fowl with a few truffles, pieces of tongue, previously dressed, cut the same size as the truffles, place these at equal distances and fold over the fowl carefully, so that the forcemeat is well enclosed in it, tie it up tightly in a strong cloth, tying the ends in the same way as a roley poley pudding, place a large pin in the centre to keep it quite tight while boiling: put into a large stewpan any veal trimmings, lean bacon, and fowl trimming with the bones of the fowl, and 1 large carrot, 3 large onions, some parsley, thyme, 2 bay leaves, some peppercorns, and salt, fill with cold water; when boiling put in the galantine, leave it to boil gently for 1½-1¾ hour, according to the size, but not longer; then take off the cloth while hot, and roll the galantine tightly again in it, taking care which side is the breast; place the galantine between 2 common dishes or boards breasts uppermost, place a weight on it (for a galantine of this size a 7 lb. weight is sufficient); leave it until cold, when it should be garnished with some pale aspic jelly. If the galantine appears dry on the outside glaze it lightly and garnish with parsley. Galantines can be made of turkey, pheasant, partridge, or grouse in the same way as the above, only the livers should be lightly fried and added to the forcemeat. (Jane Burtenshaw.)

(*b*) To bone a fowl, proceed as follows: Give a blow to the legs just above the heel with a heavy kitchen knife, so as to break the bone; cut the skin round; then, holding the foot, give it a twist, and pull it off, thereby removing the strong sinews of the leg. Chop off the wings just above the second joint, then

slit the skin of the neck lengthways; pull this out, cut it off close, and cut the skin square. Lay the fowl breast undermost and make an incision all along the back, from end to end; then with a pointed knife—what is called a vegetable knife will do very well—proceed to detach the flesh from the carcase, beginning at the neck end; when you come to the wing bone disjoint it from the carcase, and then make a slit inwardly along the wing joint, and remove the bone; work along down to the leg, and when you come to the thigh bone disjoint it from the carcase. Also do the other side in the same way. Now work along each side, detaching the breast; and this requires great care not to injure the skin, especially over the breast bone. When you have worked round both sides, remove the carcase—which can be drawn at leisure, and should be boiled along with the galantine when this is put to cook and you have the fowl all boned except the thigh and leg bones on each side. The mode of getting rid of these is this: Make an incision along the thigh, dissect the bone from the flesh, scrape the flesh along the leg bone, and finally pull this out, and it will carry the remaining sinews with it. All that now remains to be done is to cut out the "wishing-bone," which will probably have remained in the flesh of the breast, as well as the two large white sinews of the breast. (The G. C.)

Grilled Legs.—Take the legs of cold fowl, score them well, and rub in plentifully some made mustard, salt, and cayenne; broil over a clear fire and serve with: *grill sauce*. Take 1 gill good gravy, add to it 1 tablespoonful mushroom ketchup, 1 teaspoonful French mustard, a few chopped capers, and a little grated lemon peel; add a little butter rolled in flour, a few drops of chili vinegar, simmer until quite hot,

pour over the legs, and serve.

Old Hen.—(*a*) To make this tender, it should be divided into joints, after picking and drawing; place these pieces into a deep baking dish with a pinch or two of salt, filling the dish with cold water so as to more than cover the meat. Set it in the oven and let it remain there for 3-4 hours, or until it is sufficiently done to draw the bones out easily, which must be ascertained by occasionally taking it out to try; it will also require watching to see that the water does not dry up, or if it does, to keep adding from time to time a little hot water to keep the meat covered till it is sufficiently done. When this is the case, draw out the bones, remove all the skin, and take the sinews from the drumsticks. The meat will now be perfectly tender, and may be used for curries, rissoles, fricassées, or in any other way in which ordinary chickens are used.

(*b*) Pluck, draw, and singe the hen and put it into a saucepan with just enough water to cover; stew very gently for 1 hour, keeping the lid of the saucepan on all the time. Take up the bird, cut it into medium-sized pieces, and roll round each piece a thin slice of bacon; place in a pie dish, cut 2 hard-boiled eggs into slices, lay these among the pieces of fowl, sprinkle over a tablespoonful of minced parsley, season with pepper and salt, and pour over all the gravy in which the fowl was stewed, or as much of it as the dish will hold; cover with a light crust and bake one hour. Any gravy left over should be saved, as it makes excellent light stock for many purposes. (Bessie Tremaine.)

(*c*) Put 4 quarts water in a pot with 3 teaspoonfuls salt, 1 of pepper; stuff the hen with veal stuffing, after taking off the head; take off the legs and draw out the strings, and truss. When the water boils, put

in the hen with 4 pieces salt pork, ½ lb. each, or whole if preferred; add ½ lb. onions, 1 lb. celery, 6 pepper-corns, a bunch of sweet herbs; boil slowly 1½ hour. Mix 3 oz. flour with 2 oz. butter, melt in a small pan with 1 pint of the liquor from the pot, ½ pint milk, the onions and celery cut up fine and added to it. Boil for 20 minutes until rather thick. Serve the hen on a dish with the pork, pouring the sauce over all. The remainder of the broth makes excellent white soup. (Soyer.)

(*d*) When plucked and drawn joint it as for a pie. Do not skin it. Stew 5 hours in a covered saucepan with salt, mace, onions, or any other flavouring; turn out into so deep a dish that the meat be covered with the liquor. Let it—and this is the secret of success—stand thus in its own jelly for a day or two; then serve as a curry hash or pie, and it will be found nearly equal to a pheasant.

(*e*) Stuff with forcemeat; put an onion inside; let the fowl simmer, not boil, for 4 hours, just covered with water. Send it to table with either onion or white sauce, with a small pickled cucumber cut finely in it; garnish with bacon; the stock will make Palestine soup.

(*f*) Pick, singe, and truss, as usual; put into the inside of the fowl a large lump of fat bacon, and sew the neck and vent, so as to fasten the bacon in securely; dust the fowl with flour, and tie it up in a cloth, put it into a pan with a close-fitting lid, and nearly cover the fowl with warm, not hot water; put in also 2 onions, a sliced carrot, and 1 or 2 cloves; let the water come to the boil as slowly as possible, and then let it simmer in the gentlest manner for 3 hours, or longer if the fowl be a large one. Take it carefully out of the cloth and completely smother it with any

sauce you prefer. Next day break up the carcase of the cold fowl, and put it back into the liquor it was boiled in, with the drumsticks if you have them; add a cupful of rice, a blade of mace, and some pieces of turnip, boil 2 hours gently, and pulp through a sieve everything that will pass. You will have a small quantity of excellent soup; salt and pepper to taste.

(*g*) The following way makes excellent potted meat: After dressing the fowl, skin it, cut it up, and stew gently into a digester with a ham bone and 1 qt. water for 6 hours; strain the liquor off, pass the fowl through a sausage machine, then beat in a mortar or wooden bowl, keep adding the liquor to moisten it; season according to taste, put into pots, and cover with clarified butter.

Panada.—(*a*) Take the meat of a cold roast fowl, carefully removing all the skin, and put it in a stewpan with ¼ pint water, a few herbs and vegetables (if allowed), and a shallot. Boil these ingredients very gently, and, when quite tender, take out the meat and mince it, and then pound it in a mortar with 1 oz. butter, and as much of the liquor as is required to bring it to pulp. Put this back into a stewpan, after rubbing it through a hair sieve, with about 1 gill stock made from the bones of the fowl, a gill of cream, a slight seasoning of pepper, salt, and nutmeg, and a teaspoonful of flour. Let this simmer gently till it thickens sufficiently, and serve hot, with toast sippets; or it may be eaten cold.

(*b*) Skin the chicken and cut it up in joints. Take all the meat off the bones, and cut up into small pieces; put it in a jar with a little salt, tie it down, and set it in a saucepan of boiling water. It should boil 4-6 hours; then pass it through a sieve with a little of the broth. It could be made in a hurry in 2

hours; but it is better when longer time is allowed. Do not put the wings in the panada.

Poos-pass.—Put a fowl into a saucepan with 3½ qt. water and boil for ½ hour; then take it off the fire and strain and skim it. This done, put the gravy, fowl, and 4 oz. rice (or 2 oz. for each person) again into the saucepan, and stew them for ¾ hour, adding salt, cloves, and cardamoms to your taste.

Roast.—(*a*) Take a piece of butter the size of a walnut, mix with it some pepper and salt and a little flour, put it inside the fowl, then baste it with a little butter (a small tin is best to use instead of a dripping pan). When the fowl is done pour the gravy (made with the giblets, thickened with flour and flavoured with mushroom ketchup) into the tin, and strain over the bird. Tiny suet dumplings to be served in the dish with it.

(*b*) Fowls require constant attention in dredging and basting, and the last 10 minutes let butter rolled in flour be stuck over them in little bits, and allowed to melt, without basting. The gravy for fowls should always be thickened, and slightly flavoured with lemon-juice. Sausages or rolled bacon should be served on the same dish, and white mashed potatoes always be handed with poultry.

Salad.—Pick 1 lb. meat quite free from bone, and thoroughly cleanse a good head of celery; chop both very fine, or, better still, pass through a mincing machine; put this in a large basin. Beat the yolk of an egg until it is thick, mix with it 1 teaspoonful made mustard, a pinch of salt, and ¼ teaspoonful white pepper. Beat well into the mixture ½ teacupful thick cream, and add the juice of a small lemon drop by drop, beating the mixture with a fork all the time. Stir this dressing well among the minced chicken and

celery. Mould with a spoon into any shape you like, and serve on a dish with beetroot cut into fanciful shapes. Some prefer a tablespoonful of tarragon vinegar instead of lemon juice, and salad oil can be used instead of the cream; but the cream makes it much whiter and daintier in appearance, and gives a better flavour.

Soufflé.—Pound the white flesh of a roast or boiled chicken in a mortar with quarter of its bulk of butter, and with pepper, salt, and spices to taste. Mix all well together, add a gill of cream, or of Béchamel sauce, and leave it to get nearly cold; then add the yolks of 3 or 4 eggs, according to quantity, and lastly the whites of the eggs whipped to a stiff froth. Put it at once into a soufflé tin, or into paper cases, and bake in the oven.

Stewed (sauté).—Slice 2 onions and fry them in oil or butter with a fowl cut up as for fricassée. When the pieces of fowl have taken colour, moisten with 3-4 tablespoonfuls French tomato sauce, and as much stock free from fat as may be necessary to make enough gravy; add 6 button mushrooms cut in half, some minced parsley, pepper, salt, and powdered spices to taste, and let the whole simmer till done.

Timballe.—Bone and cut up 2 chickens, lard the pieces, put them into a stewpan with some mushrooms, shallot, spices, pepper, minced parsley, a little butter, a glass of white wine, and two large spoonfuls of good stock; simmer till quite done. Boil some truffles in white wine, add them to the chicken, and let it all cool. Butter a mould, line it with rolled paste, beginning at the middle of the bottom, and continuing till it comes to the top; the rolls of paste must lie firmly one over the other. Have a piece of paste, a little larger than the bottom, to come up the

sides; brush it over with the yolk of an egg and put it in, pressing it well down; put a lining of forcemeat balls round the sides nearly to the top, lay in the chicken and truffles, cover the whole with paste, fixing it firmly, make a hole in the top, bake 1½ hour, fill up the hole with a piece of paste, turn out the timballe, cut a small hole in the top, pour in some reduced gravy, and serve.

Vol-au-Vent.—Roll out some puff paste to the thickness of ¾ in. on a baking sheet. A plate or a piece of paper cut in a circle being used as a guide, cut the paste all round it with a sharp knife dipped in hot water and held at such an angle that the top of the disc of paste be slightly (not more than ⅛ in.) less in diameter than the base. Carefully brush over with beaten-up egg the round of paste, taking care not to egg the sides, then, using a knife dipped in hot water as above, make an incision ½ in. deep within 1 in. of the edge all round the top, and put the vol-au-vent case in a brisk oven. If the oven be at the right temperature, and the paste well made, ½ hour's baking will cook it. Being removed from the oven, the top is lifted off, the inside is taken away in flakes, and, should it be necessary, the sides of the vol-au-vent are strengthened inside by having pieces of the flakes stuck against them with white of egg. Lastly, the vol-au-vent is placed at the mouth of the oven for 10-15 minutes to dry up the inside. Fill it with quenelles, adding as much as is wanted of sauce, and garnish the top with truffles, cockscombs and mushrooms. Or, more economically, use none of these last, and simply put on the paste cover.

Goose (Oie). Roast: see Fowl.

Liver patty (pâté de foie gras).—(*a*) Line some small moulds with puff paste, fill them with rice, and

put on the covers, egg the top, and bake in a moderate oven; take off the covers, remove the rice, and fill them with sliced foies gras and truffles, tossed in some thick well-flavoured brown sauce; put on the covers, and serve hot.

(*b*) Take 1½ lb. turkey or goose livers (the latter is best) and ½ lb. calves' liver, chop fine, and then pound in an iron mortar or pass through an iron sieve; then add ¼ lb. butter, put on the fire, and stir about 2 minutes, then add ⅛ pint cream, 12 drops rose water, and a little cayenne pepper and salt, keep it on the fire, and stir 5 minutes more; add truffles and a teaspoonful of brandy, put it again on the fire, and keep stirring till it becomes thick, when you may pour it into jars, and as soon as it is hard cover with butter.

Pie.—Boil a neat's tongue till it is tender, peel it, and cut off the root and tip end. Bone a large goose and a large fowl. Mix ½ oz. beaten mace with a spoonful of pepper and one of salt; season the inside of the fowl and of the goose, put the fowl in the goose and the tongue in the fowl. Make some raising paste and raise it up high, put in the goose breast uppermost, sprinkle some seasoning on it, lay on ½ lb. butter; put on the lid. Rub the pie all over with the yolk of an egg, and ornament the sides and top. Bake 3 hours. If it is to be eaten hot, put the bones of the goose and fowl into a saucepan with 1 qt. water, a bundle of sweet herbs; 2 blades of mace, a little pepper and salt, and stew it till it is about half wasted; then strain it off, and 1 hour before the pie is done, take it out and put the liquor in, and when it is done send it up hot. If it is to be eaten cold, put no liquor in, but cut it in slices, cut across, put it in a dish, and garnish it with parsley.

Grouse (Coq de bruyère).—For roasting, grouse should be young, and in selecting them the wing feathers should be examined. If these are sharp and clearly defined at the ends, the bird is young and may be safely roasted. Very young grouse, partridges, and all woodcock and snipe are never better than on the day of their death; but when this opportunity of eating them in perfection has once been allowed to pass over and the flesh has been permitted to get thoroughly cold and stiff, it is the better for a few days "hanging," to allow it to grow tender again. An old-fashioned rule is to wait till the feathers come away at the slightest tug, but the complete adoption of that plan is apt to make game too "high" for delicate palates. Grouse are very good about the 6th or 7th day after shooting, and when drawn, singed, and trussed with the head under the wing—the decapitation of a game bird is a barbarous innovation—should be skewered together and fastened to the spit. Then set them down before a very sharp clear fire, and keep them well basted with butter during the whole time they are cooking, about 30 minutes. When nearly done sprinkle over them a little flour, and put them to the fire again, and serve on a buttered toast soaked in the dipping pan; garnish with watercress, and accompany the grouse with good beef gravy, bread sauce, and fried crumbs in boats.

To make fried breadcrumbs, toast carefully in the oven a few thin slices of bread with the crusts cut off, and then rub them done and pass them through a colander. Put a liberal allowance of lard into a stewpan or frying pan, make it very hot, and take care that the fat is perfectly clear and transparent. Fry the prepared crumbs, taking care not to overdo them, and drain them before the fire very thoroughly

and completely, as the whole success of fried crumbs consists in their being sent to table perfectly dry and quite hot. To make bread sauce take ¾ lb. stale breadcrumbs rubbed through a colander and put it in a stewpan with a little white stock, white peppercorns, salt, a blade of mace, and an onion. When this has soaked, add 1 pint of milk and a little butter; simmer gently, and keep stirring the sauce till it is smooth. Then remove the peppercorns, mace, and onion, beat up the sauce well with a spoon, make it hot and serve in a sauceboat.

Cold roast grouse are very well in a *salmis* made as follows: Cut the bird into pieces, and put the best of these into a stewpan. Take the bones and odds and ends, break them up and put them into another stewpan with some good gravy, a few fragments of cooked ham, a bit of lemon peel, 6 shallots, 2 glasses white wine, a bay leaf, parsley, pepper, and a little salt. Let this boil for about 1 hour, and strain it on to the grouse in the other stewpan. Simmer all together without letting it boil, and serve very hot with sippets around.

Excellent soup may be made either of roasted or half roasted old birds—let them be as tough as they may; or the soup may be made as follows: Skin 3 or 4 old grouse, cut them up, and fry them with slices of lean ham, sliced onions, carrots, turnips, and 2 shallots. Put the fry into a saucepan, and add 2 qt. good stock. Throw in a little chopped celery, minced parsley, and a faggot of sweet herbs. Let this simmer for 2 hours, strain, and serve. Fillets from a young bird, deftly prepared by frying, may be put into this soup, which should be very strong. In the north of England grouse pie is very popular, and is made either as a pastry or as a raised pie, and differs from

other simple and compound game pie in no single particular.

Braised.—Truss as for boiling. Place the birds in an oval stewpan, the bottom of which must be first covered with slices of streaky bacon, a carrot sliced, a head of celery cut up, a good sized onion stuck with six cloves, a small bunch of parsley and sweet herbs, and 18 black peppercorns. Fry a raw beetroot in butter, after peeling and slicing it, and with it a few slices of onion, moistening it with about ½ pint broth; pour this over the grouse, add a teaspoonful of brandy, covered with buttered paper, put on the lid covered with live embers, or, if not, place the pan in the oven and let it remain until the birds are done, when they must be taken out and put on a dish to keep hot. Then strain the liquor from the vegetables, skim off the grease, and boil it down until it is a semi-glaze; add to it a spoonful or two of good brown sauce and a very little red wine; let this boil by the fire for 5 minutes; skim it and pass it through a tammy into a small stewpan to keep hot. Set the birds on their dish, garnish with the slices of bacon cut in neat pieces, and some small balls of carrot; pour the sauce over and serve. The carrot balls should be previously dressed by boiling them down in a stewpan with a little butter, about a wineglassful of vinegar, a little pounded sugar, grated nutmeg, and salt; let them stew steadily, turning them over occasionally, for about an hour, or until the moisture is absorbed. There should be enough liquid to cover them.

Broiled.—Cut off the pinions and legs and tuck the thighs inside the birds; split them down the back, season well with pepper and salt, and brush them over with clarified butter: place them on a gridiron,

and when the fire is perfectly clear, broil them carefully, taking care they are not at all smoked. When done glaze them nicely and serve them with a border of fried potatoes or of small balls of mashed potato fried brown. Mix a teaspoonful of anchovy sauce with a pat of fresh butter, let it melt on the dish in which the grouse is to be served. When melted, place the grouse over it, and serve directly with a squeeze of lemon juice over the bird. It may be done in the same way, but instead of on the gridiron, which is not always convenient, the grouse may be placed in a sautépan with a little butter, setting the pan in the oven and basting them well until done.

Larded.—Lard the breasts in close rows, place slices of streaky bacon in an oval braising-pan, with vegetables; on these place the grouse, with enough liquor to cover them, the liquor being composed of ⅓ French vinegar and ⅔ of good stock; baste them frequently, and when done set them on a baking-sheet in the oven for a few minutes to dry the larding; after this glaze and dish them, garnish them with a border of stewed red cabbages, and on this some very small sausages, made of chopped calves' liver, bacon, and breadcrumbs, seasoned with pepper, salt, lemon peel, chopped fine, a little nutmeg, chopped parsley, thyme, and bay leaf, and 2 yolks of eggs, mix thoroughly, and fry, in small round or flat cakes, a nice brown colour. Reduce the liquor in which the birds were stewed to a glaze, having first cleared it from all grease, strain it over the birds and serve.

Roast.—Pluck and truss them as a fowl for roasting. They should be well hung but not high. Draw the inside and well-wipe, but do not wash

them. Place a round of buttered toast in the dripping-pan, and let the birds roast over it. The fire must be sharp and clear, and they must be kept well basted the whole of the time they are cooking. They should be well cooked, but not at all over-done, or they would be spoilt; they ought to look just a little pink near the bone when cut. When done remove the toast on to the hot dish, set the birds on it, and pour over each just enough melted butter to cover the breast. Fried breadcrumbs may be round them in the dish, or handed separately. No gravy is sent up with roast grouse; there is sufficient moisture in the toast. If more than 2 birds are sent up, one round of toast would not be sufficient; there should be a piece under each bird just large enough for it to rest upon.

Guinea Pigs.—Though in England the animal is usually treated as a pet, in its native country it has been reared for ages as a food supply. They should be in good condition, and 8-18 months old, as that is the period when they are in perfection, when older they are more fit for soup or stock. Kill them by dislocating the neck, and it is desirable to bleed them in the throat afterwards to avoid discolouration. The hair should be scalded off, and they must be emptied in the usual way. They present very much the appearance of little sucking pigs, and are ready for the best offices of the cook. They are generally cut up and stewed in a savoury way until the skin is quite soft and the meat comes easily from the bones. Being small, they may be tossed up quickly in a great many delicate ways, and are very useful as a game course when game is out of season. They are excellent in stews, curry, pies, puddings, brown or white soup, and make a first rate colourless stock for velouté, &c. They may be served as entrées in a great many ways. The pure white breed is the best for

table use, as the skin of the darker varieties does not look so delicate when cooked. The easiest way for anyone to proceed who wishes to try guinea pig as food is to buy one or two, and hand them over to their pork butcher to be killed and scalded. It is essentially a delicacy, and must be paid for as such. (C. Cumberland.)

Hare (Lièvre).—Hares vary much in quality, according to the nature of their feeding ground. Mountain hares have their admirers, and for soup are excellent; but for a roast or jug most people justly prefer the plump natives of the Eastern Counties. When a hare is fresh the body is stiff, and if she is young the claws will be smooth and sharp, and the cleft in the lips not spread much. The ear, moreover, will tear easily. A leveret has a knob or small bone near the fore-foot; when this disappears it is a hare. In this country it is customary to dress hare either as a roast, jugged, or in soup. For a roast it is indispensable that the animal be young; in fact a ¾-grown hare makes a far more tender and succulent roast than when fully developed.

Fillets.—Take a fine fat hare, carefully clean and prepare it, then with a sharp knife take off at the joint the shoulders and legs. Make a sharp cut lengthways on each side close to the backbone, take off the slices of meat; also bone the legs; take the liver and scald it; then heat a pan on the fire, place in it 2 or 3 slices of fat bacon; when the drip or essence is boiling put in the meat cut from the back and that of the legs; it must be cut into pieces. Add 2 minced shallots and a little pepper and salt; fry of a nice brown colour. Meanwhile make some good hare stuffing, made into little balls, with a well-beaten egg; fry them also of a nice colour. Mince the liver

finely, and stew it in some good gravy, flavour with 2 tablespoonfuls mushroom ketchup, a little taragon or chili vinegar, salt, pepper, and a little lemon juice; thicken with a bit of butter, into which some flour has been rubbed, when ready pour this over the hare fillets and let all boil up. Serve very hot, garnish with crisp, hot sippets of fried bread alternately with stuffing balls and a few slices of lemon.

Jugged.—(*a*) The carcase and rest of the hare cut into joints, fry with some bacon until browned; take it out, dust over the meat some pounded dry parsley, thyme, savory, and a little pounded mace and allspice. Mince 2 shallots, put all into a jug or jar, cover the meat with some brown stock, add pepper and salt. Close the jug with a bladder, and place it over the fire in a saucepan of boiling water. Let it boil well for some 3 hours, more or less according to age of hare. When tender take the meat out, strain off the fat from the gravy, thicken with a little flour, boil it up, place the hare in a deep dish, and pour the gravy over. Care should be taken to keep the saucepan full of boiling water all the time. Some add to the seasoning given the juice of a lemon and ½ gill claret instead of stock. This, however, takes away the hare flavour.

(*b*) Put 1 lb. gravy beef in an earthenware stew mug, a bunch of herbs, consisting of celery top, parsley, sweet marjoram stems, and an onion, stuck with 6 cloves. Season each joint of the hare with a little pounded mace, pepper, and salt, lay them in the stew-mug, and cover with spring water, put on the lid, and place in the oven to stew for 2½ hours or longer. When quite done, lift out each joint in a hot soup tureen, strain the gravy, and thicken it with flour and a little butter; boil it up, add ¼ pint port

wine, pour over the hare and serve.

(*c*) After skinning, let it soak in water for several hours, changing it 3 or 4 times. Then cut it up and wash it again; drain it in a colander. Put it in a jar with a sheep's milt, lemon thyme, parsley, a very little sweet marjoram, nutmeg, mace, pepper and salt to taste. Tie it down with a cloth, and put it into a saucepan of water up to the neck. Boil for 3-4 hours, according to the size of the hare. Mix a little flour with Indian soy, ketchup, or any sauce that is approved of. Put it into a jar, and boil for another ¼ hour. Add forcemeat balls if preferred. (E. P.)

(*d*) This may be made with hare only, but the flavour is much improved by cooking some beefsteak with it in the proportion of 1½ lb. to a good sized hare. In any case about 1 lb. or rather less of fat streaky bacon should be added, cut into small slices. The beef should be cut up into small pieces, and the hare into joints. Flour these well on both sides, and sprinkle with black pepper and a little salt; lay them in alternate layers in a jar that will stand in a large saucepan of cold water. To this add a small onion stuck with 6 cloves, a very little allspice, and a bunch of sweet herbs tied in muslin. The best pieces of hare should be at the bottom. Pour into the jar about a pint of cold water, set the saucepan on the fire, and let it stew for about 4 hours after the water boils. Just before taking up add a tablespoonful of ketchup and ½ glass port wine. The beef and bacon will have almost disappeared, and if preferred, may be quite removed by straining the gravy over the hare, after having nicely arranged the several joints on the dish in which it is to be served; care must be taken to keep it very hot while straining. Should any of this dish be left from dinner, it will be quite as

good when warmed up if it be again put into the jar and set in a saucepan of water to boil as before; as soon as it is quite hot through it should be taken off the fire, as it of course does not require any more cooking. Forcemeat balls should be made and fried in butter to serve in the dish with the jugged hare, keeping them hot in the oven until wanted.

(*e*) In France, *civet de lièvre* is a well-known stew of hare, varying in some important particulars from the national English jug. Having cased your hare, put by the liver, lungs, and heart, taking care to throw away the gall, and mix the juice of a lemon with the hare's blood. Joint the hare into neat pieces, seasoning each with salt and pepper.

Take ¾ lb. lean bacon, chop it and plunge it into boiling water for 5 minutes, then throw it into a stewpan with 1½ oz. butter until it takes colour, when put the pieces of hare into the pan, and add a large onion stuck with cloves, a few peppercorns, and a little thyme, bay leaf, &c. Fry the meat for 12-15 minutes, and when its moisture is reduced add a bottle of red wine and reduce the liquid to ¾. Sprinkle the meat with a little flour, fill up with good hot stock, and stir the sauce until it boils. Cover the stewpan, and let it simmer over a moderate fire for 3-3½ hours. When the hare is done, take up the pieces and put them into another stewpan. Add to the sauce a glass of port wine or a little gravy, pass it through a sieve, and reduce it over a brisk fire. Thicken with the hare's blood, let the sauce boil up, and pour it over the meat, adding at the same time 1-1½ doz. mushrooms (previously trimmed, blanched, and stewed in butter and lemon juice). Let simmer gently for a few minutes, and dish up garnished with small onions "glazed."

Roast.—The trussing of a hare for roasting requires great attention. It is of the last importance that the ears and tail be carefully skinned, and that the ears be propped up with a skewer to keep them in an erect position. In casing a hare it is always well to preserve the blood, as this is an useful adjunct by no means to be thrown recklessly away. When the hare is properly trussed, prepare a stuffing as follows: Take the crumb of a penny loaf rubbed fine, ¼ lb. chopped beef suet, a little fresh butter, some parsley, sweet herbs, and a rather liberal proportion of lemon peel chopped fine. Season with pepper, salt, and a little powdered nutmeg. Remove the gall carefully from the liver, chop the liver very fine, and mix it together with the other ingredients of the stuffing, adding at the same time the yolks of 2 eggs and a glass of red wine. Fill the cavity with the stuffing, and sew or skewer it up. Then put the hare to roast before a sharp fire for about an hour—according to size—and baste it thoroughly well with butter, or, still better, put 1 qt. milk and ½ lb. butter into the dripping-pan, and baste constantly. When done the hare must be finally basted with butter, sprinkled with salt, and dredged with flour till it froths. Then serve it in a hot dish with gravy under, and gravy and red currant jelly served separately. Leverets may be roasted in the same way, but will not require more than 35-40 minutes' cooking. Both hares and leverets may be larded previously to roasting, on the back and thighs, and when one is so unlucky as to have a full-grown hare to roast, this process of larding should never be omitted. When it is desired to get two dishes, an *entrée* and a roast, out of a hare, the animal should be cut in two, the hindquarters larded, stuffed, and roasted as above, and the forequarters cut in pieces, stewed with a pint of

water, a gill of red wine, an onion stuck with cloves, a fagot of sweet herbs, a blade of mace, and a little pepper. When the hare is done take it out, then put a large lump of butter into a stewpan, melt it, put in a spoonful of flour, stir till it is smooth, and then by degrees pour in the strained gravy. Stir it well, put in the hare and a little ketchup, season with pepper and salt, give it a shake, serve hot, and garnish with lemon.

Salmis.—When the hare is trussed, fasten slices of fat bacon over the back, and lightly roast it, basting constantly to prevent its getting dry. Let the hare get cold, then divide the meat into neat pieces, using all the bones and trimmings to make gravy. Put these on to boil, with 1 lb. gravy meat cut small and fried, 4 onions fried, a carrot, a turnip, a slice of lean ham, a lump of sugar, and a small teaspoonful of salt and of black pepper, add 2 qt. water, and boil gently for 3 hours; then strain, cool, and take off all fat. This done, put the gravy into a stewpan, and boil it without the lid until it is reduced to a pint, and is very rich and thick, then stir in the juice of a lemon, and a gill of claret. Put the hare into the gravy, and let it stand for an hour, taking care it does not boil or even simmer.

Shape.—The remains of jugged hare may be used much in the same way as the veal. Remove the meat from the bones and pound it. Warm the gravy, adding a large glass of port, a tablespoonful of red jelly, and ½ oz. Nelson's gelatine, making about 1¼ pints. Take a quart mould, ornament with small forcemeat balls, stir the strained gravy into the pounded meat, and, when nearly cold, pour on the balls. When set, turn out and ornament with rings of lemon and parsley, putting (last thing) a few dabs of

jelly on the top.

Larks (Mauviettes).—The following recipes for cooking larks are mainly from the pen of A. G. F. Eliot-James:—

Broiled.—Chop some parsley very fine, mixing it with butter, pepper, and salt. Stuff the birds with this, tie them at both ends, and broil on a gridiron over a clear fire or gas. Serve on slices of fried bread on a very hot dish, and send melted butter to table with them.

Croustade.—A favourite *entrée*. The birds are prepared by being boned and stuffed (q.v.), after which they are baked in a croustade of fried bread, with a rich sauce.

In Cases.—Bone the larks skilfully, put the livers on one side, and set the bones and trimmings to boil in some good stock, broth, or even water, with carrots, onions, parsley, pepper, salt, a few cloves, a bay leaf, and a few pieces of ham or bacon. When well reduced, train this gravy, and put it by. Cut up the larks' livers, as also some fowls' livers, or some calf's liver, all in small dice; do the same with half their quantity of bacon. Fry a few shallots a light yellow in plenty of butter, then put in the liver and bacon, with minced parsley, pepper, and salt, and a little powdered spices. Toss the whole on the fire for a few minutes, then turn out on a sieve, and pass them through while hot. Have some paper cases ready oiled, put a layer of this *farce* in each, then a moderate-sized piece in each lark, roll up the birds neatly, and place one in each case, with a thin slice of fat bacon over it. Bake them in the oven not longer than 10-15 minutes. At the time of serving, thicken the gravy by mixing a little flour with some butter, and then adding the gravy to it. Fill the cases

with gravy, and stew a little finely-minced parsley over each. The pieces of bacon may be removed or not before serving.

Pie.—Pluck, singe, draw, and truss 1 doz. larks, save the trails, chop them fine, mixing with them some scraped bacon, 6 mushrooms, some sage, parsley, and sweet herbs, all finely chopped, with pepper, salt, nutmeg, and mace. Mix all thoroughly well together, divide into 12 portions, and stuff the birds with it. Spread over the bottom of a pie dish fat bacon pounded to a paste, with a seasoning of pepper, salt, and sweet herbs, with a little mace and nutmeg. Put in the larks, sprinkling some more seasoning over them. Fill up any hollows with scraped or pounded bacon; lay some thin slices of fresh butter, and then over them some very thin slices of fat bacon. Have ready some rich pastry, of which form the top crust; egg it over and bake. When ready, lift the crust, remove the bacon, and pour in some rich gravy; replace the crust, heat up again, and serve.

Potted.—An excellent breakfast dish. The birds must be very carefully picked, singed, and drawn, dried well, and seasoned inside and out with pepper, salt, and mace, then put into a stone jar with plenty of butter, tied down, and baked in a moderate oven. When quite cooked, the gravy should all be drained off, and the larks put into potting jars. Have clarified butter poured over them, be closely tied down, and kept in a dry place.

Roast.—The most usual method of dressing larks is, of course, by roasting. For plain roasting, they are simply plucked, singed, drawn, and trussed, have thin slices of bacon pinned over their breasts, and are set down before a brisk fire, being basted the whole

time. The last 5 minutes or so the bacon is removed, and bread crumbs sprinkled over them until they are well covered. They are, of course, tied to the spit or else strung on a wooden skewer. The best way is to put each bird on a separate skewer, as they then get more thoroughly basted than when several are close together on one stick. They should be served on a layer of well-fried breadcrumbs, and the dish prettily garnished. Some people omit the breadcrumbs while roasting. The bacon should in that case be left on until quite the last thing, and the breast just frothed up with a little flour before serving. Either butter or bacon fat can be used for basting; if the latter, substitute butter for it for the last five minutes.

Stew.—(*a*) Pluck, singe, and truss 1 doz. fine larks; peel a large onion, stick 6 cloves into it, and put it into a stewpan with some melted fat bacon, toss it about a little, remove the onion, add some fresh mushrooms finely chopped, and some truffles; put in the larks, and toss all the ingredients together over the fire for a short time. Pour in some well made veal gravy and stew over the fire until the larks are quite tender. Chop a spoonful of parsley very fine, beat up the yoke of an egg in ¼ pint cream, and add to it by degrees the parsley; put this into the stewpan with the larks, stir it together, and then allow to stand; remove all fat, and squeeze in some lemon juice just before serving.

(*b*) (À la Florence).—Pluck, singe, and trim 8 larks; prepare a forcemeat of chopped mushrooms and parsley, grated ham and breadcrumbs, pepper and salt to taste—the mushrooms should predominate over the other ingredients; mix with butter. Place the larks in a stewpan, cover with rich veal stock, adding salt and pepper to taste, and a little colouring. Stew

very gently for about ¾ hour. Have ready in a basin the following sauce: The yoke of an egg beaten up in a small glass of sherry, with the juice of half a lemon and a little cayenne, thicken with arrowroot or flour; rub some mashed potatoes through a sieve, make a wall of them round a rather deep dish, hold a salamander over for a few moments just to colour them, set the larks in the centre, place the dish in the oven to keep hot while you strain the stock, to which add the sauce, and stir over the fire in a lined saucepan until nearly boiling; then pour over the larks, garnish the dish with slices of lemon, and serve as hot as possible.

Stuffed. Baked.—Take 8-10 fine larks, pluck, singe, and draw them. Prepare the following stuffing: Mince very fine the white meat of a chicken, also a slice of boiled ham and a slice of raw bacon, chop some sage leaves, and mix all these ingredients together, with a little pepper and salt and some finely pounded mace. Divide this forcemeat into two parts, stuff the birds with one, and reserve the other to use in the following manner: Cut as many slices of bacon as there are birds, spreading over each slice some of the forcemeat; then place a lark on each slice of bacon and wrap it up in it. Lay them side by side in a baking-pan, put a cover over it, and bake in a moderate oven. When the larks are done, dish them on a very hot dish, pouring over them some rich veal gravy with a little lemon juice squeezed into it. Garnish with slices of lemon and serve.

Vol-au-vent.—For this dish the birds are boned and stuffed as if for serving in paper cases. They are then sent to table in a vol-au-vent case, with a rich white game sauce and mushrooms or truffles.

Ortolans. Fried.—Truss as for roasting; dip each

bird in the yolk of eggs well beaten, and then sprinkle over thickly with breadcrumbs, fry in boiling lard, or butter, or oil. Serve on fried breadcrumbs mixed with a savoury powder made of mushrooms or truffles. The bread for the crumbs should have been soaked in lemon-juice and port wine.

In cases.—The birds for this dish are baked in paper cases. First pick, singe, and bone them, cut ¼ lb. bacon into small pieces, and put it in a sautépan with 2 shallots, 2 bay leaves, some parsley, thyme, and marjoram, 1 doz. whole peppercorns, and salt, fry until brown; then add ½ lb. calf's liver, cut in pieces, cook this till brown; then turn the contents of the pan into a mortar and pound them, rub through a sieve, place back in the mortar and repound, adding the yolks of 3 hard-boiled eggs, when thoroughly mixed add 6 truffles chopped fine. Stuff the ortolans with this mixture, and place each bird in a well-oiled paper case, brush over with oil, and put into a quick oven. Make a rich sauce of the bones of the birds, half a pint of good gravy stock, and a glass of port wine, reduce to about a gill, and when the birds are ready to serve, pour a spoonful of this sauce over each, sending to table as hot as possible.

Roast.—Let the birds hang till quite tender, then pluck and singe, but do not draw, truss as you would quail, wiping them carefully all over first of all. Wrap each bird in a young, freshly-gathered vine leaf, and tie them on a bird spit, put down at a moderate distance from a brisk fire, and roast, according to size, 20-25 minutes. Place under the birds, in the dripping-pan, slices of toast to catch the trail, baste incessantly with butter during the time they are roasting, dish up on the toast, and serve on a very

hot dish. Some people sprinkle the birds over with fine breadcrumbs just before serving, and serve on breadcrumbs, made from bread soaked in lemon-juice and port wine, instead of toast. Send to table with them a well-made orange or lemon gravy, prepared thus: Simmer in some good stock, about ½ pint, 4 or 5 strips orange or lemon peel (whichever flavour is preferred), a few basil leaves, the juice of the lemon or orange, salt and pepper to taste, and a glass of port wine; allow all these ingredients to simmer 15 minutes, strain, heat again, and serve as hot as possible in a sauce tureen with a cover. Bacon should never be wrapped round ortolans; it destroys their delicate flavour.

Stewed à la Provençale.—Cut off the feet and heads of the birds, provide the same number of large truffles as there are ortolans; cut a hole in each truffle and fill it with French forcemeat. Season the birds well, and lay them on their backs on the truffles. Set them in a deep stewpan, and cover with slices of bacon—in this method of cooking, bacon is admissible—and about ½ pint stock (veal) and ½ pint port wine. Stew for 20 minutes, or a trifle longer, closely covered. Take out the truffles and ortolans, strain the sauce through a hair sieve, and when cool remove every particle of fat; reduce it by gentle reboiling to about one half the quantity, then add ½ pint brown Spanish sauce; reduce again, and resoak toast in this sauce and arrange the truffles and ortolans on it, piling them up in the dish. Ortolans can be dressed in any of the ways suitable for other small birds, such as quails, larks, and wheat-ears, but, being so expensive, few people are disposed to other than cook them plainly without trying any experiments which may or may not answer. (E. J.)

Partridges (Perdrix, perdreaux).—Partridges are excellent in pies and puddings, or *en salmis*, made as directed for grouse, and any fragments left over are well disposed of in *croustades* and in little paper cases, while the carcases are invaluable for making stock.

Boiled.—(*a*) Take 2 partridges (not at all high), truss them as fowls are trussed for boiling, and put them into a panful of boiling water, salted to taste; let them boil slowly 15-20 minutes. Then serve on a bed of either celery, mushroom, onion, or tomato sauce.

(*b*) Put them in plenty of boiling water, boil them for 15 minutes, and serve with celery sauce made thus: Take the white part of 6 heads of celery, wash, pare, and cut it into pieces about 1 in. long; boil these in plenty of water until tender, and strain. Meanwhile, take 1 gill white gravy, ½ pint cream, and a little butter rolled in flour. Boil it up till it is thick and smooth, add a little grated nutmeg, put in the celery with a little salt, and give the whole a boil up. Stir in (off the fire) the yolks of 2 eggs beaten up with the juice of a lemon, pour some of the sauce over the birds, and serve the remainder in boats. It is perhaps an improvement to boil the celery in stock instead of water.

Braised.—(*a*) Truss 2 birds as for boiling, and lard their breasts very finely with fat bacon, put them into a small braising pan over 2 slices bacon, add 2 small onions stuck with 6 cloves, 2 carrots cut in pieces, a bundle of sweet herbs, pepper and salt to taste, a cupful of stock, and one of white wine; place a buttered paper over all, and braise them gently for 2 hours, keeping a few hot embers on the lid of the pan. Serve with their own liquor, strained, and well

freed from fat.

(*b*) Aux choux.—To make this, truss a brace of partridges as fowls are trussed for boiling, mince about a ¼ lb. fat bacon, put it into a saucepan on the fire, and when it is quite hot put in the birds, and toss them in this till well coloured all over; meanwhile blanch a small cabbage or a savoy in salted water, drain it, squeeze all the water from it, chop it up, and put it into the saucepan with the birds; add pepper and salt to taste, a bundle of sweet herbs, and 2 or 3 pork sausages, moisten with a little stock, and let the whole simmer for 2 hours. Remove the bundle of herbs, and serve with the cabbage and the sausages each cut in two, round the birds.

Broiled.—Take a young partridge, by no means high, split it down the back, flatten it with the cutlet bat, brush it over with liquefied butter or olive oil, sprinkle it with pepper and salt, and put it into a double gridiron; broil over a brisk fire, first on one side and then on the other, just long enough to set the flesh; serve over a lump of *maître d'hôtel* butter.

Pie.—Cut the breasts or fillets and the legs off 2 or 3 birds, sprinkle them with pepper and salt, and cook them in the oven, smothered in butter and covered with a buttered paper. Pound the carcases and make of them some good gravy, but do not thicken it. Take the livers of the birds with an equal quantity of calf's liver, mince both, and toss them in butter over the fire for a minute or two; then pound them in a mortar with an equal quantity of bacon, 2 shallots parboiled, with pepper, salt, powdered spice, and sweet herbs to taste. When this mixture is well pounded, pass it through a sieve. Put a layer of this forcemeat into a pie dish, arrange the pieces of partridge on it, filling up the interstices with the

forcemeat. Then pour in as much gravy as is required, put on the cover of either puff or short paste, and bake for about an hour. When done, a little more gravy, boiling hot, may be introduced through a hole in the centre of the crust. If liked, the breasts of the birds may be larded with fat bacon, and truffles and mushrooms added, especially if to be eaten cold; also a little melted aspic or calves'-foot jelly may be added with the gravy. (The G. C.)

Pudding.—Skin a brace of birds, cut them up into comely pieces, and put them, with a few mushrooms, into a basin lined with suet paste, add 2 shallots and some minced parsley, season with pepper and salt, put in a very little stock or water, cover up the pudding, tie it up in a cloth, and boil it for about 3 hours.

Roast.—(*a*) Pick, draw, singe, and truss, placing a slice of bacon over the breast of each bird. Roast at a moderately brisk fire, removing the bacon a few minutes before the birds are done. Serve with plain gravy and bread sauce in boats. (*b*) Carefully drawn, singed, and trussed, the partridges should, with a piece of butter in the inside, be put down to a brisk fire, well basted with butter and dredged with flour to froth up well. Like grouse, they should be roasted quickly, and if in proper condition—that is to say, tender—not "high," must not be overdone, or they will be frightfully dry. About 20 minutes, or a little less, if the birds are young, will suffice. Partridges should be served on a toast with gravy, fried crumbs and bread sauce, and may be garnished with watercress or lemon.

Salad.—Trim all pieces carefully, and remove the skin from them; beat up in a basin 3 parts olive oil and 1 of tarragon vinegar, with pepper and salt to

taste, and some finely minced tarragon, chervil, or garden cress; dip the pieces of partridge in this, arrange them on a dish with some lettuce or endive dressed in the same sauce, and ornament the dish with hard-boiled eggs, pickled gherkins, anchovies (thoroughly washed), capers, &c. Mayonnaise sauce may be used instead of this plain dressing; and, if there is enough of the pieces of breast, they may be inclosed in a border of aspic jelly, and the salad put in the centre with the other pieces.

Pheasant (Faisan).—The hen pheasant is esteemed the better bird. Great caution must be exercised in "hanging" the pheasant just long enough to become tender and develop its fine aroma without getting too high. Pheasants are trussed in the same manner as partridges, and it is no longer customary to serve them with the tail feathers. A slice of fat bacon is fastened over the breast, and is removed towards the close of roasting to allow the bird to take colour. Pheasants are also often larded, and roasted with a piece of paper over the breast. The fire should be clear, but not too fierce, as the white flesh of the pheasant requires somewhat slower cooking than the brown meat of the grouse and partridge. About 40 minutes will generally be found sufficient to roast a pheasant, which should be thoroughly done, as nothing is more detestable than white meat in the slightest degree undercooked.

Roast.—Pick, draw, singe, and truss, placing 2 shallots and 1 oz. butter inside the bird. Lard the breast very finely, tie a thin slice of bacon over the larding, and roast the bird at a moderate fire, basting it frequently with butter. A few minutes before the bird is done remove the slice of bacon so as to let the larding take colour. Serve with plain gravy, fried

breadcrumbs, and bread sauce. Time, about 30 minutes.

With Truffles.—Bone a pheasant, stuff it with some sliced truffles, place some thin slices of fat bacon in a casserole, skin the bird, and place over it some more bacon, covering it thoroughly; add a little veal gravy, seasoned with pepper and salt. Cover close and simmer until done, taking care it does not burn. This is served cold, garnished with clear jelly, 2 or 3 hard-boiled eggs cut into shapes, and sliced gherkins.

Pigeon and Beefsteak Pie.—Take 2 pigeons and ¾ lb. rump steak, quarter the pigeons and slice the steak very thin, put on each slice of steak a small piece of fat bacon, season it with pepper, and roll it up. Season the pigeon with pepper, salt, and powdered spices, and put a piece of butter on to each piece, then arrange the pigeons, and the rolls of steak in a pie dish with a few hard boiled yolks of eggs; pour in a small quantity of meat or calves'-foot jelly, just made liquid, cover over the pie, and bake for about 1 hour in a well heated oven.

Plover (Pluvier, Vanneau). Fillets.—Take 3 plovers, and out of the breast of each skilfully cut 2 fillets, lay them in a buttered tin, sprinkle them with pepper and salt, and cover them with a buttered paper. Cut up the carcases, and put them in a saucepan with a piece of bacon and a little butter, an onion, and a carrot, sliced; toss them on the fire for 5 minutes, moisten with stock, add any mushroom trimmings, and let the sauce simmer for 2 hours; strain off the liquor, and, having carefully removed all fat, thicken it with a little butter rolled in flour, adding at the time of serving a few drops of lemon juice. Put the tin containing the fillets in the oven for a short time just to set them; then turn them into the sauce, and

keep them quite hot until the time of serving; arrange a neat border of sippets, fried in butter, round a dish, dispose the fillets in the centre, and pour the sauce over.

Roast.—Pluck, singe, and remove the gizzard, but nothing else. Tie a thin slice of bacon over each bird; put them to roast at a brisk fire over slices of toasted or fried bread laid in the dripping-pan, one for each bird; baste well with butter; remove the bacon just before serving, and sprinkle the birds with salt. When done lay them on the toast, serve with plain white sauce in a boat, and garnish with cut lemon.

Toast.—See Snipe.

Quail (Caille).—Quail as seen in England, has generally been subjected to a process of artificial fattening, but the wild birds of the south—at least those taken in autumn—have some advantage in flavour over their semi-civilised compeers. The modes of dressing them are almost endless, but when simply roasted they are delicious. To roast quails, pluck, draw, singe, and truss them; then cover the breast of each bird with a vine leaf, and over that place a thin sheet of fat bacon; tie this on with thread, and put the quails on a long skewer, attach it to the spit, roast for 10-15 minutes before a clear fire, and serve (if preferred) on toast. The excessively delicate and ethereal aroma of the quail renders the addition of sauce not only unnecessary but injudicious.

In Cases.—Bone some quails, and divide each one in two; put the livers on one side, and set the bones and trimmings to boil in some good stock, broth, or even water, with carrots, onions, parsley, pepper, salt, a few cloves, a bay leaf, and a few pieces of ham or bacon. When well reduced, strain this gravy and

put it by. Cut up the quails' livers, as also some fowls' livers, or some calves' liver, all in small dice; do the same with half their quantity of bacon. Fry a few shallots a bright yellow in plenty of butter, then put in the liver and bacon with minced parsley, pepper, and salt, and a little powdered spices. Toss the whole on the fire for a few minutes, then turn out on a sieve and pass the mixture through while hot. Have some paper cases ready oiled, put a layer of this "farce" into each, then a moderate-sized piece into each half quail; roll it up neatly, and place in its case with a thin slice of fat bacon over it. Bake them in the oven not longer than 10-15 minutes. At the time of serving thicken the gravy mentioned above by mixing a little flour with some butter, and then adding the gravy to it. Fill with gravy, and strew a little finely-minced parsley over each case. The pieces of bacon may be removed or not at pleasure before serving.

Roast.—Pluck, draw, singe, and truss them; then cover the breast with a vine leaf (if obtainable), and over that place a thin sheet of fat bacon; tie this on with thread, and put the quails on a long skewer, attach it to the spit; roast for about 10 minutes before a clear fire, and serve (if preferred) on toast.

Rabbits (Lapereaux).—In selecting rabbits for the table, the housekeeper should know that small claws and teeth denote youth, and that when the claws are long, thick, and curved, protruding far beyond the fur, the animal is generally more than 4 years old, and, of course, on this account less desirable than his offspring. The Belgian hare-rabbits are considered the best of all as food; and, whatever the preference of the consumer may be, it should never be forgotten that wild rabbits, if not usually so plump, are as a

rule more gamey in their flavour, and are said to be far less subject to diseases of all kinds than the tame, bred and pampered as these are upon a more or less artificial diet. A wild rabbit, carefully roasted and served with all the accessories which are given to a roasted hare, becomes a very fair imitation of this latter dainty; and if it will not actually "jug," it makes a most excellent curry, whilst the liver, properly fried, is a very toothsome little mouthful indeed.

Baked.—Open a 2 lb. tin of rabbit round the side (all tins should be opened in this way if the meat is required to be turned out without breaking); place the tin in boiling water to melt the jelly; pour the liquid into a saucepan, and add half a teacupful of gravy, which should be seasoned, but not thickened. Grate 3 oz. breadcrumbs; add a dessert spoonful of marjoram, a teaspoonful of thyme, a teaspoonful of chopped parsley, and ½ lb. minced ham or bacon. Mix together, and season with pepper and salt; put a thin layer of this mixture at the bottom of a pie dish well buttered, then a layer of rabbit and a layer of seasoning alternately until the dish is full. Pour the gravy over all and cover with a dish, and bake 15 minutes.

Boiled.—Truss the rabbits, and put them in cold water for 2 hours, changing the water 2 or 3 times. Put them into boiling water with a lump of stale crumb of bread, and boil them for 40-45 minutes. Have ready abundance of onion sauce made thus: take 2 doz. large, or 3 doz. small silver onions, peel them, take off the first coat, split them and throw them into cold water, and boil them till they are tender, changing the water twice, then squeeze and rub them through a colander. Put into a stewpan ½

lb. butter, or ¼ lb. butter and 1 gill cream, dredge in carefully a little flour and a little salt, throw in the onions, and shake them up gently till the mixture is smooth; keep stirring all the time.

Having the rabbits piping hot, smother them in the onion sauce, and garnish with lemon and sippets. An excellent sauce for boiled rabbit may also be made by boiling and pounding the liver. Add to this some good veal stock, or broth from the rabbit, season with mace and allspice, boil up and strain; then roll a piece of butter in flour, throw it into a stewpan, and before it colours pour in the previous mixture and add a little minced and blanched parsley.

Curried.—Place ¼ lb. butter into a stewpan on the fire, slice into it a good-sized onion or 2 small ones, and fry till they become a golden brown (being very careful not to let them burn); add one tablespoonful of curry powder, mix and fry lightly; then put the rabbit (which ought to be previously cooked and cut in pieces) in the pan; keep stirring a few minutes; throw in gently a little salt, and add slowly a teacupful of milk; stir it all well together on the fire, keeping it covered for ¼ hour, and, when it looks thick, squeeze the juice of a lemon into it. If it appears too rich, skim the butter off, and add a little more milk.

Cutlets.—Soak the rabbits all night, and pour boiling water over them before cooking. Cut cutlets out of the back and hindlegs. Roll these in egg and breadcrumbs, and serve with potatoes cut thin and fried in butter.

Fricassée.—Fry 2 onions cut in slices to a nice brown, and lay them at the bottom of a stewpan. Open a 2 lb. tin of rabbit, and set it in a saucepan of boiling water. Keep the tin in the water long enough

to melt the jelly from the pieces of rabbit; pour the melted jelly among the fried onion, add ½ teacupful gravy, and simmer while the rabbit is being fried; thicken the gravy slightly, and slide the rabbit out gently on a plate. Egg, breadcrumb, and quickly fry each piece brown, or roll each piece well in flour and fry. Put the pieces carefully into the gravy and onion, leave them 5 minutes near the fire to imbibe the gravy and get thoroughly hot; toast some thin slices of bacon in a Dutch oven, put them round a hot dish, and place the rabbit in the centre. The stew must not simmer after the pieces of the rabbit are put in, else they will break from the bone. The difficulty lies in keeping the pieces of rabbit whole, as they are too much cooked in the tins, and when heated again they often present a jumbled appearance of strips of flesh and bleached-looking bones.

Pie.—Skin 2 rabbits, wash them thoroughly, and cut them into small joints. Have ready some lean bacon and 1 lb. rump or beef steak. Cut both in small pieces, and place them all on a large dish or a chopping board, sprinkle them well with salt, pepper, chopped parsley, and thyme. Mix all well together, put them in a pie dish, adding forcemeat balls or the yolks of hard-boiled eggs. Fill the dish with water, cover the whole with a light paste. Beat up an egg with a pinch of salt, glaze the pie with it, and bake in the oven for 2 hours.

Stewed.—Cut a rabbit in pieces, wash it in cold water, a little salted. Prepare in a stewpan some flour, and clarified dripping or butter; stir it up until it browns. Then put in the pieces of rabbit, and keep stirring and turning, until they are tinged with a little colour; then add 6 onions, peeled, but not cut up. Serve all together in a deep dish.

With Onion Sauce.—Place a tin of rabbit, when opened, in boiling water until the rabbit is thoroughly heated; pour off the liquid, and put a few pieces of butter on the top of the rabbit while in the tin. When the liquid butter has permeated all the rabbit, slide it out on a hot dish carefully, so as not to break the pieces, and cover it with good onion sauce. Serve with a piece of boiled bacon or streaky pork.

Rook Pie.—(*a*) Soak the rooks in salt and water (having previously removed the backs and giblets) to draw out the bitterness, and then proceed as if making a pigeon pie. (A. O. H.)

(*b*) Skin and draw the rooks (6 will make a large pie), cut out the backbones, taking great care not to break the gall. Put these aside, as they are not used. Season the other parts well with pepper and salt, lay them in a deep pie dish, and pour over them ½ pint water, and a piece of butter the size of a walnut. Cover with a good light crust, and lay over that again a sheet of buttered paper, as the pie will take 2½-3 hours baking. (Bessie Tremaine.)

Snipe (Bécassine).—Bisque. Take 6 nice plump snipes, cut the meat from the breasts, simmer half of them lightly in fresh butter, with a little salt, to be afterwards cut into scallops; make the rest into a forcemeat for quenelles to be served in the soup. Take out the larger bones from the carcases, roughly chopping the latter; put them all into a stewpan with a little butter, a sprig of thyme, a bayleaf, a little nutmeg, 3 shallots, and a pinch of pepper; fry them brown on a brisk fire, and add ½ a pottle mushrooms, chopped, and about a bottle of Sauterne wine; to this add ½ lb. rice which has been boiled in broth, 1 qt. white stock, letting it boil gently for 1

hour. Then drain this through a sieve into a basin, in which allow the liquor to remain, pounding the rest thoroughly in a mortar; replace this in the stewpan with the broth they were boiled in, stir it over the fire for a short time, and rub it through a tammy to remain till wanted. Let it remain in a cool place. Just before it is wanted for table, cut the fillets reserved from the breasts into small scallops, and make the forcemeat up into small quenelles or balls; put these into the soup tureen, and pour the bisque over them quite hot, but not boiling. Sippets of fried bread should be handed round with this soup; they should be cut round, and a small incision cut on one side of each before frying, so as to be easily able to take out a small piece from the centre, on which to place a little of the trail. This must be prepared by putting it into a stewpan with a small piece of butter, a little pepper and salt, and a spoonful or two of good brown sauce. They must be fried lightly, and then rubbed through a hair sieve with a wooden spoon. Fill the croutons with this, warm them for a minute or two in the oven, and serve them in a plate.

Fried.—Split them down the back, trussing like a spatchcock; put the trails and livers carefully aside. Heat a frying pan, put in sufficient lard to half fill it. When boiling, add a little salt; then fry the birds 10 minutes; place on a napkin in front of fire to drain and keep hot; pour off all the clear lard; throw a cupful of sifted breadcrumbs, with the trails and livers, into the gravy that remains in the pan; fry of a golden colour; serve up round the snipe: a dash of cayenne added to the crumbs is sometimes liked. All wildfowl cooked in this way are excellent, the larger birds being cut into joints.

Pie.—Take 6 couple of snipe, cut the birds into

quarters, make a rich forcemeat of some cold ham, tongue, veal, or chicken, seasoning with a little sweet herbs, pepper, salt, cayenne, some breadcrumbs, mushrooms minced fine, mix all together with the yolks of 2 beaten eggs; place a layer of snipe breast downwards, either in the dish, or a raised crust—the latter is preferable—then forcemeat, then birds, then forcemeat, and so on; fill in with some rich gravy, and bake. When done raise the cover and fill up with gravy; next day place in ice, and serve cold. Drink Chablis or White Hermitage with this dish.

Roast.—Trim, but do not draw the birds, wrap each in a thin slice of fat bacon, and roast about 10-15 minutes at a brisk fire. Baste frequently with butter, keeping a piece of toast in the dripping pan. Serve on the toast.

Toast.—Half roast some snipe, plover, or woodcock, first removing the trails. When cold pound the meat, season with pepper, salt, and a little finely grated lemon peel, make into a mass with the beaten yolk of an egg; meanwhile place the bones and trimmings in a stewpan with a little brown stock, a glass of port wine, a little minced shallot, pepper and salt, let it simmer until the gravy is drawn; bruise the trails, add them with a little butter and flour to the gravy, bring to the boil, and strain, adding when ready a squeeze of lemon. Toast nicely on each side some thin slices bread, butter the toast and cut into shapes, spread the pounded snipe on these, place in a Dutch oven to warm, and when lightly brown serve in a hot dish, pouring the gravy over all.

Turkey (Dinde). Blanched.—Cut the meat into small pieces free from the bone; season with pepper, salt, and grated nutmeg; put this into a saucepan

with sufficient white sauce to moisten it; let it simmer very gently for 5 minutes; turn it out on a hot dish, and serve with tiny fried pieces of bacon all round it. To make the white sauce, put ¼ pint milk into a saucepan, and simmer, with a strip of lemon rind in it for 5 minutes; mix a dessertspoonful of cornflour in a little cold milk, and thicken the sauce with it; stir the sauce gently over the fire for one minute; take out the lemon rind, and stir in ½ oz. butter after the sauce has cooled for a minute; then heat the turkey in it.

Boiled.—Wash the turkey in tepid water, and rub it all over with lemon juice; then put it into a saucepan full of boiling water, with a large piece of butter, 2 onions, a head of celery, some sliced carrots, a bunch of parsley and sweet herbs, whole pepper, mace, cloves, and salt to taste. Let it boil slowly, and remove carefully any scum that may rise. Serve with celery sauce, or oyster sauce.

Braised.—Truss the turkey as for boiling; stuff it with truffle and chestnut stuffing. Line the bottom of a braising pan with slices of bacon; lay the turkey on these, and place more slices of bacon on the top of it. Put in 2 carrots and 2 onions cut in slices, and sweet herbs, parsley, bay leaf, a clove of garlic, and whole pepper, and salt to taste; moisten with some stock and a tumblerful of sherry. Lay a round of buttered paper on the top, put on the lid, and braise on a moderate fire for about four hours, then serve with the gravy strained and freed from excess of fat. *Truffle and Chestnut Stuffing.*—Remove the outer skin from a quantity of chestnuts, set them to boil in salted water with a handful of coriander seeds and 2 bay leaves. When nearly done, drain off the water, and remove the inner skin of the chestnuts. Mince 1 lb. fat bacon and 2 shallots, give them a turn on the fire in a saucepan, then put in 1 lb. of the chestnuts (boiled and peeled) and ½ lb. truffles, both cut up into moderate-sized pieces; add pepper, salt, and spices to taste, a little powdered thyme and marjoram; give the mixture another turn or two on the fire, and it is ready. A simple form of stuffing can be made by omitting the truffle. *Chestnut Stuffing.*—Boil the chestnuts as above. When cooked (they must be rather underdone), drain and remove the inner skin, sprinkle with pepper, salt, and spices, and stuff the turkey, inserting while so doing ½ lb. butter (or beef suet) cut into small pieces. An onion, chopped finely, may be added to the stuffing.

Devilled.—Take a cooked leg of turkey or large fowl, cut it all over to the bone, pepper and salt it well, using black pepper and cayenne, then get some mixed mustard, mix it with about a third its quantity of flour, and plaster the leg over with this mixture as

thick as it will stick, also stuffing the gashes with it. When this is done, put it on a gridiron on a clear fire, serve hot.

Galantine.—Take a turkey, bone and trim it. Take 1 lb. veal and ½ lb. fat bacon, pound them together in a mortar, season with powdered spice and sweet herbs, pepper and salt to taste, then pass the mixture through a wire sieve. Cut ½ lb. boiled tongue in pieces about 1 in. square, cut 6 truffles each into 3 or 4 pieces; lay the prepared turkey, skin downwards, on the table, sprinkle it with pepper, salt, and powdered spices; lay the pounded meat, the truffles, and the tongue on it, then roll it up neatly as a roly-poly pudding, and tie it up tightly in a cloth; put all the trimmings of the turkey into a saucepan large enough to hold the galantine; add a calf's foot cut in pieces, the trimmings of the bacon (mind they are perfectly sweet), 2 or 3 onions, 2 carrots cut in pieces, a clove of garlic, a bundle of sweet herbs (thyme, marjoram, parsley, and bay leaf), cloves, whole pepper, mace, and salt in proportions according to taste; fill up with such a quantity of cold water as will leave room for the galantine to be put in, set the saucepan on the fire, and boil for 2 hours, strain, and when the liquor boils put in the galantine, let it boil 2-2½ hours; then lift it out, put it on a plate, and when it has cooled a little take off the cloth, tie it up afresh, and lay it between 2 dishes with a moderate weight upon it, to remain till cold. Care must be taken in this last operation that the "seam" of the galantine be made to come undermost. When quite cold, glaze the galantine, and garnish it with aspic jelly. *Aspic Jelly.*—Pack into a stewpan 2 calves' feet, chopped in small pieces, a few slices of ham, and the carcase of a fowl, with 2 onions and 2 carrots cut into slices, a head of celery, 1 shallot, and

parsley, sweet herbs, spices, pepper, and salt to taste; fill up with the liquor in which the galantine was boiled or with any other common stock, and set the whole to simmer gently for 3-4 hours. Strain off the liquor into a basin, and when cold carefully remove all the fat. Then put the jelly into a saucepan, and add to it as much *suc colorant* as may be required to give it the proper colour. Put the saucepan on the fire, and when the jelly is melted whisk into it the whites of 2 eggs and a wineglassful of tarragon vinegar; let it come to boiling point, and strain it through a jelly bag. If not quite clear warm it again, and strain it a second time. *Glaze.*—Take a small quantity of the above jelly, freed from fat and strained, but not clarified; set it on the fire to reduce till it presents the appearance of treacle, and keep on skimming it all the time, then lay it on hot with a paste brush. *Boning.*—There are two ways of boning. Knives are sold for the purpose, but a sharp pocket-knife will do. Lay the bird on its breast, and cut through the skin along the middle of the back. Keep the knife always close to the bone, and cut away the flesh on either side, turning it back as you go. Cut through the joints of the leg and wing bones, and keep cutting till you have separated the breast-bone, when the whole of the body will come out intact. The legs and wings are rather more difficult, but the only thing is to cut very carefully, and on no account to pierce the skin, turning the skin and flesh inside out, like a stocking, as you go along. The legs should be cut off at the first joint, and the last bone of the wing is sometimes left in. When all the bones are out, fill the bird with tongue, stuffing, chestnuts, or whatever else you may have, remaking it, as far as may be, into the shape of an unboned bird. Some persons prefer to lay it flat and roll it round, tying it

with string. Another way is to make an incision at the back or the neck only, just as if the fowl were to be drawn, and to take all the bones out there, turning the skin back from the body, as directed above as for the limbs. The slits, whether intentional or accidental (and a beginner will probably have a few of these latter) should be sewn up with fine cotton.—(E. A. B.)

Grills.—For grilled fowl and turkey legs. Let them stand 10 minutes in boiling water, so as to get quite hot through, then well pepper them, and fry them in lard until they are nicely browned. (E. M. K.)

Patties.—A nice way of using up the small pieces of turkey. Mince some of the meat with grated lemon peel, nutmeg, a little salt, white pepper, cream and butter warmed, fill the patties, and bake as usual.

Roast.—Pluck, singe, draw, wipe thoroughly, and truss a fine turkey, stuff it with plain forcemeat, pack it up in some thin slices of fat bacon, and over that a sheet of buttered paper, roast before a clear fire, basting frequently with butter. ¼ hour before it is done, remove the paper and slices of bacon. Sprinkle with salt, just before serving. Garnish with pork sausages, and serve with a boat of gravy. Time of roasting 2-3 hours. *Forcemeat.*—(1) Take 1 part finely-shredded suet and 2 of breadcrumbs, season with pepper, salt, powered spices, sweet herbs, and finely minced parsley; mix all well together; then add as many eggs as will bind the ingredients together into a stiff paste. (2) Pound to a paste in a mortar, slightly rubbed with garlic, equal parts of veal and fat ham or bacon, then pass them through a wire sieve, and return them to the mortar. Work into the paste thus obtained ¼ its bulk of butter, and about the same quantity of breadcrumbs, soaked in milk or

in stock, with the yolks of one or more eggs, according to quantity. Add minced parsley and pepper, salt, spices, and powdered sweet herbs to taste. *Gravy.*—Mince an onion finely, fry it in butter to a dark brown, then add ¾ pint of good stock, pepper and salt to taste, a small piece of ham minced small, a sprig of thyme, one of parsley, and a little Worcester sauce. Let the whole boil 5-10 minutes put it by till wanted, then strain it into a sauce boat.

With Mushrooms.—Open a tin of turkey, set in boiling water to melt the jelly, pour the melted jelly into a saucepan, slightly thicken it with cornflour and sufficient mushroom ketchup to make it a good flavour, season it, and keep hot while the turkey is being freed from bone and minced. Open a small tin of mushrooms, and mince them with the meat; mix well in the gravy; keep the mince hot for 10 minutes, and then serve on rounds of toast for breakfast. The turkey can be simply sliced, and the mushrooms left whole, if preferred.

With Oysters.—Open a tin of oysters and mince them finely, saving the liquor, and mix well together with them 5 oz. grated breadcrumbs, 1 oz. fresh butter slightly melted, the rind of ½ lemon chopped small, 1 tablespoonful minced parsley, a pinch of cayenne, a small teaspoonful of salt, and ½ teaspoonful white pepper. Cut into neat pieces the contents of a tin of turkey, leaving the bones in; butter a pie-dish, and put alternate layers of turkey and oyster forcemeat. Put a teacupful of the oyster liquor into a saucepan, melt a large teaspoonful of butter in it, and thicken with cornflour. Pour over the turkey and oysters, and bake 15 minutes in a hot oven.

To use up a Turkey.—If roasted, stuff it with pork

sausage meat. Instead of paying 10*d.* per lb. for a mixture of pork, bread, and water, buy 1 lb. trimmings, and let the cook mince it herself. Roast turkey comes in cold several times in a small family. Sometimes the legs may be devilled. The meat should be carefully picked off the wing bones, back, &c. Let it be minced very finely, stewed in milk, a little pounded mace, salt, and thickening; then let it get cold, and make a top-and-bottom-crust pie of it. If economy be the order of the day, make the crust of "fleed" or "flick," in this way: Pull all the skin off, beat it well with a mallet or rolling-pin till about the consistency of lard, then, having made 1 lb. flour into paste with water, roll it out, and dot the "flick" over it; give it a good coat of flour; repeat this process till you have put in ¾ lb. of "flick;" bake in a quick oven. If for tarts, 1 lb. "flick" to 1 lb. flour. Now comes the most important part of all. Take all the bones that have not been on the plates, break up the back and breast bones, put them in a saucepan with 2 qt. water, a carrot, a turnip, a few peppercorns, a little bit of mace, lemon peel, a little bit of ham, &c.; let it boil hard all day till reduced to 1 qt., strain through muslin or fine flannel; put it into a clean saucepan, have ready nearly a breakfast cupful of batter, not too thick. While boiling hard pour in the batter with one hand, stir quickly with the other. Let it boil for a few minutes, strain through a sieve into the tureen. Excellent soup.

Venison (Venaison).—This is of 3 kinds. The fallow deer, the red deer, and the roebuck supply venison of very different qualities. In the opinion of most competent judges, English park-fed buck venison is the best and richest, and is followed in order of excellence by the red deer venisons of Scotland and Germany, slightly coarser in fibre, and less

abundantly supplied with fat. A great fuss is made on the Continent about the roe-deer or *chevreuil*, but this pretty little animal supplies rather poor venison—good as to flavour—but dry, and as a rule destitute of fat. A fat buck is usually divided into haunch, neck, shoulder, and breast. The haunch and neck are generally roasted, the shoulder and breast being reserved for pasties, stews, or chops. In buying venison for immediate cooking great caution should be observed, as if it has been hanging long enough to permit serious disintegration of the tissue, it will be uneatable. Its condition may be ascertained by running a skewer under the bone. If it smells sweet the meat is good. Venison may be hung 10-15 days, according to the weather, and should on no account be kept so long as to render overcooking necessary, as it is best cooked of all when, without being actually underdone, the meat still retains its gravy. While hanging—if possible in a clear draught of air—venison should be wiped and peppered occasionally, especially on the "cut" parts. The haunch, both on account of its size and the delicate quality of its fat, requires great care in cooking. It should be wiped, almost washed, rubbed over with butter, and sprinkled with salt. The next operation is to cover the haunch with a large sheet of buttered paper all over it, again covering with a sheet of common water paste about ½ in. thick. When the paste has been carefully applied and thoroughly joined, 3 sheets of buttered paper should be securely fastened with string over all. Placed then in a cradle-spit before a large fire, a fine haunch will take about 3-3½ hours roasting. It should be frequently basted. When done the paper and paste must be taken off, and the haunch salted, basted with butter, dredged with flour till it assumes a brown colour, and served on a hot-

water dish. The best sauce for venison is made with a little of the gravy, ½ lb. red currant jelly, 2 or 3 knobs of sugar, and 1 gill red wine simmered together till the jelly is melted. Jelly should also be served separately. Roast venison may be accompanied by French beans, white haricots, or perhaps, best of all, with stuffed tomatoes. The neck is dressed in the same manner as the haunch, pasted and papered, and requires in roasting about ¼ hour to 1 lb. Venison should be carved as quickly as possible on to silver or hot-water plates.

Collops.—Venison collops or minced collops are both excellent, and must be made from the uncooked meat as follows: Cut the meat into collops (small thin cutlets or *emincés*, or mince it if you wish "minced" collops), and season this with pepper, salt, and mixed spices. Throw some butter into a stewpan, put in the collops, brown them and then add equal quantities of good brown gravy and red wine. Add to this a little fine sugar, a dash of vinegar, and a spoonful of ketchup. Stew slowly till done. Then take out the collops, strain the sauce and serve quickly. These collops may be served within a wall of well cooked white haricots, garnished with baked tomatoes.

Roast Haunch.—(*a*) Trim the joint neatly, wipe it well with a cloth, rub it over with butter, and sprinkle it with salt; then wrap it up in a sheet of buttered kitchen paper Make a paste with flour and water, roll it out to the thickness of ½ in., wrap the joint in this, and close up all the openings carefully by wetting the edges of the sheet of paste; lastly, pack up the haunch into a final sheet of well-buttered paper; put it to roast at a good fire for about 3 hours, basting it occasionally; then remove the paste and paper coverings, baste the haunch

plentifully with butter, and when nearly done dredge some flour over it and some salt. Serve on a hot-water dish.

(*b*) As roe-deer is very dry, a haunch of it is much improved by being closely larded with fat bacon and then placed to marinade in equal parts of oil and red wine, with sliced carrots and onions and judicious flavourings of whole pepper, cloves, salt, chopped parsley, and sweet herbs. The joint may be left in this pickle for some days, and should be well basted with it. Then wrap the joint up in oiled or buttered paper, and baste it well while roasting before a clear fire. When nearly cooked remove the oiled paper to let the meat take colour, glaze the joint, and serve with rich gravy and with red currant jelly. Roe-deer also may be braised, in which case it should also be well larded. The neck may be jugged like hare, or it can be made into cutlets, haricot, &c.

Hashed.—Hashed venison is a very popular dish, and the modes of preparing it are many. The following is a good plan: Cut some cold haunch or neck of venison into thin slices, and put these aside. Put any of the venison gravy that may be left, the bones and trimmings, ½ pint red wine, and a little stock into a stewpan, with 4 shallots chopped very fine, 4 cloves, and 2 spoonfuls of ketchup. Let it simmer very slowly for 1½ hour, and strain it off. Put a piece of butter rolled in flour into a stewpan, add the gravy, pepper, and salt, and let it gradually advance to a boil; then take it off the fire, and when almost cold put in the venison; let it get quite hot through without boiling (or the meat may be hardened), and put it into a hot dish garnished with forcemeat balls or sippets. This method may also be very successfully applied to cold mutton. Red currant

jelly should be served with either dish.

Pasty.—Venison pasty may be made in 2 ways, either by stewing the venison first, and then putting it into a pie, or in the following fashion: Take the breast and shoulder of a buck, remove all the bones and every particle of skin and sinew, wash thoroughly, and cut the venison into handsome pieces, saving the fat to put at the top. Should the venison be short of fat, mutton fat may supply its place if it be laid in a marinade of vinegar and red wine for 12 hours. Next proceed to make the paste, by rubbing 2 lb. butter into ½ a peck flour, and mixing it into a paste with cold water till it is moderately stiff. Cover the edge and sides of a pasty dish, and lay in the venison closely, peppering and salting each piece, and put in 1 gill water. Cover the pie with a piece of paste ½ in. thick, leaving a hole at the top, and then take the remainder of the paste, roll it out, add to it ½ lb. butter in lumps, sprinkle some flour on it, double it and roll it out 4 times; then wet the paste which already covers the pie, and apply the second paste over it. Make a round place at the top, and put on a rose, or any ornament you may think of: put a sheet of paper over the top, and bake for 4 hours in a sharp oven. When it is done, lift up the rose, and pour in 1 pint venison gravy; shake it about and serve.

Stew.—(*a*) Shoulder and breast of venison are rarely roasted, it being far more artistic to stew them or put them into a pasty. To stew a breast or shoulder of venison the skin and bones should first be carefully removed and the meat rolled or skewered together: then put into a stewpan with 1 qt. water, ½ pint red wine, a bundle of sweet herbs, cloves and mace in a bag, and a little pepper and

salt, and stew very gently for about 3 hours. Then take out the meat, skim off the fat, take out the spice and herbs, throw in a piece of butter rolled in flour, and boil till it is thick and smooth; then season with a *soupçon* of cayenne pepper, put in the meat again, make it hot and serve in a hot dish with the sauce over. Currant jelly should be served with this very nice and inexpensive dish.

(*b*) Venison may also be cut into steaks or chops and broiled on a well anointed gridiron, but although very wholesome, it is not so toothsome in any way as when roasted or stewed. A neck of venison may also be divided into cutlets, which should be beaten with a cutlet bat, pared neatly and larded with finely-cut bacon. Next a stewpan is lined with bacon and bacon trimmings and minced vegetables, the cutlets are put in and covered with good stock. The liquid should be allowed to boil up and diminish to one-half. When the cutlets are done they may be taken out, and the sauce strengthened with a little port wine strained and poured over the cutlets, which may be served on a cushion of tomato sauce.

Wildfowl (Canard, Halbran). Grilled.—Take a tender fat young mallard or pintail, or a brace of widgeon, split down the back, after removing the head, neck, and wing bones, truss as for a spatchcock, carefully take out the breast bone, rub the inside with mushroom powder, chop up small the bones and trimmings, simmer slowly with the gizzard and liver for about ½ hour in a little good brown stock, add 1 teaspoonful made mustard, 2 large teaspoonfuls port wine, a little pepper and salt, and either some cayenne or else Chili vinegar; let it boil for a short time and strain. Grill the birds over a clear fire—a mallard or pintail will take about 20

minutes, widgeon 15 minutes—serve very hot, pour the boiling gravy over, first squeezing into it the juice of half a lemon.

Roast.—Wild duck should not be dressed too soon after being killed. In cold, dry weather it will be more tender and finer flavoured after keeping 7-8 days. Roast before a quick, clear fire, ardent enough to throw out a great heat. Let it remain without basting, for 5-6 minutes, to keep the gravy in, afterwards baste incessantly with plenty of butter. A few minutes before serving lightly dredge with flour, then baste and send to table brown and frothed. Wild duck, if overdone, loses its flavour; 20-25 minutes before the right kind of fire, will be sufficient. Serve on a very hot, dry dish. If dressed to perfection, the duck will give sufficient gravy. Send to table as hot as possible, with a cut lemon and sauce.

Salmis.—(*a*) Cut up any cold wildfowl, draw the gravy from the bones and trimmings by simmering in brown stock seasoned with minced shallot, pepper and salt; let it do slowly for ½ hour, then add 2 glasses port wine or claret, 1 teaspoonful Chili vinegar, 1 tablespoonful mushroom ketchup, and 1 of Worcester sauce, let it boil 10-15 minutes longer and then strain; pour the gravy over the cold bird in another stewpan, bring gently to the boil, add a little cayenne and lemon juice and serve very hot.

(*b*) Take any kind of wildfowl, half roast them, when cold cut into nice pieces, removing the skin; place the meat on one side. Then take the trimmings, head, neck, wings, bones, liver and gizzard, back, &c. Break all up small, place in a stewpan with some pepper and salt, a green chili, or if not procurable a little cayenne pepper, 2 shallots minced fine, and some good brown stock, simmer slowly for 1 hour,

then add 1 oz. butter, into which a little flour has been rubbed, let it thicken, then strain; put the game into another stewpan, pour over the gravy, adding ½ pint button mushrooms or a small tin of champignons, boil up slowly and serve very hot, with a few slices of lemon and fried sippets for garnish.

Woodcock. Roast.—Remove the gizzard from each bird, truss and wrap the birds in bacon, and roast them at a brisk fire, basting them continually with butter. Place a slice of toast in the dripping pan to catch the trail, and serve the birds on that toast. Plain white sauce to be served in a boat with them. Time of roasting 10-15 minutes.

Toast.—See Snipe.

Vegetables.—*Artichokes.*—Boiled.—Parboil the artichokes for 10 minutes in water, with vinegar or lemon juice and salt to taste. Take them out, cutting off all the leaves and removing the "choke," trim them neatly in the shape of diminutive pattypans. Lay them in a saucepan with plain white stock, and let them simmer gently till done. Drain them on a cloth. Arrange them on their dish, and pour over them some white sauce, made as follows: Mix in a saucepan 1½ oz. butter and 1 tablespoonful flour, stir in ½ tumblerful white stock or even hot water, add pepper and salt to taste, then stir in off the fire the yolks of 2 eggs, beaten up with the juice of a lemon and strained.

Fried.—Cut 2 green artichokes into 8 or more "quarters," according to the size of the artichoke, and trim off all that is uneatable from each, putting them as they are trimmed in cold water with the juice of a lemon squeezed into it to prevent their turning black. When the "quarters" are all done, dip

them in batter, see that each piece is well coated with it, and fry them in plenty of boiling lard; serve piled on a napkin and garnished with fried parsley.

Stewed.—Prepare the artichoke quarters as for fried. Boil them in salt and water, with a lemon squeezed into it, till nearly done. Melt 2 oz. butter in a saucepan, mix with it 1 tablespoonful flour, add as much water as will make sufficient sauce, then pepper, salt, and a little powdered nutmeg to taste; lay the artichokes in this, and when quite done stir in, off the fire, the yolks of 2 eggs strained and beaten up with the juice of a lemon.

Stuffed.—Fill each with as much of the following forcemeat as it will hold: Pound to a paste, in a mortar slightly rubbed with garlic, equal parts of raw veal and ham, then pass them through a wire sieve and return them to the mortar; work into the paste thus obtained a fourth of its bulk of butter, and about the same quantity of breadcrumbs soaked in milk, with the yolks of one or more eggs, according to quantity; add, according to taste, pepper, salt, and a little grated nutmeg. Lay them all in a well-buttered saucepan, pour round as much tomato sauce as may be necessary, and let them simmer gently on a slow fire till done; or they may be cooked in a baking dish in the oven, in which case a buttered paper should be laid over them.

Asparagus.—Boiled.—Scrape each head with the back of a knife and tie the asparagus in small bundles of 1 doz. heads each; cut off the ends evenly. Put them into a panful of fast-boiling water, with plenty of salt, and in about 10 minutes they will be done. Drain at once, untie the bundles, and serve on a napkin with the following sauce in a boat: 3 parts olive oil, 1 of tarragon vinegar, a little mustard,

plenty of pepper and salt to taste, beaten up with a fork until perfectly amalgamated.

Beetroot.—Baked.—Wash, but be careful not to cut them; put them into a very slack oven for about 8 hours. When cold peel them and dress them as follows: Chop ½ onion finely, put it into a saucepan with a piece of butter. When it begins to take colour, add the beetroot, cut up into large dice, pepper and salt to taste, and 2 or 3 tablespoonfuls tarragon vinegar. When quite hot serve.

Boiled.—Wash the beetroot as for baked, and put it into fast-boiling salted water, to boil 1-2 hours, according to size, then dress as baked.

With Cream Sauce.—Boil the beetroot, and when cold peel and slice it; stew the slices until quite hot in some well-flavoured white stock well freed from grease; strain off the stock, and stir into it, off the fire, the yolk of an egg beaten up with a little milk or cream. Arrange the beetroot in a dish, pour the sauce over, and serve; or serve plainly, boiled with a cream sauce made without stock. If wanted cold, serve with a mayonnaise sauce, or with a little plain cream poured over, and with a seasoning of pepper and salt.

Broad Beans.—Boiled.—Shell very young and newly gathered beans as much as possible all of a size. Boil them in plenty of fast-boiling salted water, with a sprig or two of savoury. When quite done, which is to be ascertained by tasting one, drain them and serve with the following sauce, either in a sauce-boat, or poured over them. Mix 2 oz. butter in a saucepan with 1 tablespoonful flour, add 1 tumblerful boiling water, pepper and salt to taste, and plenty of minced parsley; stir well until the sauce boils.

Broccoli and Cauliflower.—Au Gratin.—Boil a cauliflower, previously well washed and trimmed, in plenty of water, with a due quantity of salt; be careful not to overboil it; about 10 minutes will do it. Try the stem with a thin iron skewer, and the moment it, is soft remove the saucepan from the fire, and put the cauliflower to drain on a hair sieve. When it is quite cold, cut it up neatly and carefully, place the roughest pieces flat on a well-buttered dish, so as to form a sort of foundation; sprinkle this with pepper and salt, a little nutmeg, and cover it well with grated Parmesan cheese, dispose the remaining and best pieces on the top, add more pepper, salt, and nutmeg, cover with grated Parmesan, add a few baked breadcrumbs, and pour over all a little liquefied butter; bake in a quick oven 15-20 minutes, and serve. Rubbing the dish with garlic is an improvement.

Dressed.—Trim and boil a nice firm cauliflower; it should not be over large, and should be boiled with care, that it may be tender without being broken. To secure this it should not boil too quickly, and there should be put into the water used either a little common or a little soda carbonate and 1 tablespoonful salt. When done, take up carefully on a sieve to drain, and keep warm while you make the following sauce: Put into a clean stewpan 3 oz. fresh butter; let it dissolve on the stove, but do not let it get so hot that it will oil. Now mix with it 1 dessertspoonful cornflour, and pour on it ¼ pint boiling water and a little cream and let it boil up. Now put into it 1 teaspoonful chopped parsley and ¼ teaspoonful chopped onion. Let these boil 1 minute; take from the fire and stir into the sauce the beaten yolks of 2 or 3 fresh eggs, 1 tablespoonful chili vinegar, and a little salt. Divide the cauliflower into

tufts, and arrange neatly on a dish. Pour the sauce over, put some sippets of toast round, and serve.

With White Sauce.—Pick out all the green leaves from a couple of broccoli, and cut off the stalks close. Put them head downwards into a saucepan full of boiling salted water. When done pick them out into sprigs and arrange them head downwards in a pudding basin, which must have been made quite hot. Press them in gently, then turn them out dexterously on a dish, and pour over them the following sauce, boiling hot: Melt 1½ oz. butter in a saucepan, mix with it 1 tablespoonful flour, and then add ½ pint boiling water; stir till it thickens; add salt and white pepper to taste; then take the saucepan off the fire and stir in the yolks of 2 eggs beaten up with the juice of a lemon and strained.

Brussels Sprouts.—Boiled.—(*a*) Take about 1 qt. sprouts all of a size, not larger than walnuts, throw them into salt and water for 10 minutes, then put them in fast-boiling water, in which you have put a small piece of soda to preserve the green colour. When nearly done pour off the water, and put in as much fresh butter as you can lift on a teaspoon; toss the pan gently, but do not stir and keep the lid on by the side of the fire until you have prepared the sauce, which must be made of good stock, with some of the red gravy from roast beef added; take a breakfastcupful, and bring it to a boil, then mix a teaspoonful of cornflour in cold water; add a little browning and some Harvey's sauce, or any other brown sauce, then pour the boiling stock on; give one boil up, and strain the sauce into the pan with the Brussels sprouts. Let them remain closely covered, and, when dishing up, squeeze a little lemon juice into the sauce.

(*b*) Trim each sprout neatly, and wash them in several waters. Put them to boil in plenty of boiling salted water, and, when almost done, strain them and dry them in a cloth. Put them in a saucepan with a large piece of butter, pepper, salt, and grated nutmeg to taste. Toss them gently on the fire until they are quite cooked.

Cabbage.—Boiled.—(*a*) Take 2 summer cabbages, trim off all the outer leaves, cut the cabbages in half lengthwise, and steep them in salted water for an hour, then throw them into fast-boiling water, and when they have boiled 20 minutes change the water for fresh boiling water, salted to taste. Let them boil till quite done. Put them on a sieve in the screen to drain all the water from them, and serve.

(*b*) First boil it very well, then chop it up with a little butter, add a small quantity of vinegar and pepper, and then fry it for 2 minutes; grate a little Parmesan cheese, and when ready to serve pour some melted butter over the cabbage and sprinkle the grated cheese over it.

Cold Slaugh.—Cut a head of hard white cabbage into very fine shavings; it is seldom shaved fine enough. For 1 qt. cabbage take the yolks of 3 eggs, beat them well; stir into 1½ tumbler vinegar 2 spoonfuls loaf sugar, 1 tablespoonful olive oil, 1 of thick sweet cream, or a piece of butter as large as a walnut, 1 heaped teaspoonful mustard, salt and pepper to taste; mix with the egg, and put this sauce into a stewpan; when hot add the cabbage, stew until thoroughly hot, which will only require 4-5 minutes. Toss it up from the bottom with a silver or wooden fork; take it up and set where it will become perfectly cold—on ice is best. The quantity of vinegar would depend upon its strength.

Hot Slaugh.—Take a fine hard head of white or red cabbage, shred it very finely, and put it into a stewpan with a piece of butter the size of an egg, salt, pepper, 1 tablespoonful chili and 1 of tarragon vinegar. Cover the stewpan and toss gently for about 5 minutes, when the cabbage should be thoroughly hot through. Care must be taken not to overcook hot slaugh, as it should be borne in mind that this very agreeable dish is a hot salad, and not stewed cabbage, and should therefore retain its crispness.

Stuffed.—Parboil a small cabbage or savoy, leaving it whole. Mince very finely any remains of cold meat, and half the quantity of beef suet, add a small quantity of chopped shallot, pepper, salt and minced herbs to taste, the same quantity of fine breadcrumbs as of suet, and the yolks of 2 or more eggs. Make an incision on the top of the cabbage, open the leaves lightly, insert the forcemeat and tie up the cabbage with thread. Line a saucepan with bacon, lay in the cabbage with a little stock or broth; simmer on the fire for 2-3 hours. At the time of serving, remove the thread from the cabbage; strain the sauce, free it from excess of fat, thicken with butter and flour, and pour it over the dish.

Cardoons.—Boiled.—Cut the stalks into convenient lengths, remove the prickles on either side of them, and parboil them for 15 minutes in salted water; drain them, and scrape and rub off the outer skin from each piece, putting them into cold water as they are done. When they are all ready, finish cooking them as artichokes.

Carrots.—À la Maître D'Hôtel.—Trim each carrot neatly, cut it in half, and boil them in salted water; when done drain off the water, add a piece of butter to the carrots, some parsley finely minced, a dust of

pepper, a little powdered sugar, and a squeeze of lemon. Give the saucepan a toss or two on the fire to keep the contents hot till wanted.

À la Flamande.—When parboiled and drained, put the carrots into a saucepan with a piece of butter, a pinch of sugar, and as much water as may be necessary for sauce, add some finely minced parsley and white pepper and salt to taste. Let the carrots simmer till done (about 15 minutes), shaking them occasionally. Beat up together the yolks of 2 eggs and ½ gill cream, stir this into the carrots off the fire and serve.

À la Nivernaise.—Cut out the red portion of some carrots to the shape of olives, parboil and then put them into a saucepan with plenty of butter, a little pounded loaf sugar, pepper, and salt; add a little stock to prevent their burning, and keep shaking the saucepan till they are cooked.

Celeriac.—Boiled.—Peel the roots, and cut them into quarters or in slices; throw them into boiling salted water, and let them boil till quite done; drain them, and serve with white sauce.

Celery.—Boiled.—Trim the roots, and cut to the same length (about 6 in.) 3 heads celery, wash them carefully, tie them together with string; put them in a saucepan with an onion, a blade of mace, some whole pepper, salt, and sufficient boiling water to cover them. Let them boil till quite done, then drain them, remove the string, and serve with the following sauce over them: Melt 1 oz. butter in a saucepan, and mix with it 1 dessertspoonful flour, add as much of the water in which the celery was boiled as is wanted to make the sauce, put in salt to taste, and stir in off the fire the yolk of an egg beaten up with the juice of a lemon, and strained.

On Toast.—Trim the roots, and cut to the same length (about 6 in.) 3 heads of celery, wash them carefully, tie them together with string, parboil them a few minutes, and drain them. Put a layer of bacon in a saucepan, lay the celery on this, with an onion and a carrot sliced, a bunch of sweet herbs, pepper, salt, a blade of mace, or a few cloves; fill up with enough stock just to cover the celery, and let it gently simmer till done. Take some of the liquor well freed from fat, thicken it with a little flour and butter; pour it on a dish. Have ready a number of slices of bread cut to a uniform shape, and fried in butter; arrange them on the sauce in a circle, disposing half a head of celery on each.

Stewed.—Trim and cut to the same length a number of heads of celery, split them in two lengthwise, tie them in bundles with thread, and parboil them for 10 minutes in salted water. Drain them, and arrange them in a saucepan over slices of bacon, with a bundle of sweet herbs, 2 onions, pepper and salt to taste, and a blade of mace. Add enough stock just to cover the contents, and simmer gently till the celery is quite tender. Having removed the string, dispose the celery neatly on a dish; take some of the stock in which it has been stewed, remove all fat from it, add a small piece of fresh butter, pour it over the celery, and serve.

Dandelions.—Pick before they blossom, and cut roots off just below the leaves, thus keeping them together. They should be picked over well, washed in cold spring water, chopped up into ½ in. lengths, and boiled with a little salted water, or steamed over salted water; the latter method is preferable. Spread a cloth over a colander, drain the dandelions through it, and squeeze out all the water; chop up fine, and

put into a saucepan with a small lump of butter and some salt; stir it over the fire for a few minutes, then turn on to a hot dish, put a soup plate over it and set it over steam for a few seconds, remove the soup plate, cut it or mark it in squares like spinach, garnish with sippets and serve. Dandelions will be found more bitter in taste than spinach; if lemon juice is added to them while cooking, and a very little powdered white sugar, this bitterness will be counteracted. (Eliot-James.)

Egg-Plant Fruit.—Boil the fruit until tender, halve them lengthwise, and scoop out the inside, leaving a shell about ½ in. thick. Take a small quantity of any kind of meat or poultry previously cooked and well freed from fat, skin, and gristle; mince it finely, and then pound it quite smooth with the pulp of the vegetable (not the seeds), and with some sweet herbs, chopped mushrooms, or any flavouring preferred; season the whole with pepper and salt, toss it for a few minutes in a saucepan with a piece of butter, and a little stock to moisten it (if necessary), fill the cavities with this mixture, add a layer of fried breadcrumbs, pour over them some liquefied butter, put them into the oven for a few minutes, and serve very hot.

French Beans.—The nice flavour of this wholesome vegetable depends not only on its freshness, but also on the mode of cooking. When very young and very small, it is better not to cut them, but simply take off the tops and tails, and a thin stringy strip at each side of the bean, then wash, but do not leave them in water. Throw them into a saucepan of fast-boiling water, with 1 tablespoonful salt to each ½ gal. water. Boil quickly, with lid off, till tender, and at once drain in a colander, taking care to shake or press

gently with a wooden spoon, every drop of water from them; serve very hot, with pieces of fresh butter between each layer of beans. When the beans are not so young or so small, they should be cut into thin, slanting strips, and dressed in the same way.

Haricot Beans.—(*a*) Soak them for 12 hours, put them in a saucepan of cold water, let it come gradually to the boil, then simmer till quite tender; drain and put them at once into a stewpan, with some fresh butter, chopped parsley, salt, pepper, and a little lemon juice, toss them well, and serve very hot.

(*b*) The usual way in America for cooking white haricot beans is in the old-fashioned New England dish, "pork and beans." Parboil a piece of the middling of salt pork, and score the skin. Allow 1 lb. to 1 qt. of the dried beans which must be soaked overnight in lukewarm water. In the morning put them on to boil in cold water; when they are soft drain off the water, put the beans in a deep dish, half bury the pork in the middle, adding a very little warm water. Bake a nice brown. Some like a dessertspoonful of sugar mixed in with the beans before placing them in the dish.

Jerusalem Artichokes.—Wash them well, peel and shape them to a uniform size; throw them into boiling salted water, and let them boil 15-20 minutes; drain them at once thoroughly; put them on a dish and serve with the following sauce poured over them: Mix over the fire 1½ oz. butter, with 1 tablespoonful flour; add ½ pint boiling water, white pepper, and salt to taste; stir till the sauce thickens, then take the saucepan off the fire, and stir in the yolks of 2 eggs, beaten up with ½ gill cream.

Laver or *Sloke.*—Only good during the winter

months. After being gathered and washed and picked clean, put it with water into an iron pot, and boil it until it is a pulp. If too thick, add a little more water, taking care it does not burn. It cannot be boiled too much, and the darker the colour the better laver it is. It will keep fresh for a week, and when wanted for table it must be heated, with a lump of butter put in, and served in a silver saucepan, which is kept hot by the fire. Laver is eaten with roast meat, with pepper and vinegar. Lemon juice is preferable to vinegar.

Lentils.—(*a*) Soak in cold water for 24 hours. Boil in plain water for 2½ hours, drain off the water, put with the lentils in the saucepan a small lump of butter, a little pepper and salt; stir well together and serve hot. Another way is to soak as above, and stew in good beef tea, gravy, or thin soup for 2½ hours. The German lentils are the best.

(*b*) Fry 3 or 4 onions sliced, in 1 oz. butter. Put into a saucepan with ½ pint red lentils, and 1 pint water; simmer 1 hour, then add 1 dessertspoonful curry powder and 1 teaspoonful lemon juice. Serve with boiled rice.

Mushrooms.—(*a*) Chop up half a small punnet of mushrooms, having first taken off the skins and stalks; also a handful of washed parsley and 3 small shallots. Scrape ¼ lb. ham, of which the proportions of fat and lean should be about equal; if the ham be too lean, some fat of bacon can be used with it. Also chop a little thyme. Mix all well together, seasoning with pepper and salt, and fry them over the fire for a few minutes, and until done; then mix in the yolks of 3 eggs, and set it aside while the mushrooms are preparing (these must be large ones); take off the skins and stalks, and, having trimmed the edges neatly, fill each one with some of the above

preparation. Spread a sautépan thickly with butter, place the mushrooms in it side by side, shake some raspings of bread plentifully over them, and set them in the oven for about ¼ hour; they should be nicely browned. Arrange them on a dish in the form of a pyramid, and pour round them a little of the following sauce, which must have been previously prepared and be waiting hot and ready for use: Chop 2 shallots, wash them in several waters to take away the strong taste, wring them dry in the corner of a napkin, and put them into a stewpan with about 1 doz. small white mushrooms finely minced; add a little thyme, a small bay leaf, and a dessertspoonful of salad oil; shake these together over the fire for 5 minutes; add 1 small wineglassful white French wine, and then set it on to reduce to half its quantity; moisten this with a little good white sauce; let it boil up, free it from the oil, take out thyme and bay leaf. Let it be of the consistency of ordinary sauces, which can be regulated by adding a little white stock if too thick, or boiling up to reduce if too thin. When ready, set it aside in a small stewpan to keep hot till wanted.

(*b*) Pick and peel ½ pint mushrooms, wash them well, put them into a lined saucepan with ½ pint plain white sauce, made with rice, new milk, and well seasoned with mace, salt and paper, white or cayenne as preferred. Let the mushrooms stew until quite tender, then add 1 spoonful butter rolled in arrowroot sufficient to thicken it; simmer a few minutes longer and serve.

(*c*) Skin and wash the mushrooms, then dry in a cloth; butter each one on the inside, sprinkle salt and pepper over, and grill until tender.

(*d*) Peel 1 pint mushrooms and cut off their stalks;

boil these and the parings; when ready, strain. Put the mushrooms, chopped fine, into a stewpan; pour in the gravy, add some chopped parsley, season well with pepper and salt, and stew the whole gently for 40 minutes over a moderate fire. Beat up 6 eggs, mix with the other ingredients; have ready some buttered cups, pour the mixture into them, and bake quickly; turn out on to a hot dish, and serve with white sauce. (Eliot-James.)

Nettles.—In some parts of Scotland the young shoots of nettles are used as greens, but chiefly by the poor. This is probably the result of prejudice. The following recipes will be found excellent as a vegetable: (*a*) Select the light green tops and leaves of the nettles, wash them carefully in 2 waters; a little salt and a small piece of soda should be dissolved in the second water. Boil till quite tender, then turn them into a colander and press them quite dry. Place on a hot vegetable or entrée dish, scoring them backwards and forwards 3 or 4 times. Place a small piece of butter the size of a walnut in the centre, and pepper and salt and send very hot to table. Melted butter can be served separately if desired. (*b*) A more savoury way of dressing the nettle tops would be the following. Wash and prepare the tops as before, drain and dry them, then chop them into a fine mince. Put this mince into a stewpan, in which has been placed a little good stock or gravy; add to this a pinch of salt, a little pepper and powdered sugar, and a squeeze of lemon juice, or, if liked, a little finely chopped onion. When ready to serve thicken with a little flour and butter, and a teaspoonful of cream. Place on toast, and serve very hot with poached eggs, or garnish with hard-boiled eggs cut in slices.

Olives.—Stir some chopped parsley and scallions into some butter melted over the fire. Moisten with some gravy or good broth, a glass of white wine, some capers, and an anchovy pounded in a spoonful of olive oil. Put into this sauce some olives, which have previously been stoned by peeling the fruit spirally off the nuts with a sharp knife. Bring it to the boil, and thicken the sauce with a little light colouring of butter and flour, made separately. If liked, the stones of the olives can be replaced by a veal stuffing, which has been cooked first.

Onions.—(*a*) Cut off the roots close of 2 Spanish onions, and remove the outer peels or any that are in the least dry, then parboil them in salted water for 10 minutes; dry them in a cloth, and cut them in half lengthwise. Put them in a saucepan over a slice of fat bacon, add a faggot of sweet herbs, 2 or 3 cloves, and some whole pepper, with salt to taste; pour in a sufficient quantity of very good stock to just cover them, and let them stew gently for 2 hours. Strain off a portion of the liquor, free it from superfluous fat, reduce it by letting it boil for ¼ hour, dish up the onions, pour the reduced sauce over, and serve.

(*b*) Peel off the very outer skins, cut off the pointed ends like a cigar, put them in a deep dish, and put a piece of butter and a little salt and pepper on the place where the point has been cut off, cover them with a plate or dish, and let them bake for not less than 3 hours. They will throw out a delicious gravy.

Parsnips.—(*a*) Scrape and boil some parsnips, then cut each lengthwise in 4, and fry them very brown, and dish in twos and twos. There is no vegetable so nourishing as parsnip, and when done in this way is much more tasty than the English way.

(*b*) Boil 4 or 5 parsnips till tender, mash them up,

and add 1 teaspoonful flour, 1 beaten egg, and a little salt; make the mixture into small cakes with a spoon, and fry them in butter a delicate brown. Serve on a napkin.

Peas.—Melt ¼ lb. butter in a saucepan, then add 1½ pint young peas, pepper and salt to taste, 2 small onions (whole), a small bunch of parsley, and half a head of lettuce, tied up together, and a pinch of sugar. Toss on a slow fire till the peas are cooked, then remove the parsley, lettuce, and onions, and serve with a little finely minced parsley mixed in the peas.

Potatoes.—(*a*) With Cream.—Put into a stewpan a piece of butter rolled in flour, 1 gill cream, pepper, salt, and a very little nutmeg, also the juice of half a lemon; stir these over the fire till boiling. Then add slices of freshly boiled new potatoes, and after warming them up in the above sauce, serve very hot.

(*b*) A la Russe.—Cut some raw potatoes into dice, after washing and peeling, and fry them in olive oil, with half the quantity of mushrooms finely minced.

(*c*) Au Gratin.—Put a few spoonfuls of good white sauce into a stewpan with a ¼ lb. grated Parmesan cheese, and half that quantity of butter, also the yolks of 4 eggs, a small piece of glaze, lemon juice, pepper and salt, and nutmeg; stir all this over the fire until well mixed, but it must not boil. Cut some potatoes into slices, stick some well-pointed three-cornered croutons of fried bread round the edge of the dish, standing up to form a border, and place a close row of slices of potato within it, and a layer over the centre of the dish: spread a layer of the cheese preparation over them, then repeat the potatoes and mixture till the dish is complete, and smooth some of the sauce over the top. Shake

breadcrumbs and grated Parmesan over the surface, so as to quite cover it, and put the whole into the oven for about ¼ hour, or until warmed through, and a nice colour.

(*d*) Balls.—Take ½ doz. potatoes, boil them, pass them through a sieve, and work into them, in a bowl, 1 gill of cream and the yolks of 3 eggs; add pepper, salt, and nutmeg to taste, and some parsley finely chopped. When they are well mixed and smooth, take them up by tablespoonfuls, roll each in a ball, flatten it, and flour it slightly. Lay them all in a sautépan with plenty of butter melted, and cook them slowly. Turn them over when one side is done, and serve hot as soon as both sides are coloured.

(*e*) Cut very thin slices right across the largest potatoes; lay the slices in flat layers on a small plate that will bear the heat of the oven. Spread fresh butter freely over the potatoes; then add another layer, and so on until the potatoes are about 4 in. high. Give ½ lb. fresh butter to 2 large potatoes. Bake until the potatoes are tender, about ½ hour, in a quick oven.

(*f*) Fried.—Pare some potatoes so as to give each the form of a cylinder, then cut each cylinder in slices ⅛ in. thick. By this means all the pieces of potato will be the same size. Dry them thoroughly in a napkin; put them in the frying basket, and fry them a light colour in plenty of lard; drain, sprinkle freely with salt, and serve.

(*g*) Rissoles.—Take cold meat, veal or ham, cut it small and season with pepper, salt, cut pickles, and a little parsley; moisten with a little stock. Mash some potatoes and make them into a paste with the yolks of 1 or 2 eggs. Put some of the seasoned meat on one half, and fold over like a puff. Fry a light brown.

(*h*) Stewed.—Rub a saucepan with a clove of garlic, put 2 oz. butter into it, and when it is melted add 6 potatoes, peeled, and cut in quarters. Put in a little hot water, pepper and salt to taste, a small quantity of grated nutmeg, some minced parsley, and the juice of ½ lemon. Let the whole stew slowly till the potatoes are quite done.

(*i*) Cakes.—The following is an old country recipe for potato cakes: 1 lb. mashed potatoes, 2 oz. butter, 1 lb. flour, ½ teacupful cream, a pinch of salt, and 1 egg; roll out the cakes thin, and bake in a quick oven.

(*j*) Mashed.—Boil some potatoes, and pass them through a coarse hair sieve. Put them into a saucepan with a good lump of butter, and salt to taste; add a little milk, and work them well with a spoon on a slow fire for some minutes, adding small quantities of milk as they get dry.

(*k*) Calecannon.—Potatoes and greens mixed together, is an agreeable mixture and forms a pleasant change. The greens and potatoes are boiled separately, the former squeezed, when sufficiently dressed, quite dry and chopped up very fine; the latter mashed, the chopped greens added to them, with butter, pepper, and salt to taste, and the yolk of 1 egg or more. A pudding dish should be well buttered, the mixture put into it, and placed in a hot oven for about 6-7 minutes; the contents of the basin then turned out and served on a vegetable dish.

Pumpkin.—Take a slice of pumpkin, remove the rind, and cut the pulp into large dice, having first removed the pips. Put them into a saucepan with a piece of butter, pepper and salt to taste, and a little water. Let it stew slowly till quite done, then either mash it up with a spoon or pass it through a sieve.

Mix a little flour and butter into a saucepan, add the pumpkin pulp and a little milk or cream, also a pinch of sugar and a little grated nutmeg. Work it well on the fire, and serve with sippets of bread, fried in butter, round it.

Red Cabbage.—(*a*) Wash, trim, and cut up a large cabbage into 5 or 6 slices. Put them into boiling water for ¼ hour; then stew them gently in broth till quite tender; drain, and serve with reduced brown gravy, flavoured with a dash of lemon juice or vinegar. If very small, they may be dressed whole in the same manner. (*b*) A Flemish recipe: Wash and trim a cabbage, put it into a saucepan, with sufficient cold water to cover it; let it come gradually to the boil, then add 4 or 5 apples peeled, cored, and quartered, a small piece of butter, pepper and salt; stew gently till quite tender, strain, add to the liquor a thickening of butter and flour, 1 teaspoonful vinegar, and 1 of currant or gooseberry jelly. Dish the cabbage with the apples round it, and the sauce over. (*c*) Having well washed the cabbage, shred it very small, and put it, with a slice of ham minced, into a stewpan with some melted grease (from the pot-au-feu), add an onion stuck with cloves, pepper and salt; simmer gently—tossing frequently—till quite tender. Just before serving remove the onion and cloves, add the yolks of 2 eggs, and 1 teaspoonful vinegar; serve very hot with fried sausages.

Salsify.—(*a*) Boiled.—Scrape the roots, cut them in short lengths, and throw them into vinegar and water as they are being done. Boil them till tender in salted water, drain them, toss them into a saucepan with a piece of butter, a little lemon juice and some minced parsley, add salt, and serve.

(*b*) Fried.—When boiled, split each piece in half, and steep them for ¼ hour in tarragon vinegar with pepper and salt, then drain, dip them in batter, and fry them in hot lard. Serve with fried parsley.

(*c*) Scolloped.—Boil the salsify as in (*a*), cut them into pieces ½ in. long. Add some cream to the sauce instead of lemon juice and parsley, with pepper and a little anchovy sauce; put in the salsify, give them a toss in the sauce, then put them into scollop shells, squeeze a few drops of lemon juice on each, sprinkle plenty of breadcrumbs over, and put the shells in the oven to brown.

Scorzonera.—(*a*) Roots should be prepared by washing, scraping, and topping, as are carrots; then put them in cold water tied in small bundles, and boiled till tender, in the same way as asparagus, serve on toast with butter sauce; this for plain boiling.

(*b*) Fried.—Prepare as in (*a*), and boil till tender; then dip in a batter made as follows: Beat 2 eggs with ¼ lb. flour, 1 saltspoonful baking powder, and 1 teacupful water until as smooth as possible, adding the water by degrees; season with salt and pepper. This batter is very good for frying any vegetables.

(*c*) With Cheese.—Mix some grated Parmesan with butter which has been melted in white sauce, or plain cream, as preferred. Boil the scorzonera roots, and lay them neatly in a dish, pour over the sauce, which has been thoroughly heated, but not allowed to boil, sprinkle it well all over with grated Parmesan, then brown it in the oven, or with a salamander.

Seakale.—(*a*) Trim it and tie it up in bundles, and lay them in plenty of salted water, boiling fast; when

quite done, drain them well, and serve with a plain salad dressing in a boat, or with white sauce over. *Salad Dressing*: 1 pinch of salt, 1 of pepper, 2 tablespoonfuls olive oil, 1 of tarragon vinegar, and 1 teaspoonful mustard. Take the ingredients in the above proportions, and beat them smooth. *White Sauce*: Put into a saucepan, with 1 pint white stock, a small onion, one clove, a blade of mace, and a faggot of herbs; boil for 1 hour, strain, thicken with 1 dessertspoonful arrowroot, boil up again, and add by degrees ½ pint cream.

(*b*) Choose short, thick kale, trim it carefully and tie it in bundles, boil in water with plenty of salt; when tender, drain it carefully and lay it in a dish on toasted bread dipped in the water the kale has been boiled in; serve with melted butter sauce. Finely grated cheese sifted over the kale is considered by many an improvement. In this case the kale should be browned with a salamander before being sent to table.

Sorrel.—Pick and wash a quantity of sorrel, put it into a saucepan with a little water and some salt, when thoroughly done drain off all the moisture and pass the sorrel through a hair sieve. Amalgamate a piece of butter and 1 tablespoonful flour in a saucepan on the fire, put in the sorrel and stir well for some minutes, then add pepper and salt to taste, and the yolk of 1 egg beaten up with a little cold stock and strained.

Spinach.—(*a*) Pick and wash perfectly clean 2-3 lb. spinach, put it into a saucepan with a little water, and let it boil till quite done. Turn it out on a hair sieve to drain, throw the water away, and pass the spinach through the sieve. Put a good lump of butter into a saucepan with a pinch of flour, mix well, add

the spinach, pepper and salt to taste, and a little milk; stir well and serve.

(*b*) Mashed.—Pick and wash the spinach very carefully, and then put it into boiling salted water, and boil 10 minutes, or until quite tender; drain, then pass it through a hair sieve, season with pepper, salt, and put it into a stewpan with a piece of butter and a few tablespoonfuls of cream or Béchamel sauce; stir over the fire until quite hot, and serve either with cutlets, fricandeau, grenadins, poached eggs, &c., or in a vegetable dish with fried sippets of bread.

Tomatoes.—(*a*) Baked.—Cut 6 tomatoes in halves, remove the pips, and fill the inside with a mixture of breadcrumbs, pepper, and salt, in due proportions; place a small piece of butter on each half tomato, and lay them then close together in a well-buttered tin. Bake in a slow oven about ½ hour, and serve. They may be eaten hot or cold.

(*b*) Forced.—Prepare the following forcemeat: 2 oz. mushrooms minced small, 2 shallots, likewise minced, a small quantity of parsley, a slice of lean ham chopped fine, a few savoury herbs, and a little cayenne and salt. Put all these ingredients into a saucepan with a lump of butter, and stew all together until quite tender, taking care that they do not burn. Put it by to cool, and then mix with them some breadcrumbs and the well-beaten yolks of 2 eggs. Choose large tomatoes as nearly of the same size as possible; cut a slice from the stalk end of each, and take out carefully the seeds and juice; fill them with the mixture which has already been prepared, strew them over with breadcrumbs and some melted butter, and bake them in a quick oven until they assume a rich colour.

(*c*) Meat Pudding.—Cover the bottom of a pudding dish with breadcrumbs; put on them a layer of underdone meat, cut in thin slices; then a layer of tomatoes, peeled and also sliced; to 1 pint add 1 even tablespoonful sugar; then a few bits of butter, pepper, salt, and a little onion if agreeable; then breadcrumbs, meat, and tomatoes, repeating until the dish is full; put over all a layer of breadcrumbs, and bake until a light brown. Serve hot.

(*d*) Stuffed.—Dip some tomatoes in hot water, peel them, cut them in half, and remove the pips. Rub a baking sheet with shallot, butter it well, and lay the tomatoes in it, filling each half with the following composition: 2 parts breadcrumbs, 1 part ham finely minced, and, according to taste, parsley and sweet herbs also finely minced, and pepper and salt. Put a small piece of butter on each half tomato, and bake them ¼ hour. Have ready some round pieces of buttered toast; on each of these put a half tomato, and serve.

Truffles.—First prepare the sauce. Put into a small clean stewpan 2 oz. butter, set on the stove, and slice into it 1 onion, 1 carrot, and a little lean ham cut into squares, fry altogether of a light brown. Now stir into these 1 dessertspoonful flour, add 1 bay leaf, a sprig of thyme, a few sprays of parsley, 3 cloves, a small blade of mace, a little salt and cayenne, and ½ pint of stock. Mix well together with a wooden spoon, and set on the fire to simmer ½ hour, taking off the scum as it rises. Next cut from a square loaf a thick slice of bread; it should be quite 1 in. thick. Scoop out the middle, so as to make a hollow about half-way through the bread, and fry in plenty of clean lard to a golden brown. Drain on a sieve and keep warm. Now wash 6 large truffles, and cut into

thin slices, put them into a sautépan or frying pan, with a little butter and a small quantity of minced parsley and onion, fry gently about 10 minutes, taking care they do not get dry when done. Place the truffles in the hollow of the bread, strain the sauce over, put some of the ham on the corners of the bread, and sprinkle a little chopped hard-boiled eggs over the truffles. This makes a very pretty and savoury dish for the second course, and is a good way of finishing a bottle of truffles that may have been required for any other purpose.

Turnips.—(*a*) Boiled.—Take small new turnips, peel, and boil them in salted water; drain them thoroughly. Melt 1 oz. butter in a saucepan, add to it 1 dessertspoonful flour, pepper, salt, grated nutmeg, and a small quantity of milk or cream; put in the turnips; simmer gently a few minutes, and serve.

(*b*) Mashed.—Take new or old turnips, pare them, and put them to boil in salted water; when done drain them, squeeze out the water from them, and pass them through a hair sieve. Put the pulp into a saucepan with a piece of butter, pepper, salt, and grated nutmeg; stir well, and moisten with a little milk or cream. Then work them with a spoon on a slow fire until sufficiently dried up.

Turnip Tops.—(*a*) When green vegetables are scarce, many people find desirable dishes made from turnip tops, if properly and presentably cooked. The growth of these turnip tops may be forced by placing the roots in a greenhouse, hot frame, or any warm place, when the tops will soon be seen to begin to sprout, and will prove far more delicate and edible than the ordinary turnip tops grown in a garden or field from turnips. When the tops are quite small and almost white (which they will be if the roots are

covered over with straw) they may be dressed to resemble seakale, with white sauce, and will be found very delicious, having no strong turnipy flavour. When grown larger and the leaves are green, the stalks get fibrous and stringy; the leaves should then be stripped off and boiled with plenty of water. When sufficiently done, strain and squeeze off the water as much as possible, mince them fine, and put them through a sieve as is done with spinach. Serve very hot with sippets of fried toast, or with gravy if preferred.

(*b*) Take a quantity of turnip tops, picked clean and washed, put them in a saucepan with a little water. When thoroughly done put them on a hair sieve to drain. When all the water is thoroughly drained from them, pass them through the sieve. Mix in a saucepan 1 tablespoonful flour with about 1 oz. butter, add the turnip-top purée, stir well, put in pepper and salt to taste, and serve hot in a dish garnished with fried sippets of bread, and lay on the top ½ doz. poached eggs. Fill a shallow sautépan with water and sufficient salt, add a little vinegar, a few peppercorns, and some leaves of parsley. When the water is on the point of boiling (it should never be allowed to boil) break 2 or more eggs into it (according to the size of the pan), and put on the cover. When done, take them out carefully, brush them clean on both sides with a paste brush, and cut each egg with a round fluted paste cutter, so as to get them of a uniform shape.

Vegetable Marrow.—(*a*) Parboil 2 moderate-sized marrows, cut in 4 lengthwise, drain them carefully, and dispose them on a well-buttered dish, previously well rubbed with shallot or slightly rubbed with garlic. Sprinkle plenty of grated Parmesan over them,

pepper and salt, and grated nutmeg; put a few pieces of butter on the top, and over all a good sprinkling of very fine baked breadcrumbs. Bake about 20 minutes, and serve in the dish.

(*b*) Stuffed.—Pound to a paste in a mortar, slightly rubbed with garlic, equal parts veal and ham; then pass them through a wire sieve, and return them to the mortar. Work into the paste thus obtained ¼ its bulk of butter, and about the same quantity of breadcrumbs, with the yolks of 1 or more eggs, according to quantity. Add some minced parsley, and according to taste, pepper, salt, spices, and powdered sweet herbs. Cut in half, lengthways, 2 average-sized vegetable marrows; take out the inside, fill each half with the stuffing, and wrap it up in a piece of white paper well buttered and tied with string; lay them all close together in a buttered tin, cover this up with a plate or another tin, and put it into the oven. When you judge the marrows are quite done, take them carefully out of the papers, lay them on a dish, and serve with a small quantity of well-flavoured clear gravy or some tomato sauce poured over them.

Salads (Salade, Mayonnaise).—These consist of uncooked vegetables dressed with a piquant liquor in which oil and vinegar play a prominent part.

Dressings.—The following are favourite recipes for salad dressings.

(*a*) 2 teaspoonfuls mixed mustard, 2 tablespoonfuls salad oil; mix well, and add 1 teaspoonful powdered sugar, 4 tablespoonfuls good cream, 2 tablespoonfuls vinegar. Sufficient for a salad for 4 persons.

(*b*) 1 teaspoonful unmade mustard, the same of sugar, 1 saltspoonful salt, and the yolk of a fresh egg,

beaten together; mix gradually 1 tablespoonful cream or milk, 2 of vinegar, and 1 or 2 of salad oil according to taste, with a little cayenne.

(*c*) The yolks of 2 hard-boiled eggs, cream, vinegar, pepper, salt, and mustard. Rub the yolks smoothly in a mortar, and add gently 4-5 large tablespoonfuls cream, a small teaspoonful of made mustard, pepper, salt, and lastly 2 large tablespoonfuls vinegar. Mix well, and pour over the salad.

(*d*) Put the salad into a bowl after being well drained, sprinkle with salt and pepper, and pour over 2 tablespoonfuls oil to every tablespoonful of vinegar. The vinegar should always be added at the last. On the Continent people often add a spoonful of powdered sugar to this mixture.

(*e*) 3 tablespoonfuls oil to 1 of vinegar is a better proportion, and yolks of eggs are not amiss in any salad.

(*f*) Put the lettuce, which should not be wet, in the salad bowl. Take some sprigs of tarragon, some chervil, 1 or 2 small chives, and a little bit of parsley, cut into small pieces, mix them with the lettuce, and sprinkle with a saltspoonful of salt and some pepper. Put into a tablespoon 1 mustardspoonful of mustard, fill up the spoon with vinegar, stir well, and pour over the lettuce, then add 3 tablespoonfuls best salad oil, and mix well. This is better than mixing the ingredients first. The chervil and tarragon should never be omitted. The leaves of the common dandelion are also a good addition to salad, as they have an agreeable, slightly bitter flavour.

(*g*) The yolk of 1 hard-boiled egg, 1 teaspoonful mustard, 2 tablespoonfuls oil, 1 teaspoonful tarragon

vinegar, 1 teaspoonful common ditto, ½ teaspoonful sugar. Rub the egg very smooth, add a little salt, then the mustard, then the oil by degrees, working it with the rest till quite smooth; then add the cream, and lastly the vinegar.

(*h*) Boil 2 eggs hard, pound up the yolks with 2 tablespoonfuls vinegar, 1 saltspoon salt, 1 of pepper, and the same of mustard. When well mixed, add 4 tablespoonfuls oil, and the white of the eggs chopped very fine.

(*i*) Mix the yolks of 2 unboiled eggs in a basin with a teaspoonful of salt; whisk; then add, by small quantities, 1 pint finest Florence oil (salad); mix thoroughly, and add 1 tablespoonful made mustard, 3 tablespoonfuls vinegar, 1 of tarragon vinegar, 1 dessertspoonful elder vinegar; add to the whole a small spoonful of pounded sugar, a little cayenne, and a small quantity of salt. Bottle for use.

(*j*) Carefully strain the yolks of 4 eggs into a basin, place it in a cool place, or, if necessary, on ice; add a teaspoonful of salt, mix well; then proceed to pour in, a few drops at a time, some salad oil, without ceasing to stir the mixture. When one spoonful of oil is well incorporated with the yolks of egg, put in, in the same manner, a teaspoonful of tarragon vinegar; keep on adding oil and vinegar in these proportions until you get a sauce the consistency of very thick cream, then add white pepper to taste, and more salt if necessary.

The subjoined comprise all the vegetables, &c., ordinarily employed in salads.

Artichoke (de Topinambour).—Take some cold boiled Jerusalem artichokes and some onions, slice them, and pour over them a mixture of oil, vinegar,

pepper and salt, garnish with cold boiled carrots cut to the shape of olives, and with some pickled cauliflower and beetroot.

Asparagus (d'asperges).—Scrape the end of each head with the back of a knife, and tie them in small bundles of 1 doz. heads each, cut off all the part of the asparagus which cannot be eaten, put them into a panful of fast-boiling water, with plenty of salt, and in about 10 minutes they will be done. Drain them, and leave them to get cold, then dispose them on a dish previously rubbed with a little shallot, and pour over them the following sauce: Strain the yolks of 2 eggs into a basin, mix with them a teaspoonful of salt, and then, without ceasing to stir, pour in, drop by drop, 4 tablespoonfuls oil and 1 of French white vinegar, adding the vinegar at intervals during the process of pouring the oil. Lastly, stir in a little pepper; garnish the dish with slices of hard-boiled eggs.

Beetroot (de Betterave).—(*a*) Take a well-washed beetroot, either bake it in the oven, or put it into a saucepan of boiling water and boil for 1-2 hours, according to size; when cold, peel and slice it, arrange the slices in a dish, and pour over the dressings.

(*b*) Arrange the slices of beetroot with alternate slices of hard-boiled eggs, pour over them a mixture of ¾ oil and ¼ plain vinegar, duly flavoured with pepper and salt; garnish the dish with small button onions, and with sprigs of chervil and tarragon.

(*c*) Slice a cold boiled or baked beetroot, arrange it in slices overlapping each other, pour over a mixture made with cream, a very little vinegar, pepper, and salt; garnish the dish with horseradish and hard-boiled eggs, whites and yolks separate.

Cabbage (de Chou).—(*a*) Wash the greens well, and take off the outside leaves. Tie them in small bunches, and boil in plenty of fast-boiling water, drain them in front of the fire, and serve cold with a mixture of 3 parts oil, 1 of vinegar, pepper and salt to taste, poured over them.

(*b*) Take some cold boiled Brussels sprouts, and put them into a dish previously rubbed with garlic or shallot, pour over them a salad mixture made with 3 parts oil and 1 of vinegar, pepper and salt to taste; garnish with pickled beetroot and minced sweet herbs.

(*c*) Chop up some greens or cabbage, and serve as in (*b*); garnish with slices of sausage and pickled gherkins.

Carrots (de Carottes).—Slice some cold boiled carrots, arrange them in a dish with a dressing made with cream and lemon juice, or oil and vinegar, with pepper and salt; garnish the dish with hard-boiled eggs shredded, with minced parsley and capers, and chopped olives.

Cauliflower (de Chou-fleur).—(*a*) Boil a cauliflower in salted water till tender, but not overdone; when cold cut up neatly in small sprigs. Beat up together 3 tablespoonfuls oil, and 1 of tarragon vinegar, with pepper and salt to taste; rub the dish very slightly with garlic, arrange the pieces of cauliflower on it, strew over them some capers, a little tarragon, chervil, and parsley, all finely minced, and the least bit of dried thyme and marjoram powdered. Pour the oil and vinegar over, and serve.

(*b*) Pick off the flower from 1 or 2 cold boiled cauliflowers, dispose them in a dish, and pour over them some dressing made of cream and lemon juice,

or oil and vinegar with pepper and salt to taste; garnish with minced parsley, powdered sweet herbs, capers, and, if liked, anchovies and stoned olives.

Celery (de Céleri).—(*a*) Take the inner and tenderest stalks of 3 heads celery, cut them in strips 1 in. long, and about the thickness of young French beans. Rub the salad bowl slightly with shallot or even garlic. Mix the yolks of 2 hard-boiled eggs with 3 tablespoonfuls salad oil, 1 of tarragon vinegar, the least bit of flour of mustard, and pepper and salt to taste. Add the celery to this sauce, turn it well over, garnish with the hard-boiled whites, and if at hand 2 truffles (fresh, not preserved), either minced or sliced.

(*b*) Cut up some raw or cold boiled celery into convenient lengths, put these into a salad dish, and mix with them some salad dressing, to which a small quantity of mustard has been added, garnish with boiled onions, chopped beetroot, and shredded whites and yolks of eggs, and cold boiled carrots cut to the shape of olives.

Cucumber (de Concombre).—Pare off the rind of a good-sized cucumber, slice it as thinly as possible and arrange it on a dish; sprinkle with pepper and salt; pour over it a mixture made with 3 parts oil and 1 of vinegar.

Egg (aux Œufs).—Wash and bone some anchovies, divide them into fillets the whole length of the fish. Wash, dry, and divide into quarters some small lettuces. Boil some eggs (6-8) hard, slice one-third of them, and chop up quite finely the rest, yolks and whites separately; arrange these symmetrically in the centre of a dish well raised in the centre, put the fillets of anchovies on the top so as to form squares, with a caper in the centre of each square. Make a

border with the quarters of lettuce and the slices of egg, arranged alternately; sprinkle over the border some finely shred chervil, and pour over either a mayonnaise sauce or a mixture of 3 parts oil and 1 of tarragon vinegar, with pepper and salt to taste.

Endive (de Chicorée).—(*a*) Wash 2 heads endive, drain them thoroughly, and cut them up. Wash and cut up in small dice 1 head of celery. Work to a smooth paste in a basin the yolk of 1 hard-boiled egg, 1 teaspoonful mustard, white pepper and salt to taste, and the least bit of cayenne; add by degrees 3 dessertspoonfuls cream, 1 of tarragon vinegar, and 1 of plain vinegar; stir till quite smooth, add the salad, work it well, and garnish with pickled gherkins, hard-boiled eggs and beetroot. The salad should be mixed just before serving.

(*b*) Pick off the outer leaves of 1 or 2 heads of endive, and wash them well; when perfectly dry mix with them some salad dressing, made quite smooth with the yolks of 2 hard-boiled eggs, oil, vinegar, pepper and salt, and, if liked, a little mustard.

(*c*) The same may be made in a dish previously rubbed with garlic or shallot, and with dressing, without the eggs, or with cream, vinegar, pepper and salt; it may be garnished with beetroot and chopped celery, and hard-boiled eggs.

Fish (au Poisson).—Cut into neat collops any remnants of fish, steep them for 1 hour in a mixture of 2 parts oil and 1 part vinegar, with a few slices of onions, a sprig of thyme, pepper and salt, and parsley. Make a foundation of lettuce, cut into convenient pieces, in a dish, dispose the fish over it, ornament with beetroot and hard-boiled eggs, and serve with the following plain mayonnaise sauce. Put the yolks of 4 eggs into a basin, add salt to taste,

then proceed to pour in, a few drops at a time, some salad oil, without ceasing to stir the mixture. When about 1 tablespoonful oil is well incorporated with the yolks of eggs, put in, in the same manner, 1 teaspoonful French vinegar. Keep on adding oil and vinegar in these proportions until you get a sauce the consistency of very thick cream. Then add white pepper to taste, and mix well.

French Bean (de Haricots).—String some French beans and boil them whole in plenty of salted water, when cold dress them with oil, vinegar, pepper, and salt, some tarragon and capers finely minced, and garnish with hard-boiled eggs, anchovies, and beetroot. The dish must be well rubbed with a shallot.

Game (au Gibier).—Cold grouse, partridge, or pheasant may be used in this way. Cut them into joints, and put them into a pie-dish; season with salt and pepper, and pour over them the juice of a lemon and about 2 tablespoonfuls very fresh salad oil; let them remain in this for 3-4 hours. Having cut up and well dried a fresh lettuce, place it in a flat dish, and arrange the pieces of game which have been in the oil and lemon juice neatly in the centre; over the game pour a salad sauce, which should be of the consistency of thick cream. Ornament the top with slices of hard-boiled egg, fillets of well-washed and scraped anchovies, and garnish with tiny sprigs of parsley. Cold chicken, or the white meat from a cold turkey cut into small pieces, may be treated in this way.

Green Pea (aux petits Pois).—Put some cold boiled peas—marrowfats are best—into a dish previously rubbed with a shallot, and pour over them a mayonnaise sauce or a plain salad dressing, and

garnish the peas with small heads of green mint.

Lettuce (de Laitue).—(*a*) Wash 2 heads lettuce, dry them thoroughly, and break the leaves or cut them into convenient pieces; put the yolks of 2 hard-boiled eggs into a basin with 1 teaspoonful mustard, pepper and salt to taste, and 1 tablespoonful oil; work the mixture into a smooth paste, and add consecutively 3 tablespoonfuls oil and 2 of tarragon vinegar, then add a handful of garden cress, a little tarragon finely minced, and the whites of the eggs coarsely chopped. The mixture must be well stirred. Lastly add the lettuce, turn it well over, and serve.

(*b*) Wash 2 heads lettuce, dry them thoroughly, and put them into the salad bowl. Take some sprigs of tarragon and chervil, 1 or 2 small chives, and a little bit of parsley, mince them finely, mix them with the lettuce, and sprinkle with a tablespoonful of salt, and some pepper. Put into a tablespoon 1 mustardspoonful of mustard, fill up the spoon with vinegar, stir well, and pour over the lettuce, then add 3 tablespoonfuls best salad oil, and mix well.

(*c*) Take a lettuce, remove the outer leaves, wash, drain it thoroughly, and cut it into small pieces; take some fresh-cut garden cress (also washed and drained), and a few spring onions, put them in a salad bowl, with the following dressing: Take the yolks of 2 hard-boiled eggs, and rub them quite smooth in a mortar, add a teaspoonful of mustard, a little cayenne, with black pepper and salt to taste, and 4-5 tablespoonfuls cream; lastly, add a tablespoonful of tarragon vinegar; mix well, and it is ready.

Lobster (de Homards).—(*a*) Cut a number of pieces of the flesh of a lobster into convenient sizes. Have some well-flavoured aspic jelly, just melt it, pour a

layer of it ¼ in. thick, into a border mould; when it begins to set, arrange the pieces of lobster, reserving 2 or 3 of the best, in the mould, with leaves of tarragon; fill up with jelly, and lay the mould on ice to set. Cut the remainder of the lobster, and dress it with lettuce, as an ordinary salad. Turn out the border on a dish, fill the inside with salad heaped up, lay the reserved pieces of lobster on the top, and ornament with any design made of whites and yolks of eggs, truffles, and aspic jelly, all finely minced.

(*b*) Take 1 or 2 fresh lobsters, cut up all the flesh into convenient pieces, reserving the soft part to mix with the dressing, and a few of the best pieces to ornament the salad. Prepare some lettuces, as for an ordinary salad, mix the lobster and lettuce together with a fork in the bowl, and pour over it a mixture made as for asparagus salad, to which has been added the soft part of the lobster and a little mustard. Garnish the dish with the pieces of lobster reserved for the purpose, with the spawn, and with slices of hard-boiled egg, sprigs of chervil, or tarragon.

Meat (Vinaigrette).—Cut some cold meat into neat slices, brush them over with oil, season with salt and pepper to taste, sprinkle a little vinegar over, and dispose them on a dish, upon a foundation of lettuce cut into convenient pieces, and ornament with hard-boiled eggs, beetroot, and pickles. Serve with plain tartare sauce, viz. put the yolks of 4 eggs into a basin with salt and mustard to taste, and stir olive oil over them, 1 tablespoonful at a time; after each tablespoonful oil put in 1 teaspoonful tarragon vinegar. Keep on stirring this until the sauce is of the desired consistency; then add pepper, the least bit of cayenne, and 2 shallots, or a few pickled gherkins or

onions chopped very finely.

Onion (d'oignons).—Cut up a cold boiled Spanish onion and some cold boiled potatoes, mix with them a dressing made with oil, vinegar, pepper and salt; sprinkle over some powdered sweet herbs, and garnish with pickled red cabbage, hard-boiled eggs, stoned and chopped olives, and capers.

Oyster (des Huîtres).—For this dish some little pail-shaped white china cups must be procured, in size about the same as a ramakin case: 6 make a pretty dish, 1 in the centre and 5 round it. In each cup place an oyster, free from beard, or if very small 2 oysters may be used. Above add 1-2 teaspoonfuls salad, cut very small, and with which some good creamy salad-sauce has been mixed. Each cup must be differently garnished, using for this beetroot, hard-boiled yolk of egg, hard-boiled white of egg, and mustard and cress, each to be finely and separately chopped. Fill up one cup with a layer of the beetroot, with a pinch of the yolk of egg in centre; another with a layer of white of egg, with a little beetroot in centre; a fourth with mustard and cress, with beetroot in centre, and so on; ringing the changes on the above, and taking care that no two are alike. It is a very pretty dish and very much liked. The little cups should be served standing on a flat dish, with a napkin beneath to prevent them from slipping about.

Potato (de Pommes de terre).—(*a*) Rub a dish with a shallot; dispose on it some cold boiled potatoes cut in slices; beat together 3 parts oil and 1 part (more or less according to strength) tarragon vinegar, with pepper and salt to taste. Pour this over the potatoes, and strew over all a small quantity of any of the following: powdered sweet herbs; mint, parsley,

chervil, tarragon, or capers, or a combination of them all, finely minced.

(*b*) Cut cold boiled potatoes in small cubes. Bone and fillet a few anchovies, and chop them up; take the same quantity of capers. Mix all together with some finely-minced tarragon or powdered sweet herbs and a plain salad dressing as in (*a*). Put on a dish rubbed with shallot, and make a border round it of pieces of hard-boiled eggs and stoned olives.

(*c*) Take equal parts cold boiled potatoes and cold boiled Spanish onions; cut them into convenient pieces; sprinkle powdered sweet herbs over, and pour over them a salad dressing as in (*a*). Serve with a border of small radishes.

(*d*) Take 4 or 5 cold boiled potatoes, ½ small beetroot, ½ small Spanish onion, plainly boiled, and about 3 in. pickled cucumber. Cut them all in slices, and arrange them on a dish. Pour over them a salad dressing as in (*a*), adding a little English mustard to it, and strew powdered sweet herbs over. Serve with a border of hard-boiled eggs cut in slices.

(*e*) Cut some cold boiled potatoes in slices, arrange them neatly on a dish, slightly rubbed with shallot or garlic, and pour the following sauce over them; mince equal quantities of capers and parsley, and a few leaves of tarragon and thyme; add oil and vinegar in the proportion of 2 to 1, and pepper and salt to taste; beat all well together.

(*f*) Pound 6 well-washed anchovies in a mortar, with 2 hard-boiled yolks of eggs, 1 dessertspoonful French mustard, and a sprig or two of tarragon; then gradually work in salad oil, add pepper and lemon juice to taste, and salt if necessary. Strain the sauce over a dish of sliced cold boiled potatoes, and strew

over all plenty of minced truffles.

Russian (Russe).—Boil some carrots and turnips in salted water with a small piece of butter, but do not let them be overdone; when cold cut out of them, with a vegetable scoop, a number of pieces the size of an olive; cut some beetroot in the same way, and likewise some truffles. Take equal parts—say a cupful—of each of the above, and a similar quantity of preserved fresh (not dried) haricot beans ready cooked, and of asparagus points preserved in the same way; 2 tablespoonfuls respectively of capers, of French pickled gherkins, cut into the shape of capers, and of anchovies, perfectly cleaned, and cut into small pieces; 2 doz. or more olives stoned, 1 tablespoonful tarragon and chervil minced fine, and half that quantity of chives, also minced. Mix the whole lightly together into a sauce, made with raw yolks of eggs, oil, vinegar, pepper, and salt, well worked together. Ornament with hard-boiled eggs, caviare, lobster spawn, olives, pickles, truffles, &c. The Spanish preserved sweet capsicums (Pimientos dulces) are a great addition to the above, not only for their exquisite taste, but on account of their brilliant colour.

Sardine.—Bone and skin some sardines and divide them into fillets; have ready some lettuces as for an ordinary salad, arrange these in the centre of the dish, pour over them a plain salad mixture, to which a little mustard has been added; dispose the fillets all round alternately with French olives washed and stoned.

Tomato (de Tomates).—(*a*) Peel some good-sized tomatoes, not over ripe, cut them in slices and remove the pips, lay them in a dish with oil and vinegar in the proportion of 2 to 1, sprinkle pepper

and salt over them according to taste, a few leaves of basil finely minced, and some onions very finely sliced. They should lie in the sauce for 2 hours before serving.

(*b*) Take some tinned tomatoes, cut them up, slice very thin a raw onion, put them into a dish, and pour over them a mixture of 4 parts oil, 1 of vinegar; pepper and salt to taste; sprinkle with powdered sweet herbs. The dish may be previously rubbed with garlic or shallot.

Watercress (de Cresson).—(*a*) Take plenty of fresh young sprigs of watercress, wash them and dry them thoroughly, put them lightly in a dish, and pour over them a mixture made with 3 parts olive oil and 1 of lemon juice or vinegar.

(*b*) To (*a*) add a few sliced shallots, and garnish with tufts of scraped horseradish.

(*c*) Pick out a quantity of nice sprigs of watercress, turn them over in a mixture of 3 parts olive oil and 2 of tarragon vinegar, with salt *q.s.*; then put them round the dish or serve separately in a bowl.

Puddings, Pastry, and Sweet Dishes.—*Agnew Pudding.*—Stew 2-3 lb. apples, peeled and cored, with sugar to taste, and a little lemon peel, until reduced to a pulp; remove the lemon peel. Whisk 3 eggs to a froth, and then mix them with the apple pulp and 3-4 oz. butter, slightly warmed. Beat all well together until quite smooth. Border a pie dish with puff paste, pour in the mixture, and bake in the oven.

Albert Pudding.—Beat ½ lb. butter to a cream, add ½ lb. crushed loaf sugar, ½ lb. flour, ½ lb. chopped raisins, the juice of a lemon, some candied peel cut very fine; mix all well together, beat 6 eggs (yolks

and whites separately), mix all together, put into a mould, boil 3½ hours. Serve with wine sauce.

Alexandra Ice Pudding.—Make 1 pint custard of milk or cream and the yolks of 4 eggs, and sugar to taste; break up and sift through a sieve ¼ lb. ratafia cakes; mix this with the custard, adding a few drops of extract of bitter almonds and freeze to 22° F. Have ready 2 oz. strawberries preserved whole, drain them well from their syrup, and dip each one in lemon juice. Put a layer of the ice into the mould, then a few strawberries, and so until all are used. Let the mould remain imbedded in ice for 2 hours.

Almond Génoise.—Beat in a mortar 2 oz. blanched almonds, adding some orange-flower water as wanted to prevent their oiling. Beat up in a bowl 2 oz. fresh butter (warmed) with 4 oz. powdered loaf sugar, add the almonds, the yolks of 4 and the whites of 2 eggs, one at a time, then very gradually 4 oz. fine flour. Continue beating until the mixture is perfectly smooth, then flavour it with some essence of vanilla, and bake as above. Spread the Génoise with apricot jam as above, and, instead of chocolate, use the following icing: Put the whites of 2 eggs into a basin with a little lemon juice and some *glacé* sugar; well work the mixture with a wooden spoon, and, as it gets thin, keep on adding more sugar until a smooth paste of the consistency of butter is obtained. Lay the icing evenly on the slab of Génoise with a palette knife, put it in the oven for a minute to set the icing, and put it out at once in a cold place, then cut up the slab as above.

Almond Jumbles.—Beat ½ lb. butter to a cream, with ½ lb. loaf sugar, pounded fine; mix with 1 lb. flour, and ¼ lb. almonds, blanched and shred fine, or beaten to a paste, with the juice of a lemon; work it

well together, roll it out, then cut it into small round cakes, and bake them in a quick oven.

Almond Pastry.—Pound 3 oz. almonds, ¼ lb. butter, 2 oz. loaf sugar, with a little rose-water till it becomes a thick paste. Spread it on a buttered tin, bake in a slow oven. When cold divide it into 8 pieces, put a spoonful of preserve on each piece, and cover with whipped cream.

Almond Pudding.-½ lb. sweet almonds pounded, ¼ lb. pounded sugar, ¼ lb. breadcrumbs, ¼ lb. butter, 6 eggs, leaving out one white. Melt the butter, beat the eggs; add the sugar, then the butter, then the breadcrumbs and almonds; beat all together, butter a mould, put in layers with 3 tablespoonfuls apricot jam; boil 1½ hour; serve with sweet sauce, made with a tablespoonful of jam and a little water.

Almond Rice Pudding.—3 oz. ground rice boiled in 1 pint milk; when cold add 6 oz. melted butter, 6 oz. sugar, 6 eggs, 3 whites, and a few blanched bitter almonds; when baked, stick it with sweet almonds.

Almond Savarin.—Take 1 lb. fine sifted flour, 4 oz. pounded loaf sugar, ½ lb. fresh butter, 8 eggs and 1 oz. German yeast. Dissolve the yeast in rather less than ½ pint tepid milk, strain it, and work into it so much of the flour as will produce a soft dough. Roll this into a ball, place the remainder of the flour into a deep basin, lay the ball of dough on it, cover up the basin, and leave it in a warm place until the ball of dough (the sponge) has risen. Now add the sugar, the butter (just liquefied), the eggs, and a pinch of salt, and work the mixture lightly with the fingers until it becomes a smooth paste. Butter plentifully a large plain border mould (Savarin mould), mince some blanched almonds, not too fine, and strew the mould with as many of these as will stick to the butter; then

pour in the cake mixture, which should not fill the mould more than ¾ full. Place the mould, covered up, in a warm place, and when the cake has well risen bake it in a moderate oven for about 1½ hour. Before turning the cake out of the mould stab the top of it (which will be the bottom when the cake is turned out) with a knife in several places, and pour all over it a mixture of 2 parts old rum, and one of very sweet syrup, so as to soak it well, but not too much, to the depth of an inch; then turn it in a dish, and serve. It may be eaten either hot or cold.

Amber Pudding.—(*a*) Put 1 lb. butter into a saucepan, with ¾ lb. crushed sugar; melt the butter, and mix well; then add the yolks of 15 eggs, well beaten, and as much candied orange peel (pounded to a paste) as will give colour and flavour. Line a dish with paste, fill with the mixture, lay a crust over, and bake in a slow oven.

(*b*) Loaf sugar 4 oz., melted butter 4 oz., the yolks of 4 eggs, and 1 tablespoonful orange marmalade; make all hot over the fire, then add 2 oz. candied orange peel in large slices, put a thin crust in a tin, pour in the above mixture, and bake ½ hour.

(*c*) ½ lb. white sugar, ½ lb. butter, boiled together for 5 minutes: when hot pour it upon the yolks of 8 eggs, well beaten; line a dish with puff paste, put some marmalade in the bottom, pour the mixture over it, and bake in a slow oven for ½ hour. This pudding is so rich, it is better eaten when cold.

(*d*) Line a pudding dish with good puff paste, take ½ lb. fresh butter, ½ lb. loaf sugar, and 8 eggs; take the yolks of the eggs, mix with the sugar and butter on the fire till it becomes thick, but not boiling; whip the whites of eggs to a froth, and mix with the other when cold. Put any sort of jam at the bottom of the

dish, pour the mixture of eggs, &c., over it, and bake for ½ hour.

'Angels' Food.—Beat well the whites of 11 eggs, add 1½ tumblerfuls (3 gills) of pulverised sugar sifted 3 times, then add 2 teaspoonfuls extract of vanilla, and lastly 1 tumblerful (½ pint) of flour, which has been sifted with 1 teaspoonful cream of tartar 5 times; the flour must be measured both before and after sifting; it will be found to have gained a little, which increase must be rejected, using only the level tumblerful. Stir lightly together, and pour it into a new ungreased tin pan. Bake it in a moderate steady oven for 40 minutes. Cover it for the first 20 minutes with a sheet of paper. Let it cool in the pan, by turning the pan upside down, resting the edge of the pan upon 2 plates, in order to allow the air to circulate under the cake. Do not shake the pan while in the oven, or while cooling, or it will be heavy. It should be eaten the day it is baked. This cake is very fashionable in America just now; but to succeed with it, it is necessary to observe absolutely the directions.

Apple and Quince Tart.—Lay a disc of puff paste on a round tin, and place a strip of paste all round it as for an ordinary jam tart. Spread on the inside a layer of quince marmalade ¼ in. thick. Peel and core some apples, cut them in slices ¼ in. thick, trim all the slices to the same shape, dispose these slices over the marmalade, overlapping each other, and in some kind of pattern; strew plenty of sugar over, and bake in a quick oven till the apples are a good colour.

Apples and Tapioca.—Peel 4-6 good-sized apples, take out the core, and fill up the cavity with sugar and powdered cinnamon, putting a small piece of butter on the top of each. Place them in a baking

dish, and strew round them about a cupful of tapioca (raw) mixed with sugar and some grated lemon rind; fill the dish with water, and put in a gentle oven until both apples and tapioca are done.

Apples, Baked.—Baked apples are very nice filled in with plain custard, also with rice and cornflour, dressed as for a pudding, and poured in where the cores were; or take a piece of quince cheese and place it in when the apples are about half done. Blackberry jam also is very nice, but must not be put in till the apples are done, or it spreads over the dish too much.

Apple Cake.—Take 1 lb. lump sugar, put it to 1 pint water, let it boil till quite dissolved and ready to candy; then add 2 lb. apples pared and sliced, and the peel of a lemon, if liked. Boil all together till quite stiff; then put it into a mould, and when cold it will turn out. Serve with custard round, and, if liked, a few almonds blanched, split, and stuck in the cake. These cakes will keep for several weeks.

Apple Charlotte.—Cut from a household loaf a number of slices of uniform thickness (¼ to ⅜ in.); butter a plain mould and all the slices of bread; shape one of them round to fit the bottom of the mould, and another one for the top; cut the rest in pieces 1 in. wide, and the height of the mould in length; lay one of the round pieces at the bottom of the mould, and line the sides with the small pieces, carefully smearing the edges with white of egg, so as to make them well hold together. Stew a quantity of apples with plenty of brown sugar, a little water, the juice and the thin rind of a lemon, and a piece of cinnamon; when thoroughly done pass them through a hair sieve; fill the mould with this purée, put on the round slice of bread for the cover, and set in a

quick oven for about 1½ hour.

Apple Compote.—Peel, core, and halve 6 large apples, trimming them so as to get them all of a size; drop them as they are done into cold water with the juice of a lemon squeezed into it, to prevent their turning brown. Have ready a strong syrup (made with 1 lb. sugar and 1 qt. water) boiling hot; put the apples into this, with the thin rind of a lemon and 2 or 3 cloves. As soon as they are cooked (great care must be taken that they do not break), take them out and dispose them, concave side uppermost, on a glass dish; place a piece of currant jelly or quince jelly in the hollow of each apple, then well reduce the syrup, and, when cold, pour as much of it as is necessary under the apples.

Apple Cream Cake.—Rub 1 oz. butter into ¾ lb. flour, and take half a pint of sour cream; dissolve 1 teaspoonful soda carbonate in 1 teaspoon boiling water, add it to the sour cream, and stir until it froths well. If the cream is very sour, it may require a little more soda. Be careful that it is frothy, or else the paste will not be light. Stir the frothing cream into the flour, enough to make a soft paste; line a greased plate with a thin layer of paste; have ready some stewed apples, sweetened and perfectly cold, grated lemon peel mixed in just before they are put into the cake, and as little juice from the apples as possible, or the crust will be soddened. Spread the stewed apple over the paste, leaving a narrow margin for the top crust to adhere to the bottom; roll out the top crust 1 in. thick; pinch the edges well together to make it a little ornamented round the edge, and bake it in a quick oven. This quantity of paste should make two good-sized cakes, the size of a dinner plate; a tin plate is best to bake them on; they

are equally good cold or hot, and are eaten with sugar and cream.

Apple Custard.—Apple chips or rings are as nice as ordinary fruit, and in winter much cheaper. They can be got at an ordinary grocers, and must be soaked 12 hours before using. Take ½ lb. of the fruit when soaked, and stir gently with sugar, lemon peel and cloves to taste, till tender. When cool, pour into a glass dish, and cover with the following custard: ½ pint milk, 1 egg, ½ small teaspoonful cornflour, 2 lumps of sugar. Mix the cornflour carefully with the milk, then whisk the egg and add it with the sugar (which is best sifted); put the whole into a jug and stand in boiling water, stirring well till it thickens, then pour it over the apples, and grate nutmeg on the top. (Bessie Tremaine.)

Apple Devil.—The following is a delicious way of dressing apples, and is not very well known: Peel and core about 30 good baking apples, and slice them into a little cold water; add equal weight of lump sugar, the juice and peel of 2 lemons cut very thin, 2 oz. very finely grated ginger, and 1 teaspoonful cayenne pepper. Boil all together till the apples look quite clear. The quantity of cayenne can be diminished to suit the taste. This will keep good for 2-3 years, and is to be eaten as a preserve. If required for a dish for dinner, beat up the whites of 4 eggs till very stiff; sprinkle with a little crushed sugar whilst beating. When very firm pile it on some of the preserve previously placed in a dish, and put in the oven till nicely browned. It may be served either hot or cold.

Apple Dumplings.—Take some finely sifted flour, say ½ lb., and ¼ lb. suet very finely shred, and well freed from skin. Mix the suet and flour, add a pinch

of salt and ½ teaspoonful baking powder, with sufficient cold water or milk to make it of the right consistency. Knead it well, and roll it out to the thickness required. Divide this paste into as many pieces as are required for the dumplings. Take some large-sized apples, peel, core, sprinkle them with moist sugar, then insert into the cavity of each some butter, sugar, and a clove. Cover them with the paste, and join the edges carefully. Tie each dumpling up in a floured cloth, and boil about 1 hour. Untie them carefully, and turn them out without breaking them; serve with cream and sugar. A little currant jelly may be substituted for the butter, sugar, and clove.

Apple Fool.—(*a*) In the country where milk and apples are plentiful, this is a cheap treat for children, and very nice. In towns, it may be necessary to soak a little light bread in the milk and beat it up with the apples to make them go further. Bake good sharp apples slowly, then they will not burst; when done, take out the pulp, rub it smooth, sweeten, add a little lemon flavouring, and a tablespoonful of new, or a teaspoonful of condensed, milk, and serve in a bowl. (Mary Hooper.)

(*b*) The proportion of milk or cream would be 1 pint new milk to 2 lb. apples. It is impossible to give the exact quantity of sugar also, as it must entirely depend on the kind of apple used, some apples requiring so much more sweetening than others; it must be a matter of taste. It is better not to put too much in at first, but a certain amount must be put in with the first boiling of the apples, and more added afterwards if not sweet enough. The apples must be peeled, the cores removed, and then put into a pudding basin with a little water, just enough to start

the juice, loaf sugar, and a few cloves. Cover the basin with a plate, and put it into a moderately hot oven to cook the apples gradually until quite soft, when they must be beaten until smooth with a wooden spoon. The milk must have been previously boiled, sweetened, and allowed to get cold. Add this by degrees to the beaten apple; mix thoroughly, and, when well amalgamated, serve it cold in a glass dish. Unless the milk be new, cream should be used with it in equal quantities. A bay leaf boiled with the milk is a great improvement.

Apple Ginger.—(*a*) 7 lb. apples, pared and cored, 7 lb. pounded loaf sugar, 2 oz. ground ginger, the juice of 3 lemons, 1 pint water. Boil slowly rather more than ½ hour. Put in moulds and cover with paper.

(*b*) Peel, core, and quarter 2-3 lb. small russet apples. Any apples will do that do not break in the boiling, but small ones look better. Put them in a jar with layers of whole ginger, about 2 oz. Make a syrup with ¾ pint water, 1 oz. ginger, and 1½ lb. lump sugar, and pour it boiling over the apples. Let it stand till the next day, then simmer the whole very slowly until the apples are tender and look transparent; take the apples out and drain them, and boil the syrup fast until it is thick. Pour it again over the apples, and when cold bottle.

(*c*) 4 lb. apples, 1 qt. water, 4 lb. sugar, 2 oz. best essence of ginger. Pare the apples, and cut them in slices as for a pie. As you pare and core them, throw them into a basin of cold water. Boil the sugar and water nearly 15 minutes until it forms a nice syrup; then put in the apples. Do not stir them much. Add the ginger; boil 1 hour till it becomes yellow and clear. Be sure not to let it boil fast.

Apple Pudding.—(*a*) Make a paste with equal

quantities sifted flour and finely chopped suet, a pinch of salt, and a little water. Roll it out thin into a large piece, place this over a well-buttered basin, and push it in so as to line the basin with it, cut it off all round so as to leave enough to fold up; roll out the trimmings to such a size as to cover the top of the basin. Pare, core, and slice a quantity of good sound apples. Put them in the basin with brown sugar to taste, and either some chopped lemon peel, 2 or 3 cloves, or a little grated nutmeg; add a small piece of fresh butter, pack the apples tight in, put on the cover of paste, turn up the edges and press them down, tie a floured pudding cloth over, and put the basin into a saucepanful of boiling water, which should come well over the pudding. Boil 2-3 hours according to size.

(*b*) Stew 2 lb. apples to a pulp; sweeten to taste while stewing, and when taken off the fire stir in 2 oz. good fresh butter; when cold, add 2 eggs beaten up; butter well the bottom and sides of a pudding dish; strew crumbs of bread 2 in. thick, over the bottom and sides, put in the apples well mixed with the 2 eggs, strew breadcrumbs over the top, and a few tiny bits of butter and white sugar. Bake in a moderate oven, and serve the pudding with cream or custard.

Apple Rings.—(*a*) Soak apple rings for 12 hours in cold water, when they will be fit for every use in casking apples, and found superior to our English apples, for sauce, puddings, &c., in particular. (J. B. F.)

(*b*) These cook much nicer and softer if they are soaked overnight in sufficient cold water to cover them, using the same water to stew them with. If this is not convenient, put them in an enamelled

saucepan—an iron one turns them black—and nearly cover them with cold water. Put in a small piece of stick cinnamon, and a few cloves: this flavouring seems to suit them better than lemon peel; add sufficient sugar when they begin to simmer, and stew until soft, which should be in ½ hour. When apple rings are stewed, they can be spread on a suet paste and be used for roly-poly puddings, or be eaten with blancmange or boiled rice, or be made into puffs, open tarts, or an apple pasty. For example, line a Yorkshire pudding tin, greased, with short paste, put in a deep layer of stewed apples and cover it with a lid of paste, pinching the edges well between finger and thumb in a crinkled fashion; brush over the top with water, sprinkle castor sugar thickly over, and bake for ½ hour in a moderate oven; turn it carefully out of the tin by placing a flat board on the top of the pasty, and turn the tin bottom upwards, when the pasty will come out of the tin; now place your dish on the bottom of the pasty and turn it over again, which will bring the pasty right side uppermost, and if done carefully it will not break. If any of the sugar falls off, grate some sugar on the bare places. To be eaten either hot or cold. Covered tarts can be made with apple rings in this way: line a shallow tin, or a dinner plate, with a thin paste, spread a layer of stewed apple and cover with a lid of paste—either short or puff—and bake it for 20 minutes; cover with thin icing, made by beating the white of an egg with 1 tablespoonful castor sugar and 1 teaspoonful lemon juice together for 5 minutes with a whisk; spread this icing over the tart with a knife and set it in a cool oven for ¼ hour to harden. These covered tarts can be made to look pretty by spreading the white icing evenly over the crust, letting it harden 5 minutes in the oven; colour a

small portion of the icing with cochineal, and put it round the edge in little pink buttons, setting the tart back in the oven for the rest of the time to harden. Apple rings can be cooked nicely in deep tarts; but, unless there is a good bottom heat to the oven, they do not cook sufficiently soft in the same time it takes to bake the crust properly, and it is best to have them stewed first.

Apple Roly-Poly.—Make a suet crust, roll it out thinly, put slices of apple all over it, sift over the apple sugar and the grated peel of a lemon or powdered cinnamon; roll it up, pinch the ends very securely; boil it in a cloth 1½ hour, and, if large, 2 hours.

Apple Snow.—(*a*) Pare and core 6 good-sized apples, steam them in 2 tablespoonfuls water, with a little lemon peel, till quite soft. Add ¼ lb. finely sifted white sugar, and the white of 1 quite fresh egg. Beat it well for ¾ hour without stopping, and serve as you please. It looks best in custard glasses heaped up.

(*b*) Take ¼ lb. of the pulp of roasted apples, ¼ lb. powdered loaf sugar, the juice of half a lemon, some of the rind rubbed into 2 lumps of sugar and then pounded, and the whites of 3 or 4 eggs. Whip all together for an hour, till it is like whipped cream, and drop it lightly into a glass dish.

(*c*) Stew some apples till tender, sweeten to taste, mash them up, and place them in the centre of a dish; round and over them place a layer of boiled rice (dry); whisk the whites of 3 or 4 eggs until quite light and frothy; cover the whole with this froth, sprinkle over it powdered sugar, colouring a little of it with cochineal.

Apples, Stewed.—(*a*) Peel and core 6 apples, put the cores and parings into 1 qt. water, and simmer gently. Strain off, and pour the liquor over the apples, adding the juice of half a lemon, and 3 oz. white sugar. Boil gently till the apples are quite tender, then turn out into a basin, and beat up with a fork, gradually adding about 1 teacupful cream. When the whole is about the consistency of cream, pile up in a glass dish, and put away in a cool place. Whipped cream or the whites of eggs, well whisked, may be put over the top before serving.

(*b*) For a small dish, 5 large apples will be enough. Peel them, take out the cores, put them into a pie-dish with their weight of loaf sugar, 1 pint water, half the rind of a lemon, and a few drops of cochineal. Put them in the oven until done through. Remove the apples on to a dish without breaking, put the liquor into a stewpan, and set it on the fire to reduce to a syrup; pour it over the apples, first taking out the lemon peel. They may be done in the same way without colouring; the lemon peel should then be taken out at the same time as the apples. Cut the peel up into very fine strips, and when the syrup is made, throw in the strips of peel, to be served up in it round the apples. The syrup should be perfectly clear. Just before sending to table, put 1 teaspoonful red currant jelly in the hole at the top of each apple, or a dried cherry on the top of each makes a pretty garnish.

Apple Tart.—Lay a disc of puff paste on a round tin, spread a layer (about ⅜ in. thick) of apple marmalade over it, leaving a rim 1 in. wide clear all round; roll out, and cut some of the paste in strips the size of a straw; form a trellis-work with them over the marmalade, then put a border of paste all

round over the rim. Glaze the top of the border and trellis with beaten-up egg, and bake in quick oven.

Apricot Cake.—Make a cake with 3 eggs, their weight in butter, flour, and sugar; beat up the eggs till very light, mix with them their weight in castor sugar; now add the flour, into which you have mixed ½ teaspoonful baking powder; and lastly the butter, just dissolved by putting into a hot stewpan and shaking round. It should be dissolved, but not hot. Beat the cake a few minutes; put into a small cake tin, and bake ½ hour in a rather quick oven; when done, take from the oven, and let stay in the tin while you prepare the apricots, cut them in halves, take out the stones. Make a syrup with ¼ lb. sugar to ½ pint water; boil up, and put in the apricots, and stew gently till they are done, they should not be broken; lift them out, and reduce the syrup by quick boiling; let it cool, turn the cake very gently out of the tin; cut the cake round about ½ in. from the edge, take off the same, scoop out the centre, fill it with the apricots and put a whip of cream on the top, and the remainder of the apricots can be arranged round the base, the insides turned upwards, the stones cracked, and the kernels blanched, and one put in the centre of each half apricot.

Apricot Chartreuse.—Take a tin of preserved apricots, turn out the contents into a saucepan, add 6 oz. sugar, ½ pint water, and a glass of wine; let them boil up; strain off the syrup, take out the kernels, remove the outer skin carefully from the apricots, and leave them to get cold. Add to 1 pint of the syrup 16 sheets best French gelatine steeped in a little water, boil up the whole, and clarify with 3 whites of eggs; have 2 plain moulds, one about 1¼ in. more in diameter than the other, pour a very little

jelly at the bottom of the larger mould, and place in it a layer of slices of apricots prepared as above, and a few split kernels; cover this with more jelly, but only put enough to get a smooth surface; lay this on ice to set. When it is quite firm, put the small mould inside the large one, taking care to place it exactly in the middle, so that the vacant space between the two moulds be of the same width all round. In this vacant space dispose slices of apricots and the rest of the kernels, filling up the interstices with the jelly until all the space is filled up. Place the mould upon ice: whip a pint of cream with ½ oz. dissolved isinglass and some of the apricot syrup, which must be added to it a very little at a time, or the cream will not rise to a froth. When the cream is ready and the jelly set, remove the inner mould by pouring warm water into it, and fill up the inner space of the chartreuse with the cream: set it on ice for an hour, turn out and serve.

Apricot Cream.—Take a tin of preserved apricots, turn out the contents into a saucepan, add 2 oz. sugar, let them boil for ¼ hour, and pass them through a tammy. Dissolve 1 oz. or 7 sheets best French gelatine in a little milk, whip to a froth a pint of cream. Mix the gelatine with the apricot pulp, then quickly work into it the cream, pour the mixture into a mould, and put it on ice to set. When wanted, dip the mould in hot water and turn out the cream.

Apricot Omelet.—Beat up the whites of 4 and the yolks of 6 eggs with a very small pinch of salt. Put a piece of fresh butter in the omelet pan, and directly it is melted pour in the eggs. As soon as they are set, fold up the omelet, inserting within the fold as much apricot jam as will lie in it. Turn out the omelet

neatly on its dish, cover it with powdered sugar, and glaze it with a red-hot salamander.

Apricot Toast.—Take some ripe but not over-ripe apricots, halve and stone them. Make some syrup with plenty of white sugar and some water: when boiled for 2 hours strain; lay the pieces of apricot in the syrup, and add a glass of white wine; simmer for a few minutes. Cut out of the crumb of a milk loaf some rounds a little larger than the apricots. Fry them a pale yellow in fresh butter, drain and arrange them in a circle on a dish with a piece of apricot on each round, concave side uppermost: put a kernel in the centre of each, pour the syrup well over, and serve with some whipped cream in the centre of the dish.

Arrowroot Blancmange.—(*a*) Take 1 qt. milk and mix 3 oz. best arrowroot with a cupful of it cold. Then boil the rest of it with 6 laurel leaves or a chip of vanilla as preferred, pour it boiling on the arrowroot, stir quite smooth, sweeten, boil the whole for 10 minutes, taking care it does not burn, and put into a mould. The cause of its cracking is either bad arrowroot or under-boiling.

(*b*) Dissolve a little isinglass or gelatine in the milk with which the arrowroot is made; it will stand, but it is the nature of arrowroot to become liquid after a short time. Sago and tapioca both make very nice blancmange, and are firmer than arrowroot. They may be either flavoured with lemon or vanilla, or served plain with jam and cream round them.

Arrowroot Pudding.—Mix 1 teacupful arrowroot with ½ pint cold milk; put 1 qt. milk into a saucepan, with cinnamon, lemon or orange peel, and boil it, sweetening it with 2 oz. sugar. Pound 12 bitter almonds, and mix them with the arrowroot

and cold milk; strain it through a hair sieve, and add it to the boiling milk, stirring it well. When it begins to thicken, add 1 teaspoonful fresh butter, and, when thoroughly done, pour it into a mould. Do not turn out until quite cold.

Arrowroot Shape.—Mix 2 oz. arrowroot in ½ pint cold water, let it settle; pour off the water, and flavour the arrowroot with a little orange-flower water. Boil 1 qt. milk with some sugar and a little cinnamon, strain through a tammy on to the arrowroot, stirring all the time; simmer a short time, still stirring; put it into a well-oiled mould, turn it out the following day, and serve it with a custard made with 1 pint milk, 4 yolks of eggs, and flavoured with orange-flower water.

Aunt Eleanor's Tartlets.—Prepare ½ lb. apples, as for a tart, and put them in a stewpan with a wineglass of water, 4 oz. preserving sugar, a small piece of cinnamon, 4 cloves, and 2 small strips of lemon peel; stew until the apples are quite tender, when pass them through a sieve, and set them aside to cool. Should the apples not be rather sharp, a squeeze of lemon juice may be added. Now break 2 eggs into a basin, and whisk them until well mixed, stir to them gradually half a stale penny sponge cake, and 1 oz. loaf sugar reduced to a fine powder, and, last of all, 2 oz. liquefied butter; mix well. Line some pattypans with good puff crust, and put in them first a little of your apple pulp, and cover this with a layer of the egg mixture. Bake in a moderate oven until of a fine golden brown, and serve either hot or cold, as preferred.

Baba.—Have ready 1 lb. fine flour passed through a sieve, 4 oz. raisins (stoned), 4 oz. currants, 8 eggs, 4 oz. pounded sugar, 4 oz. fresh butter, 1 glass

brandy, 1 oz. German yeast. Dissolve the yeast in ½ pint tepid milk, strain it, and mix in it a good handful of the flour; work it lightly with the hand into a light soft dough, which is called “the sponge,” put it into a deep stewpan or basin, leave it in a warm place to rise, put the remainder of the flour on a slab or pastry board in a heap, make a hollow space in the centre, break the eggs into it, add a good pinch of salt, and pour the butter just warm on to the eggs; work all lightly together, using the fingers of both hands, raising the hands up and down, so as to beat the air into the paste, when whisking the white of an egg; this should be done just before the sponge is ready, then mix in the sponge in the same light way, and lastly, add the rest of the ingredients; lift the whole into a large well-buttered mould, and put it in a warm place free from draught until it is nicely risen: bake 1½-2 hours in a moderate oven; serve hot, with either red currant jelly or apple jelly, melted with a little brandy, in a sauceboat.

Baden-Baden Pudding.—Boil ¼ lb. rice in milk to a smooth mash, and with it 1 in. vanilla to flavour. Soak ½ oz. gelatine in cold water a few minutes, then add it to the rice to boil. Whip a pint of cream, with a ¼ lb. sifted sugar, to a froth. When the rice is cooled to lukewarm, stir it briskly into the cream. Wet a mould, fill it with the mass, and set it in a cold place, or in ice. Turn it out when firm.

Bakewell Pudding.-½ lb. butter, the yolks of 8 eggs, the whites of 2, ½ lb. powdered white sugar; cover a pie-dish with puff paste, put a layer of any kind of preserves about 1 in. thick; gently melt the butter, add that to the eggs. When nearly cold, beat all well together and flavour with almond essence; pour the mixture into the dish about 1 in. thick; bake it about

1 hour in a moderate oven.

Batter Pudding.—(*a*) Take 2 eggs, 2 tablespoonfuls flour, 1 of butter, and 1 breakfastcupful milk. Beat the butter to a cream, beat the eggs, add a little white sugar, and for a change the grated rind of a lemon; put in the flour and milk, and beat all together. Pour the mixture into a buttered shallow dish, and bake 20 minutes in a sharp oven. It may also be baked in common saucers instead of a dish, when the puddings should be doubled up when turned out, so as to form semicircles on the dish, and sifted sugar strewn over them.

(*b*) Make a batter of 2 eggs, 1 pint milk, 6 tablespoonfuls flour, and a pinch of salt; line a pie-dish with marmalade or preserve, and bake 40 minutes in a quick oven; apples sliced into the batter instead of the jam are very good.

(*c*) Mix ½ lb. flour in a basin with ½ teaspoonful salt; break in 2 eggs, mix well, and gradually add 1 pint milk, mixing it all the time. Should there be any lumps, they should disappear in the moistening. Let it stand a short time to rise, butter a pie-dish, pour the batter in, and bake in a quick oven; it ought not to take more than ½ hour to bake; it should have risen very high, and must be served at once, before it has time to fall. For boiling, butter a pudding basin, pour the same batter into it, tie down tightly with a cloth, and put it into a saucepan of boiling water. It should be moved about for a few minutes after it is put into the water, to prevent the flour from settling in any part. It will take rather more than 1 hour to boil; turn it out, and serve at once, with either wine sauce or sweet sauce round it in the dish.

Biscuit Charlotte.—Line a basin closely with some thin finger biscuits, so as to form a complete case.

Peel, slice, and core 12 apples, and stew with them a few cherries in butter. Fill the case with the fruit, but leaving a hole in the centre, in which place a small glass, which may contain any jam or preserved fruits; boil 1 hour and turn out. Pour over or serve with clotted cream or custard.

Bishop Pudding.—Butter some thin slices of bread, without crust, and over the butter spread a good layer of jam. Cut the slices into convenient pieces. Line and border a deep pie-dish with puff paste, arrange the slices of bread and butter in the dish until half full. Make an ordinary, rather milky ground rice pudding, flavour the milk with which it is made with the rind of a lemon. Sweeten to taste, and add to it 2 or 3 beaten-up eggs, according to the size of the pudding. Pour this mixture into the pie-dish, and bake in a brisk oven.

Blackberry Mould.—Put 1 lb. ripe blackberries into a pudding basin, place this in a larger one of hot water, put a plate on the top, and let it remain in the oven until the fruit is soft. Press out all the juice and mix it with rather more than 1 lb. apples, previously pared, cored, and cut into quarters; put both together into a preserving pan; let them boil for ½ hour, and then add ¾ lb. powdered loaf sugar; let it boil for 10 minutes more, stirring with a silver spoon, when it will be ready to put into the mould, which should be of earthenware. A little grated lemon peel should be added.

Blackberry Puddings and Tarts.—Both are better for having a small quantity of any good cooking apple mixed with the berries; the apples should be sliced as thinly as possible, and should be at once stirred in with the other fruit and with sugar.

Blancmange.—Take 6 bitter almonds and 8-9 oz.

sweet almonds blanched and peeled, pound them in a mortar with a little orange-flower water; when reduced to a paste add rather less than 1 pint milk, pounded loaf sugar to taste, a little more orange-flower water. Strain the mixture through a cloth, squeezing it well, into a basin containing 8 or 9 sheets best French gelatine dissolved in 1 pint water; mix well, put into a mould set on ice, turn it out just before serving.

Bombay Pudding.—(*a*) Soojee is only the native name for semolina. Cut slices of bread without crust, ½ in. thick, and toast them a light brown on both sides. Then boil brown sugar to a syrup, and pour it over the bread, which become saturated with it.

(*b*) Half roast 2 lb. soojee, then boil it in water until it becomes very thick; butter a soup plate, and pour the boiled soojee into it; when it has cooled and congealed cut it into 8 cakes; rub the cakes over with the yolk of an egg, dredge with finely sifted flour, and fry in butter until they acquire a rich brown colour. Arrange them in a dish, and pour over them a thick syrup flavoured with lemon juice.

Boston Pudding.—Rub 6 oz. butter or nice beef dripping into 1 lb. flour; add 6 oz. currants or sultana raisins, 6 oz. moist sugar, ½ teaspoonful powdered cinnamon, and ¼ nutmeg, grated. Dissolve 2 teaspoonfuls soda carbonate in ½ pint milk, being careful to mix the soda perfectly smooth and free from lumps in a tablespoonful of the milk first, and then add the rest of the half pint, stirring it well before mixing it with the other ingredients, so that the soda does not settle to the bottom of the milk. Beat all together for a minute, and put the mixture into a buttered mould, which should not be quite full. The pudding cloth should be allowed room for

the pudding to swell, which it does considerably. Plunge into fast-boiling water, and keep boiling for 2½ hours. This makes a very light pudding, and, if properly made, no trace of the soda—which many people object to—can be detected.

Bread Pudding.—(*a*) Put all scraps of bread into the oven until they become a nice brown, roll them while hot quite fine. For a good-sized pudding take ½ lb. crumbs ¼ lb. brown sugar or golden syrup, ¼ lb. currants or raisins, 1 pint milk, 1 teaspoonful allspice, and 1 pint boiling water. Pour the boiling water over the crumbs, stir them well, and let them soak until soft; then add all the ingredients, mix well, rub the pie-dish with dripping, fill it, put some more dripping on the top of the pudding, and bake ½ hour. This pudding is a general favourite with children and servants.

(*b*) Cut a roll in thin slices, well butter a mould, and stick it all round with raisins stoned and opened; put the bread lightly in; make a sweet batter with 3 or 4 eggs, flavour it with vanilla: pour it over, and leave it to soak well; bake or steam for an hour. Any flavouring may be used.

(*c*) 1 lb. breadcrumbs, 1 lb. raisins, 1 lb. currants, 1 pint milk, six eggs, 4 oz. butter, and 1 lb. sugar. Pour the boiling milk on the breadcrumbs, cover with a plate and let it remain for 1 hour; then add the butter, currants, raisins stoned and cut a little, and the sugar; mix all well together, adding candied fruit, a little grated lemon peel, and spice, and the eggs well beaten; boil 4 hours in a buttered basin or mould, and serve with sweet sauce. If it be requisite to add a little flour, boil an hour longer.

(*d*) Grate 3 oz. breadcrumbs, and pour over them ¾ pint boiling milk, in which a lump of butter, the

size of an egg, has been dissolved. Soak for ½ hour; then add 1 tablespoonful moist sugar, and the yolks of 3 well beaten eggs; beat with a fork for 3 minutes; spread a layer of any kind of jam 1 in. thick at the bottom of a pie-dish, not greased. Pour the mixture over the jam, and then heap on the top the whites of the 3 eggs well whisked with a little castor sugar. Bake in a gentle oven for ½ hour, taking care the bottom of the oven is not hot enough to scorch the jam.

(*e*) Make a quantity of breadcrumbs by rubbing the crumb of a stale loaf through a fine wire sieve; put 1 pint milk and 1 oz. fresh butter into a saucepan on the fire, with sugar to taste, and the thin rind of a lemon, cut if possible in one piece; when the milk boils strew breadcrumbs into it until a thick porridge is obtained; turn it out into a basin. When cold remove the lemon rind, and stir in one by one the yolks of 4 eggs, mix well, then stir in the whites of 2 eggs beaten up to a stiff froth and a small quantity of candied citron peel cut very thin. Have a plain mould, buttered and breadcrumbed very carefully all over, pour the composition into it, and bake it about ½ hour. To be eaten hot or cold.

(*f*) Line the bottom and sides of a basin with slices of bread; mix a pot of jam with a little hot water, put a layer of the jam in the basin, then a layer of bread, then more jam; continue this until the basin is full; put a plate on the top. Turn out the next day, and serve with custard round it.

(*g*) 6 oz. stale brown breadcrumbs, 6 oz. fresh butter, 4 eggs (the yolks and whites whisked separately), ½ oz. powdered cinnamon, ½ lb. coarsest brown sugar. Cream the butter, then mix well with the sugar till quite smooth, add the well-

beaten eggs, and stir in gradually the other ingredients. Steam the pudding for 2 hours or even more (it cannot be too much done). When turned out, pour melted cherry jam over it, and serve hot.

(*h*) Cut the crust from slices of a dry tin loaf ¼ in. thick; spread with butter slightly and cover thickly with preserve. Take a quart mould and butter perfectly—to look well the mould should be marked plainly in broad flutes. Pile the prepared bread lightly in the mould, having first cut it in diamonds as for sippets. Beat 4 eggs with a pint of milk, sweeten and pour over the bread. Lay a buttered paper on the top, and after standing ½ hour cook in boiling water for 1 hour. A cloth should be tied over the mould above the paper, and the water should only reach ¾ of the mould. A clear arrowroot sauce flavoured with sherry should be served with it, and a large spoonful of fresh jam spread on the top when turned out.

(*i*) Take 1 egg, its weight in fresh butter (melted), its weight in flour, 1 dessertspoonful marmalade, 1 ditto raspberry jam, the weight of the egg in breadcrumbs, and 1 teaspoonful soda carbonate. Break the egg and beat it up well; add the melted butter, the flour, the breadcrumbs, and the jam and marmalade; beat all up well together, and, lastly, put in the soda carbonate. Butter a basin, pour in the mixture, tie it down well, and steam it in a saucepan for 1½ hour. Turn out and serve with custard sauce. This is a light and delicious little pudding, and can be of course made larger by using double or treble the quantities. It turns out quite dark, and light as a feather. It is also nice with fruit sauce of any kind.

(*j*) Break the bread into small pieces and pour on them as much boiling water or milk as will soak

them well. Let these stand till the liquid is cool, press it out, and mash the bread till it is quite free from lumps. Measure this pulp, and to every quart stir in ½ teaspoonful salt, 1 teaspoonful grated nutmeg, 3 oz. moist sugar, mix all well together, and put it into a well-buttered pie-dish. Break 1½ oz. butter in small pieces over the top; bake in a moderate oven 1½ hour. Or, to every ¾ pint pulp add 1½ pint milk, sugar to taste, 4 eggs, 1 oz. butter; pour the milk boiling on the bread, let it stand till cold, add the other ingredients, beat well, and put into a buttered basin, tie it down tightly, plunge it into boiling water, boil for 1¼ hour.

Brioche.—Dissolve 1 oz. German yeast in ½ pint tepid water, strain and mix with it enough flour to form a light dough, put this sponge to rise in a warm place in a basin covered up with a cloth. When it has risen to double its size, put 1 lb. flour on the pastry slab, make a hollow in the centre, place the sponge in it with 1 lb. fresh butter just warmed sufficiently to make it liquid, ¼ oz. salt, 1 gill milk, and 10 eggs; work all lightly together into a paste, adding more flour if needful, to the consistency of bread dough, roll it into a ball, and put it by for 3 hours covered up in a warm place. Then flatten it out, fold up the edges towards the centre, and make it into a ball again, repeating this operation 3 times. The last time take rather less than ¼ of the paste away, make the remainder into a round cake, flatten it slightly, and place the lesser portion on the top, wetting the under side of it. The brioche should look like a cottage loaf. Glaze it all over with egg, and bake it on a buttered tin in a quick oven about ¾ hour.

Brown or Quay Pudding.—2 eggs, their weight in flour and butter, the weight of one in sugar; beat the

butter to a cream with the sugar, add the eggs well beaten, stir in the flour, then stir in 2 tablespoonfuls raspberry jam or jelly. Just before putting the pudding into the mould, beat in ½ teaspoonful soda carbonate. Boil or steam for 1¾ hour. Leave plenty of room for the pudding to rise in the mould. Serve with wine or sweet sauce. If preferred, put 2 tablespoonfuls nice treacle or golden syrup, with ½ teaspoonful ground ginger, instead of the raspberry jam.

Cabinet Pudding.—(*a*) Spread the inside of a mould with butter, and ornament the bottom and the sides with dried cherries or raisins and candied peel; fill the mould with alternate slices of sponge cakes and ratafias or macaroons, then fill up the mould with a cold custard made with 7 eggs and 1 pint of milk boiled with 6 oz. sugar, flavour with rind of lemon or vanilla, all well mixed together; steam the pudding for 1¼ hour, and when done serve with whip sauce made in the following way: Put 4 yolks of eggs into a small deep stewpan, add 2 oz. sifted sugar, a glass of sherry, a little lemon juice and grated peel, and a grain of salt: whisk the sauce over a moderate heat, taking care to set the stewpan which contains the sauce in another of somewhat larger size already containing a little hot water, and as soon as it presents the appearance of a well-set creamy froth pour it over the pudding, and serve immediately.

(*b*) Well butter a plain mould and ornament it by sticking dried cherries along the sides in rows at equal distances from top to bottom, letting them meet in the centre. Place ratafia cakes and sponge biscuits cut to half their thickness in alternate layers, until the mould is full; pour over them sherry and a little brandy, just as much as they will absorb. If the

mould be a large one, the yolks of 8 eggs will be required, these to be beaten with as much new milk as will make a sufficient quantity of custard to pour over the cakes and to quite fill the mould; a little grated nutmeg, and ginger if liked, to be added to the custard while beating. If the milk is not new a few spoonfuls of cream must be mixed with the milk. Cover the mould with a sheet of buttered writing paper, and place it in a stewpan half filled with boiling water; put on the lid, and let the pudding steam for 1½ hour. A hot custard may be poured round the pudding as sauce, or some red currant jelly diluted and thinned with a spoonful of hot water may be served with it; neither must be poured over the pudding.

(*c*) Butter a plain mould, ornament it with raisins split and stoned in the same way as in (*b*), nearly fill up the mould with slices of bread and butter (leaving room for the bread to swell), cut from the crumb of a French roll, the slices should not be very thin, but should be well buttered. Make a custard of the yolks of 3 or 4 eggs (according to the size of the mould) and milk, flavouring as before; pour this over the bread and butter until the mould is full, cover with buttered writing-paper, and steam for 1½ hour. Serve with sweet sauce in the dish.

Caledonian Cream.—2 oz. raspberry jam, 2 oz. red currant jam, 2 oz. sifted loaf sugar, the whites of 2 eggs. Put all into a bowl, and beat with a spoon for ¾ hour.

Cambridge Pudding.—Take 1 lb. flour, 1 dessertspoonful Borwick's egg powder, 3 oz. white sugar, 6 oz. good dripping, a pinch of salt, a teacupful of sultana raisins or currants, and 1 oz. candied peel cut fine. Mix well together, then stir in

½ pint milk; pour into a buttered dish, and bake more than ½ hour. Another plain pudding is to line a basin with paste made of dripping; then put a layer of treacle, then a layer of paste, and so on until the basin is filled; then tie in a cloth and boil 1½ hour.

Canary Pudding.—The weight of 3 eggs in sugar and butter, the weight of 2 eggs in flour, the rind of a small lemon, 3 eggs. Melt the butter to a liquid state, but do not allow it to oil, stir to this the sugar and finely minced lemon peel, then very gradually dredge in the flour, stirring the mixture well all the time, then add the eggs well beaten, mix well until all the ingredients are thoroughly blended, put into a well-buttered basin or mould, boil for 2 hours, and serve with wine sauce. (Beeton.)

Caramel Custards.—Put a handful of loaf sugar in a saucepan with a little water, and set it on the fire until it becomes a dark brown caramel, then add more water (boiling) to produce a dark liquor like strong coffee. Beat up the yolks of 6 eggs with a little milk; strain, add 1 pint milk (sugar to taste) and as much caramel liquor (cold) as will give the mixture the desired colour. Pour it into a well-buttered mould; put this in a *bain-marie* with cold water; then place the apparatus on a gentle fire, taking care that the water does not boil. Half an hour's steaming will set the custard, which then turn out and serve. By using the white of 1 or 2 eggs in addition to the 6 yolks, the chances of the custard not breaking are made more certain.

Caramel Pudding.—(*a*) Prepare a mould by giving it a thick coating of caramel sugar; when this has set, pour into the mould a custard, made of the yolks of 8 eggs and 1½ pint best cream; steam for 1 hour and serve when cold.

(*b*) Put a handful of loaf sugar to boil with ¼ pint water until the syrup becomes a deep brown. Warm a small basin, pour the syrup in it, and keep turning the basin in your hand until the inside is completely coated with the syrup, which by that time will have set. Strain the yolks of 8 eggs from the whites, and mix them gradually and effectually with 1 pint milk. Pour this mixture into the prepared mould. Lay a piece of paper on the top. Set it in a saucepan full of cold water, taking care that the water does not come over the top of the mould, put on the cover, and let it boil gently by the side of the fire for 1 hour. Remove the saucepan to a cool place, and when the water is quite cold take out the mould, and turn out the pudding very carefully.

Carrot Pudding.—(*a*) ½ lb. each of raisins and currants picked and stoned, ½ lb. finely chopped beef suet, ¾ lb. breadcrumbs, ½ lb. each of carrots and potatoes (raw) when scraped and grated, ¼ lb. fine moist sugar, a little finely cut lemon peel (or if preferred 2 oz. candied peel), spice to taste, a teaspoonful of salt. Very little liquid is required to form the right consistency, as the moisture from the vegetables is nearly sufficient. What more is wanted should be milk. Boil in a basin or mould 4-5 hours. Serve with or without brandy sauce. This is a very nice and inexpensive pudding, no eggs being used.

(*b*) 1 lb. grated carrot, 6 oz. breadcrumbs, 6 oz. raisins, 6 oz. currants, 6 oz. sugar, ½ lb. suet, half a nutmeg, half the rind of a lemon grated, 2 tablespoonfuls flour, 1 egg, and a little salt. Mix all well together, and put it into a well-buttered mould. Boil 4 hours.

Castle Pudding.—Mix 1½ oz. finely sifted flour with the same weight of powdered sugar. Dissolve in a

basin before the fire 1½ oz. fresh butter, beat it to a cream; whisk 2 eggs, and mix them slowly with the butter, stir in the sugar, and afterwards the flour; add a spoonful of grated nutmeg and ½ lemon peel grated. Put the mixture into tins, and bake in a moderately heated oven for 20 minutes.

Charlotte Russe.—These are best made in a plain round tin. Take some Savoy biscuits, using half at a time, and keeping the rounded side next the mould; form a star at the bottom by cutting them to the shape you require to fit into each other; touch the edges of the biscuits lightly with white of egg to hold them together, but be very careful not to let the egg touch the mould, or it will stick and prevent it from turning out. Having made a star for the centre, proceed in the same way to line the sides by placing the biscuits standing upright all round it, their edges slightly overlapping each other; these must also be fastened to each other, and to the centre star by a slight application of white of egg, after which the tin must be placed in the oven for a few minutes to dry the egg. For a small mould, ½ pint double cream, 3 teaspoonfuls pounded sugar, and rather more than ¼ oz. gelatine would be sufficient. The cream must be whisked to a stiff froth with the previously melted gelatine, the sugar, and a few drops of vanilla flavouring; pour this mixture into the mould, covering it with a slice of sponge cake, the size of the mould, to form a foundation when it is turned out; the biscuits forming the sides must have been cut evenly with the top, and must be touched lightly with the white of egg to make them adhere to this foundation slice. Place the mould on ice until required, then turn it out on a dish and serve at once. This requires great care in the turning out.

Cherry Jelly.—Make some jelly as above, and flavour it with a small quantity of noyeau. Have some preserved cherries stoned; pour some jelly in a mould, dispose some cherries round, cover with jelly, then put in more cherries, and so on until the mould is full.

Cherry Pudding.—Mix 3 tablespoonfuls flour to a smooth paste with part of 1 pint milk; then add the remainder. Warm 1 oz. butter, and stir it in; 3 eggs well beaten, and a pinch of salt. Stone 1 lb. bottled cherries, and stir them into the batter. Tie up in a pudding cloth, or put into a shape, and boil 2 hours. Serve with sweet butter sauce.

Cherry Tart.—Make a short paste with 1 white and 3 yolks of eggs, 1 oz. sugar, a little milk, 1 oz. butter, a pinch of salt, and sufficient flour. Work it lightly, roll it out to the thickness of ¼ in.; line a flat mould with the paste, uniting the joint, carefully with white of egg, fill the mould with uncooked rice and bake it. Stone 1½ lb. stewing cherries and cook them with some sugar, a little sherry, and a few drops of cochineal to give them a nice colour. Remove the rice and put in the stewed cherries. Serve hot or cold.

Chestnut Compote.—Roast about 30 chestnuts, take off the peel, and put them into a preserving pan with ¼ lb. sugar, pounded, and half a glass of water. Let them remain until they have absorbed the sugar, then take them out and dress them high on a dish; squeeze over them the juice of a lemon and sprinkle them with fine sugar, when they are ready to serve.

Chestnut Cream.—Peel about 20 sound chestnuts, and parboil them in slightly salted water until the skin comes off easily. Pound them in a mortar, and pass them through a fine sieve. Soak 1½ oz. gelatine

in ½ pint milk, add 6 sweet almonds blanched and bruised, the thin rind of half a lemon, and sufficient sugar. Let the whole come to the boil, and then put it by to cool a little, and strain this on the chestnut purée, mixing the two very thoroughly. Add a wineglassful of dry curaçoa, and, lastly, ½ pint cream; mix thoroughly, pour into a mould, set it on ice to set, and turn it out on a bed of cream whipped with sugar to a froth. If the cream put into the mixture is previously whipped, it is an improvement.

Chestnut Pudding.—(*a*) Boil 20-30 chestnuts in water till they feel tender, then dry them in the oven; take off the shells and skins, and pound the nuts to powder. To 6 oz., add 4 oz. butter beaten to a cream, 3 oz. loaf sugar, 6 fresh eggs, and 1 gill new milk. Butter a mould, stick it tastefully with either cherries or raisins; put in the pudding, cover it with writing paper spread with butter, and steam over fast-boiling water for 1½ hour, or bake in a quick oven ¼ hour less. Serve with clarified sugar or with sauce.

(*b*) Boil 40 good-sized chestnuts, rub them through a sieve, and place in a stewpan with a pinch of salt, ¾ pint cream, 3 oz. butter, ¼ lb. sifted sugar, and half a stick of vanilla, pounded fine. Stir these gently over the fire till the mixture begins to thicken and then at once stir more rapidly, until it leaves the bottom and sides of the stewpan. Then remove it from the fire, add the yolks of 6 eggs and the whites of 4, whipped to a firm froth, mix well, and pour it into a plain mould well buttered; place a buttered paper over the top, and let the pudding steam for 1½ hour, or rather less. When done, turn the pudding carefully out on to a hot dish, and serve with diluted hot red currant jelly round it, the top being sprinkled with white sugar; or, better still, with diluted apricot

jam, which should be poured quite warm over and around the pudding.

Chocolate Blancmange.—Grate ¼ lb. chocolate into 1 qt. milk, add 1½ oz. gelatine, and ¼ lb. powdered sugar; mix all in a jug, and stand it in a saucepan of cold water over a clear fire; stir occasionally till the water boils, and then stir continuously while boiling about 15 minutes. Dip a mould in cold water, pour in the blancmange, turn out when set.

Chocolate Pudding.—(*a*) Soak ½ lb. gelatine with a little cold water, put it in a pan with ¼ lb. grated chocolate, 1 oz. sugar, and 1 pint milk; stir till it boils. Break the yolks of 4 eggs in a basin, stir with a wooden spoon. When the chocolate boils allow it to stand one minute, then pour it on the yolks, return to the pan, and stir till it thickens, not letting it boil; pour into a wet mould.

(*b*) Take 4 rolls, cut off the crust, and leave them to soak, until quite soft, in milk sweetened according to taste. Add a lump of butter the size of an egg, a little cinnamon, the yolks of 6 eggs, and the whites beaten to snow, and, lastly, ½ lb. grated chocolate. Stir up all the ingredients, and, when thoroughly mixed, fill the pudding mould, which must be a closed one, and boil 2 hours, putting it into the water when boiling. Serve up with a cream custard, flavoured with vanilla.

Chocolate Strudels.—Beat well the whites of 2 eggs and the yolks of 4, warm a piece of butter the size of an egg, and add it to the eggs with a little salt; work in by degrees as much fine flour as will form a rather stiff dough, knead this till quite smooth. Divide the paste into small balls, roll them round in the hands, then, with a smooth rolling-pin, roll them out very

thin—as thin as possible. They should be about the size of a saucer, but rather oval. Grate vanilla chocolate, and mix it with some pounded almonds and the yolks of 2 or 3 eggs, with the whites beaten to a snow. Spread hot butter over the strudels, and then the chocolate as thin as a knife-blade. Roll them up, when the shape will be larger in the middle, and tapering off at both ends. Lay them 1 in. apart in a baking tin, or a large stewpan, that has been well buttered; cover, and bake them in the oven, or over a slow fire, with red coals on the lid to draw them. When they are risen and beginning to colour, pour some hot milk over, and finish baking a very pale brown. The last thing before putting them in the oven they should have some grated chocolate and crushed sugar strewn over them.

Citron Pudding.—Take ½ pint cream, 1 tablespoonful flour, 2 oz. white sugar, and a little grated nutmeg. Mix all these ingredients together with the well-beaten yolks of 3 eggs. Cut 2 oz. citron into thin slices, place pieces of it in small buttered moulds or cups, fill them with the mixture, and bake until the pudding assumes a light brown colour. This quantity will make 5 puddings, which are sufficient for a side dish.

Claret Jelly.—1 bottle of claret, the juice and rind of 1 lemon, 1 sixpenny pot of red currant jelly, ½ lb. loaf sugar, rather more than 1 oz. isinglass in hot weather (in winter 1 oz. is quite sufficient), a wineglassful of brandy. Boil altogether for a few minutes, taking care that the red currant jelly is well dissolved and thoroughly mixed with the other ingredients: 10 minutes will generally effect this, but a good deal depends on the general temperature. Serve with cream sauce as follows: ½ pint cream

sweetened and flavoured with vanilla whisked to a stiff froth; pour round the jelly, not over it. Half these quantities will fill a mould large enough for 6 people.

Clarges Street Pudding.—1 pint new milk, ¾ oz. isinglass, 1 bay leaf, the peel of 1 Seville orange, lemon and sugar to taste. Boil altogether; when the isinglass is dissolved take it off the fire and add immediately the yolks of 8 eggs and 1 pint cream; when nearly cold, add 1 wineglassful brandy, pour into a mould, turn out, and serve with the following sauce: The juice of 2 lemons, an equal quantity of water and sugar to taste; cut the peel of the lemon into long thin shreds and boil in the syrup till quite tender; pour it over the pudding, letting the shreds remain on the top.

Clifton Pudding.—Boil a teacupful of rice for nearly an hour in a cloth, putting it on in cold water. Have ready sweet sauce, made of ½ pint milk (or water), 1 tablespoonful flour, and 3 lumps sugar; pour this over just before sending to table.

Coconut Pudding.—(*a*) Break the shell of a moderate-sized coconut, so as to leave the nut as whole as possible. Grate it after removing the brown skin, mix it with 3 oz. powdered loaf sugar and ½ oz. lemon peel. Mix the whole with milk, and put it into a tin lined with puff paste. Bake it a light brown.

(*b*) Grate a coconut, make a custard (2 eggs to 1 pint milk), sweeten to taste, add a small glass of brandy and a little nutmeg. Stir the coconut into this, add a bit of butter the size of a hen's egg. Line a shallow dish with puff paste, and bake of a light brown.

Coffee Cakes.-¼ lb. powdered almonds, ½ oz.

ground coffee, 2 whites of eggs; beat the whole together, drop this on white paper, and bake slowly.

Coffee Cream.—Dissolve 2 oz. isinglass in just enough water to cover it; put to ½ pint cream 1½ teaspoonful very strong clear coffee with powdered sugar; let it just boil, leave it standing till nearly cold, then pour it into a mould, and when quite set turn it out.

Coffee Ice Pudding.—Pound 2 oz. freshly roasted coffee in a mortar, just enough to crush the berries without reducing them to powder. Put them into 1 pint milk with 6 oz. loaf sugar, let it boil, then leave it to get cold, strain it on the yolks of 6 eggs in a double saucepan, and stir on the fire till the custard thickens. When quite cold, work into it 1½ gill cream whipped to a froth. Freeze the mixture in the icepot, then fill a plain ice mould with it, and lay it in ice till the time of serving.

Coffee Jelly.—1 teacupful very strong coffee. Dissolve in it 1 packet Nelson's gelatine. Put on the fire 1 pint milk and 6 oz. lump sugar; when nearly on the boil pour in the coffee and gelatine. Let all boil together for 10 minutes; pour into a wetted mould, and keep in a cool place till stiff.

Coffee Pudding.—Make a teacup of strong well-cleared coffee, beat 4 eggs with 5 oz. sugar, 1 pint milk previously boiled, and half a pinch of salt; add the coffee, strain into a pie-dish 2 in. deep, put the dish into a saucepan, with sufficient boiling water to reach to the middle of the dish: put into a moderate oven till quite firm: when cold sprinkle pounded sugar over it, and glaze with a red-hot iron.

College Puddings.—These are made with breadcrumbs, suet, eggs, sugar, and currants. To ½

lb. finely grated breadcrumbs add 6 oz. beef suet, carefully chopped, and free from skin, and the same quantity of well-washed and dried currants, 2 oz. pounded sugar, 2 teaspoonfuls chopped lemon peel (this must have been peeled from the lemon as thinly as possible, as any portion of the white part would cause the puddings to taste bitter), 3 eggs, well beaten (yolks and whites separately), a little grated nutmeg, and half a small wineglassful of brandy; moisten with 1 tablespoonful milk. Mix all these thoroughly, and pour into small tin cups, previously well buttered. To be baked for somewhat less than ½ hour in a moderate oven, and served with or without a little wine sauce in the dish, but not over the puddings, which should be sent up with a sprinkling of castor sugar over each.

Conservative Pudding.—4 oz. sponge cake, ½ oz. ratafias, 1½ oz. macaroons, put them into a basin, and pour over ½ gill rum and 1 gill good cream; add 6 well-beaten eggs (beat for 10 minutes); butter a pint mould, stick it tastefully with preserved cherries, put in the pudding, tie it over with writing paper spread with butter, and steam over fast boiling water for 1½ hour. Turn out carefully and serve with clarified sugar (flavoured with almonds) in the dish, not poured over the pudding. 3 oz. loaf sugar, a laurel leaf, and ½ gill water boiled 10 minutes will make the sauce.

Cornish Pasties.—Make a crust with 1 lb. flour, 2-3 oz. of suet or dripping, ½ teaspoonful baking powder and cold water. Roll it out and cut it in rounds ½ yd. or less in diameter; place on each round a suitable quantity of chopped potato, onion, turnips, herbs, and a small quantity of meat, cooked or uncooked, salt or fresh; season with salt pepper and close each

round, leaving a ridge along the middle. Bake 1 hour or less according to size. These may be eaten cold or hot. The weight when baked will be that if the pasties are large. Boiled rice, leeks, vegetable marrow, currants, apples, sugar of the dry ingredients, or more and spice may be used instead of meat and vegetables.

Cottage Pie.—Mince any kind of cold meat together—beef, mutton, veal, pork, or lamb—put it about 1-1½ in. in a deep pie dish, and cover it with gravy; do not spare salt and pepper; cover it over with mashed potatoes smooth at the top, and cut it across in diamonds with a knife; bake till it is crisp and brown at the top. A little Worcester sauce may be considered an improvement if onions are not objected to.

Cottage Pudding.—Break some bread into very small pieces, sufficient to fill the pudding basin you wish to boil it in; then turn it out into a larger basin, and measure the milk in the same basin ¼ full; put on to boil, with enough sugar to sweeten. When taken off the fire, put a lump of butter in the hot milk, and, when melted, stir it well and pour over the bread; cover closely with a plate for 20 minutes; then beat it with a fork, and mix in some currants, raisins, candied peel, and some mixed spice; beat 2 eggs well, and add them last, stirring the whole vigorously with a fork. Boil in the same basin which the bread and milk were measured in, for 2 hours, the basin being well buttered, of course. Beating the bread with a fork keeps it from getting heavy or lumpy, and the bread should be torn to pieces, not cut, as the ragged edges of each morsel of bread absorb the milk better than when cut. Crusts can be used for this pudding, and if too hard to break they

can be cut fine, and then pounded between a thick newspaper with a flat iron. The same ingredients make a good baked pudding; only more milk is required to make a softer batter of the bread.

Crab-Apple Cheese.—Wipe the apples in a clean dry cloth, and examine each one, to be sure that they are perfect. Any damaged ones should be cut with a fruit-knife, and only the sound part used. Put them in a covered jar in a slow oven till quite tender, then squeeze them through coarse canvas (called in some places "cheese-cloth"), allow ¾ lb. lump sugar to 1 lb. pulp, and boil for ½ hour, skimming well; put into moulds, and paper, as any other preserve. If the jelly is desired clear do not squeeze the fruit. Tie the canvas over a large jug, and lay the fruit on it, letting it drain. This is wasteful, however, unless the fruit is afterwards pressed and boiled separately; besides, the rich flavour of the apple core would be wanting in the jelly.

Cranberry Jelly.—Prepare the fruit as for tart. (*a*) To 1 qt. cranberries add 1 lb. sugar and ½ pint water; simmer them together for ½ hour; strain through a sieve, and when cool put by in pots.

(*b*) Soak ½ oz. gelatine in as much water as will cover it for ½ hour; boil ½ pint water and ¼ lb. sugar to a syrup; throw in 1 lb. cranberries, and simmer till the fruit is tender. Dissolve the gelatine, put it with the fruit, add 2 glasses sherry (or any other white wine), the juice of a lemon, and a few drops of cochineal; boil all together for 5 minutes. Place a jelly pot in the middle of a mould, pour the fruit round it; turn it out when cold on to a glass dish, and put cream in the centre.

Cranberry Tart.—Place 1 qt. cranberries in a pan of cold water, and let them remain 12 hours. Wash

them in several waters till the salt flavour is quite gone; dry on a coarse cloth, and pick carefully. Mix in a basin with ¼ lb. finely powdered white sugar, and squeeze the juice of half a lemon over the fruit. A glass of white wine is a great improvement to the flavour. Put all into a pie-dish, with a light paste for the top, and bake. A small tin of American apples, cut up finely, with equal proportions of cranberries, is a nice variety of the ordinary apple pie.

Creams, Buttermilk.—Fresh buttermilk 1-2 qt., according to the size of the dish required; hang it up in a thick cloth, through which the whey can drip, for 2-3 days, then beat it well up with either fresh fruit or jam, or jelly, or rhubarb. The buttermilk must not be too much watered in the churn, else it will be too thin; some can be taken out at first, in case the butter requires much scalding.

Cream, Clotted or Scalded.—Set the afternoon's milk in a large flat tin, or earthenware pan, leave it till 11 o'clock the next morning, then with great care and steadiness, so as not to disturb the cream, place it on a large saucepan or stewpan ⅔ full of water; let the water boil under it, simmering for more than half the day, till the first cream is thick, yellow, and crinkled like leather, and has receded from the edges of the pan all round, showing the second cream. When the latter looks thoroughly thick and set, remove the pan very carefully to a cool place till the following day, then skim it, allowing no milk to come with it, as that would inevitably thin the cream.

Cream, Whipped.—Rub 4 or 5 pieces sugar on a lemon, then add the juice to them with 1 good tablespoonful brandy; when the sugar is dissolved and sweetened to taste, put it into a basin; take ½

pint cream, and pour in, gently stirring it with the whip, then continue to whip steadily, not too fast, until the cream becomes thick, but be careful not to turn it to butter. Put it away for a few hours into a cold larder, then it will become quite thick and ready to put over your jelly or trifle; it is best to whip it the day before it is wanted.

Crystal Palace Pudding.—1 oz. isinglass, ½ oz. ratafias, 1½ pint milk, yolks of 3 eggs, ½ lb. sugar, a few currants, 6 sponge cakes, flavour with almond, lemon, bay leaf, or vanilla. Dissolve the isinglass in the milk, add the yolks of the eggs, and make as for custard. When nearly cold, stick the top of the mould, after oiling it, with currants, then a little custard; moisten, but do not soak the cake in milk. Cut the cake in pieces, fill the mould alternately with cake and custard, strewing a few currants between. When quite set, turn out and cover with custard.

Curaçoa Jelly.—Take 2 calves' feet, chop them into convenient pieces, and put them in a saucepan with rather more than 2 qt. cold water; set the saucepan on the fire; directly the water boils throw it away, and wash the pieces of feet carefully; then put them on again with 2 qt. cold water, and let them boil slowly for 3 hours, removing the scum carefully during the process; then strain the liquor into a basin, and when quite cold and set take off all the fat, and wash the top of the jelly with a little hot water, so as to get rid of every vestige of fat. Put the jelly in a saucepan on the fire; directly it is melted add sugar to taste, the juice and the thin rind of 1 lemon, and the whites of 3 eggs whisked to a froth. Beat up the mixture till it boils. Place the thin rind of a lemon at the bottom of a jelly bag, and pour the mixture over it. The bag should have been previously

rinsed in boiling water, and the first ½ pint of jelly that comes through must be returned to the bag. If the jelly does not come out quite clear, the operation of straining must be repeated. Add sufficient dry curaçoa to the clarified jelly to flavour it well. Fill a mould with it, and place it on ice to set.

Currant Jelly.—Take 8 lb. very ripe currants, red and white; pick off all the stalks, and put them in a wide earthen pan; then take them up in handfuls, and squeeze them till the juice is all crushed out of them, which will take some time. Leave them in the pan, with the juice, for 24 hours. Put 2 lb. raspberries in a saucepan, with 2 teacupfuls water, and boil them for a few minutes, till they are all crushed. Then pass all the currants and raspberries through a hair sieve, pressing them with a wooden spoon to extract all the juice. If the juice should be very thick, pass it also through a jelly bag. Weigh the juice, and for every lb. of it put 2 lb. loaf sugar, broken into large pieces. Put the sugar into a preserving pan, with 1 pint water; pour all the juice on it. Let it boil for ½ hour, stirring frequently. Then put it into small bottles, and cork it for use. 2 tablespoonfuls in a tumbler of water make a very refreshing drink in summer. Cherry syrup may be made in the same way with Morella cherries.

Custards.—(*a*) Boil, and when boiling, pour ½ pint milk upon 1 egg beaten up. Put in a dish, and stand this on a larger dish of hot water. Bake ½ hour.

(*b*) To 1 oz. isinglass, dissolved in ½ pint milk, add 1 pint thin cream, sugar to taste, and 3 bay or laurel leaves. When these just simmer, pour them upon the yolks of 5 eggs, well beaten. Put the whole on the fire, and stir it one way till it begins to thicken; then strain it through a fine sieve, and let it stand till new-

milk warm; then add 1 tablespoonful lemon juice, stirring it well, and afterwards pour it into a mould.

(*c*) To make about 7 custards, boil 1 pint milk with 3 dessertspoonfuls sugar. Beat the yolks and whites of 2 eggs well together, and pour the milk, when slightly cool, on to the eggs, and beat well together. Fill white china French custard cups; stand them in a bain-marie, and let them cook until they become solid, taking care to let no water get on the top. When set, take the bain-marie off the fire, and put the cups in the oven for the custard to slightly brown. Vanilla or any flavouring can be used.

Damson Cheese.—Pick off the stalks, and to every lb. of fruit put ¾ lb. loaf sugar; boil as for jam till the damsons are tender, then rub them carefully through a hair sieve, and to every lb. of the pulp allow another ¾ lb. sugar, pounded this time. Boil it an hour very slowly, constantly stirring; then pour it into pots or moulds, and tie down with brandy papers. When cold it will be quite firm. If wanted sweet, 1 lb. sugar must be allowed for each boiling. (Bessie Tremaine.)

Danish Jelly.—Take ¾ pint claret, ½ pint sherry (Marsala is best), ½ pint brandy, 6 oz. loaf sugar, ½ pint cherry juice, the juice and peel of 1 lemon, 1½ oz. gelatine. Mix all these ingredients together; boil, and strain them into a mould. The gelatine should be put to soak the night before in a very little cold water. This jelly must not boil quickly, else it will spoil the colour. Let it cool before putting it into the mould. Serve with a rich custard flavoured with vanilla round it.

Date Pudding.—Take ¼ lb. finely grated breadcrumbs, ¼ lb. chopped dates, 3 oz. sugar, 6 oz. chopped suet, with grated nutmeg to taste. Mix 1

teaspoonful Yeatman's yeast powder with ¼ lb. flour, add this to the other ingredients, moisten with milk, mix well, and boil for 4 hours in a basin. Serve with wine sauce.

Diplomatic Pudding.—Decorate a plain mould with a lining of currants and pistachio nuts, and fill the outer part with jelly; when the jelly is set remove the lining by putting a little warm water in it; make a custard with 1 pint milk and the yolks of 4 eggs, flavour the milk with vanilla, add ½ oz. isinglass, stir it into the custard when hot; break up 1 or 2 sponge cakes and macaroons, cut up a few candied fruits, put a layer of each until the mould is full, pour in the custard, leave it in a cool place until wanted; then dip the mould into tepid water a second, turn it out on a cold dish, and serve.

Egg Snow Pudding.—Put a handful of loaf sugar to boil in a sugar boiler with a gill of water until the syrup becomes a deep brown. Warm a small basin, pour the syrup into it, and keep turning the basin round until the inside is completely coated with the syrup, which will by that time have set. Whisk the whites of 6 eggs to a stiff froth, then pour them into the prepared basin, which they should only half fill. Tie a piece of paper over the top of the basin and place it in a large pan containing a sufficient quantity of hot water to float the basin; cover the pan and so place it on the range as to keep the water very hot without actually boiling, for this would spoil the pudding. After the lapse of about ¾ hour turn out the pudding on a dish with the caramel syrup, which will come out of the mould round it.

Egyptian Pudding.—1 lb. suet, 1 lb. raisins, ¾ lb. fine bread, ½ oz. allspice, 4 figs chopped fine, 4 tablespoonfuls sugar, 2 eggs, 2 glasses brandy, the

peel of ½ lemon chopped fine. Mix all well together, and put into a mould. Steam it for 4 hours.

Eton Pudding.—1 lb. breadcrumbs, 4 oz. candied peel, 2 oz. finely shred beef suet, 4 oz. sugar, 2 eggs; cut the peel into strips, and mix with the other dry ingredients; beat the eggs well, and add last of all. If more moisture is wanted, use milk. Steam in a basin 1½ hour; serve with sherry sauce.

Falkland Pudding.—Take 4 well-beaten eggs, add 1 teacupful good cream, the breast of a cold chicken finely minced, ¼ lb. Parmesan cheese grated, 2 oz. macaroni well boiled and cut small, a little salt and pepper, and a grain or two of cayenne; stir all well together till it is well mixed (add the cream and eggs lastly); boil it in a plain oiled mould, glaze it, and serve with a rich brown gravy or tomato sauce round it.

Fat Rascals.-¾ lb. butter rubbed in with 1 lb. flour and ½ lb. currants. Finger the paste lightly, roll it thin, and cut it into small rounds. Serve these hot, split in two, and buttered inside.

Fig Pudding.—2 lb. best figs, 1 lb. beef suet, 2 lb. flour, the same quantity of bread, 2 eggs, and milk; cut the figs into small pieces, grate the bread finely, and chop the suet very small; mix these well together, add the flour and eggs, which should be well beaten, and add sufficient milk to form a stiff paste; butter a mould or basin, press the pudding into it very closely, tie it down, and boil for 3 hours; turn it out, serve with melted butter, wine sauce, or cream.

Flummery.—Put 1 oz. isinglass or gelatine into a jug, pour upon it 1 pint boiling water, and let it stand for ½ hour, or until it is dissolved; then put it

into a brass saucepan, adding the peel of 1 lemon and the well-beaten yolks of 3 eggs, ½ pint sherry, and loaf sugar to taste; let it simmer or just boil up together. When this is done put it into a cool place until it is lukewarm, when add the juice of 1 lemon. Run it through a jelly bag into moulds.

French Pie.—Any remains of cold meat, free from fat or gristle, pass through a mincing machine till finely minced, season with anything liked, and moisten with plenty of gravy; have ready some potatoes nicely mashed, and, after warming the mince in a saucepan, turn it out into a pie dish; heap the mashed potatoes well up, spread 2 or 3 bits of butter on the top, and place in a hot oven till hot and brown. When well made this is a delicious dish, and very economical; any scraps may be used, the chief point being to mince everything well; the potatoes should be large and old.

Frijoles.—The most valuable and attractive way to use haricot beans is in the style of the national cookery of Mexico called frijoles, pronounced fre-o-les. Boil them soft, drain, put them in a frying-pan with sage and onions, fry with olive oil until brown.

Fruit Compote.—Take equal parts red currants, white currants, raspberries, and very ripe cherries. Remove all the stalks, the stones from the cherries, and pick the currants one by one; sprinkle plenty of powdered lump sugar over the fruit, add 1 wineglass best French pale brandy, or more according to the quantity of fruit; toss them lightly until the sugar is all dissolved. Serve within a border of sponge cake.

Fruit Creams.—Dissolve 1 oz. gelatine in 1½ pint good milk, and then let it come very gently to the boil, having sweetened it to taste, and then strain through a hair sieve. When quite cool, add ½ pint of

the juice of any fresh fruit (carefully excluding the pulp) to the milk, remembering that the brighter the fruit the better the effect. Stir until well mixed, and add 1 glass brandy, which must be thoroughly incorporated with the milk and gelatine. Beat with an egg whisk until quite stiff, then put in a mould, and when cold turn out. In the very hot weather, sometimes more than 1 oz. gelatine is necessary to make the cream quite firm. If no fruit juice is handy, some of the raspberry or strawberry acid, made in the summer from fresh fruit, makes a very good substitute, only it must be diluted and sweetened to make the proper quantity of liquid, otherwise the mould would not be full. Fresh orange or lemon juice also answers very well. In the hot weather this cream is much improved if imbedded in ice before serving. It is necessary to whip this mixture a very long time, in order to give it the proper honeycomb appearance.

Fruit in Jelly.—Prepare a very clear transparent jelly, and flavour it very delicately with maraschino. Place a mould upon ice, and put into it a layer about 1 in. thick of the jelly; when set arrange some fruit of different kinds, and in some sort of order or grouping put spoonfuls of the jelly between, and at the sides of the fruit, to keep it in position. It must be done slowly, allowing the jelly to set before adding more fruit. Lastly, add another layer of the jelly, and leave it to get quite firm. It is an improvement to steep the fruit in maraschino or brandy (according to the flavouring of the jelly) before putting it into the jelly.

Fruit Macédoine.—Use preserved fruits, as peaches, plums, greengages, cherries, apricots, pineapples, &c. Let them be nicely cut and arranged in a glass dish, pour the juice or liquor in which each has been preserved together into a very clean stewpan, add

sugar until sweet enough, and a few drops of brandy or liqueur; let this boil gently until sufficiently thick, stirring it during the time, and skimming if necessary; the syrup must be quite clear. When done, pour it over the fruit, and let it remain until cold, when it is ready to serve. Macédoines, properly so called, are made in a mould with clear jelly; for making in this way, apples may be used, cut into different shapes, and dyed with different colours. To do this, the pieces of apple must be boiled in a very light syrup, some coloured with a little cochineal, some with saffron. When the fruit has well taken the colour, drain it well before putting it into the mould, as the least drop of syrup would prevent the jelly being clear. Some pieces of the apples should be white; a few bits of greengages, angelica, or brandy cherries may also be used with these and the coloured apples, and will improve the flavour. To place these or any other fruits for the macédoine, first pour into the mould a little of the jelly, which must be good, clear wine jelly, and set it to freeze; then arrange symmetrically any variety of fruits you wish to use, pour in some more jelly, again set it to freeze, and so proceed till the mould is filled to the top. Let it freeze till wanted, then dip a cloth in hot water, and rub the mould all over, turning it into the dish in which it is to be served. The greater the variety of fruits the better the macédoine will be, whether made with jelly or in syrup.

Fruit Pudding.—May be made of fruit of all kinds, fresh or bottled. If fresh fruit is used, it must be stewed with water and sugar until it is about as much cooked as it would be in a fruit pie. If bottled fruit is used, the syrup only should be boiled with sugar, and the fruit simmered in it for a minute or two. Take some stale bread, cut a round piece the

size of half a crown, and lay it at the bottom of a basin, and arrange around it strips or fingers of bread about ½ in. wide, remembering to leave a space the width of the finger between the strips. When the fruit is ready, and while it is still hot, put it in, a spoonful at a time, so as not to displace the bread, and, as a further means to this end, put the heavier part of the fruit (the pulp and skin and stones, if there are any) at the bottom of the mould, and the juice last of all. Cover the top entirely with stale bread, cut into very small dice; lay a plate on the pudding, put a weight on the plate, preserving the juice that rises above the plate, and set the pudding in a cool place till wanted. If it is well pressed down it will turn out in a shape, and will be found an excellent pudding. This dish is served at the hydropathic establishments as a substitute for fruit pies and tarts, as pastry is not considered wholesome. In cold weather it will turn out if it is made 3-4 hours before it is wanted; but in warm weather it will need to be made overnight.

Fruit Tart.—Stone some cherries, greengages, or plums, and stew them for 1 hour with plenty of sugar and ½ tumblerful water. Make a short paste with the white of 1 and the yolks of 3 eggs, 1 oz. butter, 1 oz. sugar, a pinch of salt, a little water and sufficient flour. Roll it out to the thickness of a penny piece, line a mould with it, uniting the joins with white of egg, fill it with rice and bake it. When done remove the rice, put in the stewed fruit, and serve.

Fruit Trifle.—Any kind, or 2 or 3 kinds of fruit, will do for this dish. You can put at the bottom of the dish a layer of fresh raspberries, then a few slices of stale sponge cake, soaked in wine, would be an improvement, but the wine may be omitted; then a layer of stewed red currants, then a few ratafias, now

a few stewed cherries, and over these a little boiled custard, and on top of this, if convenient, a whip of cream in form of a pyramid, and over this a few hundreds-and-thousands—a tiny comfit, of various colours, sold by confectioners. In country establishments it is not difficult to get variety of fruit, and cream is generally in the house, or can easily be got. It is an improvement to many dishes, but when it cannot be had the custard alone will do. The top can be ornamented with almonds, blanched and cut into spikes, or with candied peel stamped out with a tin cutter in leaves or any other design, or the hundreds-and-thousands strewed over.

Frying Batter.—Beat up together 2 tablespoonfuls brandy, the yolks of 2 eggs, 1 tablespoonful olive oil, and 4 or 5 tablespoonfuls cold water. Amalgamate with this 3 tablespoonfuls of fine flour, and a good pinch of salt. Beat the mixture 5-10 minutes, adding a little more water if too thick. When ready to use it, stir into it lightly and quickly the whites of 2 eggs whisked to a froth.

Furmity.—Old housed dry wheat will not suit for this, it must be new wheat, grown and threshed that summer, and the newer the wheat the better the furmity. Take about 2 large tablespoonfuls wheat to each basinful milk, and in an iron saucepan boil the same till the wheat is tender. Mix 1 tablespoonful flour with a little cold milk, add that, together with a morsel of salt, a little sugar, and allspice, to the wheat; stir the pan till it boils again, when it is ready. The quantity of allspice, sugar, and flour, to decide the thickness of the furmity, depends on taste.

Garibaldi Cream.—Make a cream with 1 qt. milk, 9 sheets best French gelatine, sugar to taste, and the yolks of 8 eggs. Flavour it with any essence you like,

strain it, and divide it into 3 basins. Colour the first a deep red with cochineal, the second green with spinach greening, and leave the third its original colour. These operations must be done while the cream is still warm, and it must be kept so in a bain-marie during the following process. Lay a shape in water or on ice, pour some of the red cream into it, to the thickness of less than ½ in. When this is set, pour in a similar layer of the plain cream, and when this is set pour in a layer of the green cream. Go on pouring in layers in the same way, until the mould is filled. When the cream is quite set turn it out and serve. Care must be taken, in pouring in each kind of cream, to get each layer the same thickness. This is best done by measuring with water how much liquid will go to make a layer of the required thickness, and then getting a cup which holds just that quantity, and using it to measure the cream.

Génoise Pastry.—Take ¼ lb. freshest butter, put it in a bowl, and warm it until it can be beaten with a spoon; add to it 4 oz. powdered loaf sugar, and beat the two together until a smooth white cream is obtained, then add one egg, and keep on beating the mixture till it is smooth again, then add 3 more eggs in the same manner. The germ of the eggs should be removed. Lastly, incorporate quickly ¼ lb. fine flour with the mixture, and as soon as it is smooth, pour it out to the thickness of ½ in. on a buttered flat tin, which must be put into the oven at once. When done (in about 10-15 minutes) turn out the slab of Génoise, and put it to cool, under side uppermost, on a sieve. There is a great knack in beating this pasting to prevent its curdling. Should this happen, it can generally be remedied by beating as quickly as possible until the mixture is smooth again. Take a slab of Génoise, spread on the top of it the thinnest

possible coating of apricot jam, then a coating of chocolate icing. Put it into a very hot oven for rather less than a minute, take it out, and place it in a cold place to get cool. Then cut it up with a sharp knife in any shapes liked.

Gingerbread Pudding.—2 oz. lard or butter, 2 tablespoons brown sugar, 2 ditto golden syrup, 1 egg, 1 teacupful milk, 1 teaspoonful ground ginger, 8 oz. flour, 1 teaspoonful baking powder. Work the butter and sugar together, then add the egg beat well, now add treacle and milk, then the flour and baking powder.

Ginger Cream.—Dissolve ¼ oz. isinglass, whip up 1 pint cream until it is quite thick, then add ½ pint ginger syrup. Cut up the preserved ginger into very small dice, and stir it well into the cream; add the isinglass and stir it well. Pour it into a mould and let it stand until wanted, then turn it out as you would a jelly.

Ginger Pudding.—Take the weight of 4 eggs in sifted sugar, butter, and fine flour; beat the butter to a cream, stir to it the sugar, add ½ teaspoonful ground ginger (more if a strong flavour is wanted); beat the eggs, white and yolks together, for at least ¼ hour; add these to the other ingredients, together with the flour, very gradually, beating the mixture well with a fork or wooden spoon all the time. When thoroughly mixed, well grease a fluted tin mould; put in the mixture and bake ¾ hour. This pudding eats well cold, but for a second serving it may be cut into slices, and each slice to be again cut with a fluted tin biscuit cutter, then fried lightly in butter, served up in a pile, with sifted sugar over, and eaten with a wine sauce. (Bessie Tremaine.)

Gooseberry Cheese.—Take 6 lb. unripe rough

gooseberries (green hairy ones are best), cut off blossoms and stems, put them in water for 1-2 hours, then take and bruise them in a marble mortar, and put them into a brass pan over a clear fire, stirring them until tender, then add 4½ lb. lump sugar, pounded, and boil till very thick and of a fine green colour, stirring all the time.

Gooseberry Cream.—Soak ½ oz. gelatine in ½ pint milk, when soaked, add to it 1 pint cream and ¼ lb. lump sugar, set on the stove, stirring occasionally, when nearly boiling take from the fire and mix with it 1 pint green gooseberries that have been previously boiled in an enamelled stewpan, with a little sugar and a little thin lemon rind, and then pass through a hair sieve with a wooden spoon, colour with a little spinach greening, and set away to cool; when nearly set, whip up and put into a mould, and set aside till wanted; to make the greening, mash a handful of spinach, pound in a mortar, and squeeze through a clean cloth, add a little of this to the cream; before it sets it will give it a pretty delicate shade. Note.—Fruit should always be cooked in an enamelled stewpan or in earthenware, as copper is likely to spoil it.

Gooseberry Fool.—Pick 1 qt. quite young gooseberries and put them in a jar with a very little water and plenty of sugar. Put the jar in a saucepan of boiling water till the fruit be quite tender, beat it through a colander, and then add gradually 1 pint cream with sufficient sugar to sweeten; garnish the dish with macaroons or ratafias.

Gooseberry Pancakes.—Melt some fresh butter in a frying-pan, put in 1 qt. gooseberries, fry them till tender and mash them; beat 6 yolks of eggs and three whites, sugar to taste, 4 spoonfuls cream, 4 large

spoonfuls breadcrumbs, and 8 spoonfuls flour; mix all together, then put to them the cooked green gooseberries and set them in a saucepan on the fire to thicken; fry in fresh butter, and sift sugar over.

Gooseberry Pudding.—The following pudding is better when made with red currants and raspberries, or even with black currants. Stew some fruit with sugar till thoroughly done, pour off all the juice, and put the fruit while hot into a pudding basin, which has been previously lined with slices of bread made to fit exactly. Fill the basin up with the fruit, and cover it over with a slice of bread; let it stand till quite cold, with a plate on it. Boil up the juice which was poured off, with a little more sugar, and let that get cold. When served, the pudding must be turned out on a dish, and the juice poured all over it so as to colour the bread thoroughly. A rich custard or some cream is a great improvement.

Gooseberry Tart.—Make a short paste with 4 oz. flour, 3 oz. butter, 2 oz. sugar, the yolks of 3 eggs, a little water, and a pinch of salt. Work it smoothly and roll it out to the thickness of rather more than ⅛ in. Place a "flan" ring on a baking sheet, lay the sheet of paste over it, and with the fingers fit it carefully inside the ring, then cut off all the part that is above the ring, fill the shape with uncooked rice, and bake for ½ hour in a moderate oven; then take out all the rice, and put in its place a compote made as follows: pick a quantity of gooseberries, put them in a saucepan with plenty of loaf sugar and a little cold water; when they come to the boil drain them off from the syrup; let this boil for 10 minutes, then return the gooseberries to it.

Gooseberry Toast.—1 pint green gooseberries; clean them thoroughly from stems and dried blossoms;

then toast to a bright brown as many slices of stale bread as will make 3 layers for a quart pie-dish. Dip each piece of toast in milk, sprinkle the upper surface with white powdered sugar, having your berries stewed 10 minutes, so that none of them shall be broken. Cover one slice of toast with them; the berries are to be covered with another slice, and thus proceed for each layer. The whole to be placed in a moderately hot oven for ¼ hour before sending to table.

Greengage Soufflé.—Boil some greengages with sugar; when done pass through a sieve. Mix 1 gill milk with 1 tablespoonful potato flour, and stir over the fire till it thickens. When cold work into it the yolks of 4 eggs and as much of the greengage jam (about 4 tablespoonfuls) as will make the mixture of the proper consistency. The whole must be thoroughly well mixed. Lastly, mix in quickly and effectually the whites of 6 eggs, beaten up to a stiff froth; pour the mixture in a plain mould, put it into the oven at once, and serve as soon as it has well risen.

Greengage Tart.—Make a short paste with 1 white and 3 yolks of egg. 1 oz. sugar, 1 oz. butter, a small pinch of salt, and sufficient flour. Work it lightly, and roll it out to the thickness of ¼ inch. Line a flat mould with this paste, uniting the joints carefully with white of egg, fill it with uncooked rice, and bake it. When done, remove the rice, and put in greengages treated as follows: Stone the fruit, and cut them in halves, and stew it for 1 hour with plenty of powdered loaf sugar and a little water, adding at the last a liqueur glass of pale brandy. To be served hot or cold.

Groat Pudding.—Take 1 breakfastcupful groats, let

them soak for some hours, pick them carefully from the husks, tie them loosely in a cloth, and boil for 3 hours; then untie the cloth, and add a few currants and a little raw sugar, tie them up again quite tightly, and boil for another hour.

Ground Rice Pudding.—(*a*) 2 oz. ground rice, 1 oz. sugar, 1 oz. butter, and 1 pint new milk. Boil 15-20 minutes, pour into a buttered mould; when cold, turn out and serve.

(*b*) ¼ lb. ground rice, swell it in 1 good pint milk, 6 oz. castor sugar, 4 oz. butter oiled, 4 eggs, rind of a lemon grated, a few sweet almonds pounded. Put in a buttered dish with paste round the edge. The butter to be added last thing.

Gruel.—(*a*) Groat.—Boil ½ lb. groats in 2 qt. water, with a blade of mace; when the groats are soft, put in white wine and sugar to taste. Serve in a china bowl with toast.

(*b*) Sago.—4 oz. sago scalded in hot water, then strained through a hair sieve, and set over the fire with 2 qt water. It is to be boiled and skimmed till thick and clear, then 1 pint red wine, and sugar to taste is to be added, when it is served in a tureen, with a slice of lemon and dry biscuits.

(*c*) Barley.—Made in the same way, but with the addition of 3 oz. currants, which would seem rather an unpalatable mixture to our modern notions.

(*d*) Water.—1 tablespoonful oatmeal is to be boiled in 3 pints water till it is perfectly fine and smooth; if it shows signs of becoming too thick for drinking, more water is to be added. When taken from the fire, it must stand to cool; then white wine, sugar, and nutmeg to taste is to be added. This would seem an exceedingly palatable drink; and, if lemon juice were

substituted for the wine, a simple and inexpensive one. (Bessie Tremaine.)

Hasty Pudding.—Put 1 pint milk into a perfectly clean quart stewpan, with 5 or 6 bay leaves; have ready on the hob a basin of flour; as soon as the milk boils remove the bay leaves, take some flour in the left hand and let it fall lightly into the milk (which must be kept boiling fast the whole time), stir without ceasing, adding flour until it is about the consistency of porridge, then let it boil a few minutes longer, still keeping it stirred. Turn it out on a hot dish, stick pieces of butter all over it, sprinkle moist sugar, and grate some nutmeg, when the butter and sugar will melt and mingle, and, running all over and round it, form a delicious sauce. Do not be too sparing of butter and sugar, and the cook need not be discouraged if she does not succeed in her first attempt, as experience alone can teach her how to sprinkle the flour in properly. If it is not done very lightly, lumps of uncooked flour will be the result.

Hominy and Samp.—(*a*) Hominy is white Indian corn, divested of its outer skin by scalding in hot lye, and then winnowed and dried. Samp is hominy, pounded till it is about as fine as coarse oatmeal. To cook hominy, wash it through 2 or 3 waters, pour boiling water on it, and let it soak for at least 10 hours; then put it into a stewpan, allowing 2 qt. water to 1 qt. hominy, and boil it slowly 4-5 hours, or until it is perfectly tender; then drain it, put it into a deep dish, add salt and a bit of butter, and serve as a vegetable with meat. Samp is cooked in the same way, but rather less water is used; for instance, put 1½ pint to 1 qt. samp. It is also good cut when cold into slices, and fried for breakfast.

(*b*) Baked.—To 1 cupful cold boiled hominy, allow

2 cupfuls milk, 1 heaped teaspoonful butter, 1 teaspoonful sugar, a little salt, and 3 eggs. Beat the yolks and whites separately. Mix the yolks first into the hominy alternately with the melted butter, then the sugar and salt, and mix in the milk gradually, being careful to leave no lumps in the hominy. Lastly, stir in the whites of the eggs, and bake in a buttered pudding dish until delicately browned.

(*c*) Boiled.—Soak 1 pint hominy in 2½ pints boiling water over night. In the morning add 1 pint sweet milk, and let it boil ½ hour over a brisk fire; add a small piece of butter, salt, and pepper. It should be as soft as mush, and is generally eaten for breakfast with cream and sugar.

(*d*) Fried.—Cut the cold boiled hominy in slices, and fry in hot lard or dripping, or moisten to a soft paste with milk; beat in some melted butter; bind with a beaten egg; form into round cakes with your hands; dredge with flour, and fry a light brown.

Ice Puddings.—These puddings are made in as great variety as ices themselves, the difference in them being chiefly in flavouring. The great secret of securing their perfection is to ice the material to 22° F. before putting it into the pudding mould. For ice puddings, and indeed for every kind of ice which, after being made, requires to be embedded in freezing mixture, it is absolutely necessary to have moulds suitable for the purpose, with closely-fitting lids. Possessed of these, an ordinary cook should have no difficulty in serving ice puddings, as they are made long before the busy time of sending up dinner; but without suitable utensils it is much better not to attempt making these puddings. Take 1½ pint clarified syrup and the strained juice of 3 lemons. Put the mixture in the freezing-pot, and when nearly

frozen add essence of citron to taste, and 1 oz. pistachio nuts blanched, and split in half lengthwise; finish freezing, put into a mould, and lay it on ice till wanted.

Ice Soufflé.—Clarify some sugar by mixing a good teaspoonful of white of egg, previously well beaten, with 1 pint water; put this into a very clean stewpan, add 1 lb. sifted white sugar and boil together over a slow fire, carefully taking off the scum as it rises until none remains; then strain it through a fine clean cloth, when it should be clear. Take ½ pint of this clarified syrup with the yolks of 6 eggs, 1 whole egg, and ½ port-wine glassful of maraschino; stir them together, and then pour them into a pudding basin which has been warmed by having hot water in it, taking care that it is quite dry again before using. Set this on a stove of hot ashes, and begin whisking the mixture briskly, continuing to do so until it attains the consistency of a smooth light batter. Tie or otherwise fix a band of double paper round the lining of a soufflé dish, so that it stands 2 in. higher; fill this with the preparation to within ½ in. of the edge of the paper. It will be necessary to have a circular tin box, with a closely fitting lid, large enough to contain the soufflé, which must now be put into it; put on the lid, and plunge it into a pailful of crushed ice, with which has been mixed some salt and saltpetre (about ¼ lb. each mixed together); cover the pail with a piece of coarse wet flannel, and let it so remain in the ice for about 3 hours, or until it is time to send it to table; then remove the paper, and sift over it either a little grated chocolate, or some macaroon biscuit powder, which will just give it the appearance of having been baked. Any other flavouring may be used instead of the maraschino, if preferred, using some other liqueur, or vanilla,

lemon, orange, &c.; or a small cupful of very strong coffee made in the usual way, may be substituted if a soufflé au café is desired.

Jamaica Jelly.—Boil to a clear jelly 1 lb. sugar, mix with 2 oz. clarified isinglass and 1 wineglassful Jamaica rum. Damp a mould, and pour the jelly in, let it cool, and turn out. Ornament with clotted cream and small clusters of purple grapes.

Jam Pudding.—Take equal quantities fine flour and suet, remove all skin from the suet, slice it very thin, and then chop it quite fine, mix together, and moisten with cold water; add a very little salt, knead it well, and roll it out quite thin (about ⅛ in.). Spread the paste equally over with any kind of jam to within ½ in. of the edge, moisten the edges with water, roll up the pudding, pinch the edges together; put it into a cloth, which must be tied at both ends. Put the pudding into boiling water, and boil about 2 hours.

Jam Roll.-½ lb. butter must be stirred to a cream, then the yolks of 12 eggs added, and ½ lemon peel grated. Add by degrees ½ lb. sifted sugar, ¼ lb. fine flour, and the same of potato flour, or, if preferred, the whole ½ lb. may be of the former. When these are well mixed add the egg whites whipped to a snow. Thoroughly stir all together. Make 4 or 5 white paper plates by stretching the paper over any round utensil (a large dinner plate will do), plait up an edge 1 in. deep, and tack it round with a needle and thread to keep it upright. Butter these paper plates, and lay them on baking tins. Spread over each a layer of the above mixture not thicker than a thin pancake. Bake them in a moderate oven a nice yellow, but do not let them tinge brown. When cold cut away the paper round, turn the cakes over, and

peel off the bottom paper, but take great care not to break the cakes. Lay one cake over the other, with preserve between each, till all are piled up. It may be all of one sort of preserve, or varied, one layer of marmalade if liked. Dissolve powdered sugar with a little lemon juice. Spread it thickly over the top and sides of the cake to make a glazing. Put it in a cool oven to dry, or it may simply be pared smoothly all round, and strewn thickly with sifted sugar. If required as a roll, the cake mixture must be poured into a large flat baking tin as thin as before, and when of a nice yellow colour take it out of the oven, quickly turn it out on to a flat board, and while still hot spread it over with preserve, but not too near the edges. It must then be quickly rolled, beginning at the edge next you, and then left to cool before being cut. Great care is required to do the rolling of the pastry, but practice and perseverance will soon overcome the difficulty. Before leaving to cool, sprinkle it thickly with sugar as before.

Jam Tartlets.—Take some puff paste, roll it out ½ in. thick, and line some patty-pans with it. Cut some rounds out of the bottom of a stale loaf 1 in. diameter less than the patty-pans, put one in each pan exactly in the middle, and press it down; bake in a quick oven until the paste has well risen—about 15 minutes. Remove the pieces of bread, and fill each tartlet with either apricot, strawberry, or currant and raspberry jam.

Jelly Baskets.—Orange skins can be emptied of their fruit and cut out in the shape of baskets, as follows: Mark out the shape of a basket upon the skin of 6-8 oranges without piercing the fruit. The handles should be formed across the stalk end of the fruit, and should be a good width. Take out the

quarters which will not be required, and with the small blade of a sharp penknife cut out the baskets. Then pass the flat part of a teaspoon carefully under the handle to separate it from the fruit, and scoop out the remainder of the pulp, which easily comes out through the open spaces. Fill the skins with different-coloured jellies. The baskets may be scalloped or ornamented, according to the taste of the operator.

Jelly Pie.—Boil 5 eggs hard; when cold, cut them in slices and put them closely round a pie dish, with sweet herbs chopped very fine, and scalded and put in small heaps. Fill the dish with ham, fowl, veal, or any other meat cut in very thin slices; make a very rich gravy the previous day, which will be a firm jelly when cold. Fill up the dish with it, and bake for ½ hour. When required to be used cold, turn it out, and garnish.

Jersey Wonders.—1 lb. flour, 3 oz. butter, 3 oz. white sugar, a little nutmeg, ground ginger, and lemon peel; beat 4 eggs and knead all well together; a taste of brandy will be an improvement. Roll them 3 in. thick, cut off a small slice and roll into an oval, not too thin; cut two slits in it, but not through either end; pass the left hand through the aperture to the right, and throw into boiling fat. A brass or metal skillet is best to cook them in; about 5 minutes to cook them, turn once.

Jumbles.—(*a*) ½ lb. flour, ½ lb. sugar, 6 oz. butter, 1 oz. sweet almonds, 1 oz. bitter almonds, 1 egg. Mix these well, drop in small lumps on a tin and bake for a few minutes in a hot oven.

(*b*) ½ lb. best flour, 6 oz. loaf sugar, ¼ lb. butter. Rub the butter and half of the sugar into the flour, beat along with it 1 egg, about 20 drops essence of

lemon, mix all together, and roll out the cakes with the remainder of the sugar; a little ammonia carbonate is an improvement. Turn in fancy shapes, and bake on a hot tin about 15 minutes; but the time must be regulated according to the oven, but quick baking is desirable.

King Henry's Shoestrings.—Make a batter with ¼ lb. flour, ¼ pint milk, a piece of butter the size of an egg, the juice of a lemon, and powdered loaf sugar to taste. When well mixed set it on the fire for 10 minutes, till the batter comes easily from the sides of the saucepan. Mix in (off the fire) a handful of sweet almonds, chopped up, and the yolks of 4 eggs. Let the whole get cold, then work into it the whites of 3 eggs, whisked to a froth, and spread out the batter on a baking sheet. Sift plenty of powdered sugar over, bake 10 minutes in a slow oven, cut it out in strips, serve hot or cold.

Leche Crema.—Beat up 3 eggs, leaving out 2 of the whites, and add to them gradually 1½ pint milk, then mix very carefully 4 tablespoonfuls fine wheat flour, and 2 oz. finely powdered loaf sugar, with grated lemon peel to flavour. Boil these ingredients over a slow fire, stirring constantly to prevent burning, until the flour is quite dissolved. Prepare a dish with ¾ lb. ratafia cakes at the bottom, having a glass of cognac or any liqueur poured over them, and when the cream is sufficiently boiled, pour it boiling through a sieve on the cakes. This delicious dish is always served up cold, and should have some finely powdered cinnamon dusted over. The genuine recipe, obtained from the Nuns of St. Clare Convent at Palmas, in the Canary Islands.

Lemon Cream.—Soak for 2 hours a 6*d.* packet of gelatine in a large cup of good milk; then place the

milk and gelatine in a clean saucepan on the fire, adding the very thin rind of 2 lemons; keep stirring this on the fire till the gelatine is quite dissolved, then add 2 oz. pounded white sugar, stir again on the fire till the sugar is dissolved, then strain this on to 1 pint cream in a bowl (the cream must not be too thick), and keep whisking it gently till thoroughly mixed, then add the strained juice of 2 good lemons; keep whisking the whole till nearly set, but take care not to beat too hard or too strong; when nearly cold, pour into a mould (crockery), and turn out in the usual manner when wanted for table.

Lemon Dumplings.-½ lb. grated bread, ½ lb. suet, chopped fine, ¼ lb. loaf sugar powdered, 2 eggs, the juice and thin rind of a lemon. Mix, make 8 dumplings, and boil 1 hour.

Lemon Pudding.—To ½ lb. good butter add 2 lb. loaf sugar, broken as for tea, the yolks of 12 eggs and the whites of 8, the rinds of 4 lemons, to be peeled very thin and minced as fine as possible, and the juice of 6; put all those into a saucepan, and boil them till the sugar is dissolved and it is as thick as honey, taking care to stir it well all the time it is on the fire; then pour it into a jar, and add a wineglassful of brandy or whisky; tie it very close. When going to use it add 4 tablespoonfuls very fine-grated bread for a small pudding. This will keep for 6 months.

Lemon Soufflé.—Beat very lightly the yolks and whites of 8 eggs separately, add 1 teacupful white sugar, the rind of 2 lemons, and the juice of 1; bake for ¼ hour in a moderate oven.

Lemon Sponge.—Whisk the whites of 6 eggs till firm. Boil 1 oz. isinglass in 1 pint water till it is reduced to ½ pint; when nearly cold add it gradually

to the eggs, also the juice of 4 lemons, and the grated rind, 1½ lb. loaf sugar powdered; whisk all together till it is as thick as sponge.

Lemon Toast.—Beat the yolks of 3 eggs and mix with them ½ pint milk; dip slices of bread into the mixture, then fry them a delicate brown in boiling butter. Take the whites of the eggs, beat them to a froth, add to them 3 oz. white sugar and the juice of a small lemon. Stir in a small teacupful of boiling water, and serve as a sauce over the toast.

Lentil Pudding.—3 oz. lentil flour, 1 oz. cornflour, 1 pint milk, 3 eggs, and a pinch of salt; pour the milk boiling gradually on to the flour, stirring it; when cool add the eggs well beaten; mix well, boil an hour in a buttered plain mould; serve with sweet sauce.

Macaroni au Gratin.—Drop the macaroni into boiling water, and cook till quite tender. Make a sauce of milk, thickened with flour and butter, to which add a small spoonful of made mustard, cayenne, and salt to taste. Let the macaroni remain in this a short time; turn out on a buttered dish, and cover with grated cheese and breadcrumbs. Brown in the oven.

Macaroni, Boiled.—Put into a large saucepan plenty of water, salted to taste; when the water boils throw in the macaroni, broken into convenient lengths, but not too short; stir frequently. When the macaroni is done, pour in a jugful of cold water, and strain the macaroni quite free from any water. According to its size macaroni takes 20-30 minutes to cook; it should not be done too much.

Macaroni Cheese.—Take sufficient boiled macaroni to fill a square dish or tin; when buttered pile up with layers of macaroni and grated cheese (a highly

flavoured and dry cheese is best); add plenty of mustard and butter, some cayenne, salt, and pepper; cover all with the grated cheese, bake a yellow brown, serve very hot.

Macaroni Pie.—Take a piece of gravy beef, cut in small pieces, put it into a saucepan with an onion sliced, and a piece of butter; toss it on the fire till the onion and the pieces of meat are browned; then add a glass of white wine, a faggot of sweet herbs, a carrot cut in pieces, spices, pepper, and salt to taste, a few mushrooms, and a fair allowance of tomato sauce. Let the whole simmer for 2 hours, then strain, and skim off superfluous fat. Put the boiled macaroni into a saucepan with a piece of butter, plenty of Parmesan cheese, and as much of the sauce or gravy as it will absorb; toss it on the fire a little while, and put it by till wanted. Make a smooth and stiff paste with 1 lb. fine flour, 5 oz. fresh butter, 2 or 3 yolks of eggs, 2 oz. sugar, a pinch of salt, and sufficient tepid water. Roll it out to the thickness of ⅛ in., and line with it a plain round mould previously buttered, uniting the joints carefully with white of egg. Have ready some very small fillets of breasts of chicken, just cooked with butter in a covered tin in the oven, some cooked ham or ox tongue cut in dice, some truffles, mushrooms, and cockscombs, cut in convenient pieces and cooked in the gravy used to dress the macaroni. Fill the lined mould with all these things in judicious proportions, letting the macaroni, of course, predominate, and adding during the process a little more sauce or gravy and a due allowance of Parmesan cheese; cover up the mould with a disc of the paste, unite the edges carefully, and bake in a moderate oven for about an hour. Turn out the mould carefully and serve.

Macaroni Pudding.—(*a*) Take 2 oz. small macaroni (vermicelli, fidelini, or spaghetti), break them up small, and put them into 1 pint boiling milk, sweetened to taste with lump sugar. Let them boil till quite done; add ½ oz. fresh butter, and pour the whole into a pudding dish; then stir in the yolks of 2 eggs beaten up with a little cold milk and strained. Strew some powdered cinnamon or some grated nutmeg on the top, and bake for about 20 minutes.

(*b*) Take 2 oz. small macaroni, broken up small as in (*a*), put them with the thin rind of a lemon into 1 pint boiling milk sweetened to taste with lump sugar; when quite done, turn it all out into a pudding dish, remove the lemon rind, and stir in ½ gill cream beaten up with the strained yolks of 2 eggs. Strew powdered cinnamon over, and bake as in (*a*).

Macaroni Soufflé.—Break up about 1 oz. small macaroni into very small pieces, throw it into fast-boiling salted water, let it boil 20 minutes, then drain off the water and put the macaroni into ½ pint milk, with sugar to taste and a piece of cinnamon; let it boil till it has absorbed all the milk. Put it by to get cold, work into it the yolks of 4 eggs and the whites of 6 whisked into a stiff froth, pour the mixture into a tin large enough to allow room for rising, strew a little finely powdered sugar over it, and place the tin at once into a quick oven. It will take 15-20 minutes to cook, and as soon as the soufflé has well risen, and its top has taken colour, it is ready, and must be served immediately in the tin itself, a little finely powdered sugar being sprinkled on the top.

Macaroni Timbale.—Take ½ lb. Naples macaroni, boil it until quite soft, drain it on a cloth, cut it in pieces ½ in. long, well butter a plain mould, line it

with buttered paper, place in it the macaroni endways, so as to give the appearance of honeycomb when turned out. Make a paste thus: Put 1 gill water, a small piece of butter, and a little salt into a stewpan to boil. When boiling throw into it 1 tablespoonful flour, leave it a few minutes, then stir in 1 egg, turn it on to a plate until wanted. Take 1 lb. veal cutlet, remove the skin and bone, pound it in a mortar, and add to it half the quantity of the above paste, and a quarter of the quantity of butter, with salt, pepper, and nutmeg to taste, mix all together, add 1 whole egg and 3 yolks, pass it through a wire sieve, stir in 1 gill white stock or milk, pour it into the mould, and steam for ½ hour. Serve with truffle or plain brown sauce.

Macaroni with Tomato Sauce.—Throw 1 lb. macaroni into a saucepan of boiling water and salt; the water must be quite boiling. When sufficiently cooked, strain off all the water, put it into a saucepan, with 3 oz. butter, 3 oz. grated Parmesan cheese, and the tomato sauce. Keep it on the fire until the macaroni acquires a fine colour from the tomatoes, but care must be taken not to keep it too long on the fire, lest it become soft and pasty. The tomatoes are prepared for the sauce as follows: Take ripe tomatoes, wash, dry them, and cut them into halves; put them into a saucepan without any water, with salt, pepper, a few cloves, a little onion and celery, and boil till sufficiently done; pass through a sieve, and pour into the saucepan of macaroni as mentioned above.

Malvern Pudding.—It is made by cutting slices of bread ¼-½ in. thick, according to taste, or as to whether it be required for children or matured persons. These slices have next to be cut into such

triangular shapes as will admit of their filling the side of a basin when placed points downwards. This is the only part of the process that requires a little judgment and care. If the basin required be large, or, say, of a quart size or more, and the slices of bread are not wide enough to admit of the triangular pieces reaching to the top of the basin, then some slices of a suitable width may be cut to fill up with. This done, a round slice may be put at the bottom, and then an inch or so in thickness of stewed rhubarb. Then more slices of bread, among which the trimmings may be utilised. Then another inch of the stewed rhubarb, and so on till the basin is filled. The last layer of bread should be whole, if the loaf be conveniently large, if not, the straight edges of two pieces may be placed together, and a knife run round them close to the edge of the basin so that they may be pressed down a little below the level of the edge to allow for the little swelling of the bread that will occur. To bind the whole together, 2 eggs to 1 pint basin should be used. The eggs should be well beaten with a large tablespoonful of milk to each egg. With this stewed rhubarb, unless it has been simmered to a dry or almost candied form, it is better to pour a suitable quantity of the beaten eggs and milk as the layers are formed, as, by doing this, all the spaces between the bread will be filled, and thus firmly bound together with custard when cooked. As to the quantity of butter on the bread, that will depend on taste. A little sherry sauce is an agreeable addition. The character and flavour of this pudding may be varied in an agreeable way by stewing a few raisins, sultanas, currants, prunes, or figs, and inserting them between the bread and butter as above described. It is better to stew these dried fruits for a pudding of this kind, for all the boiling the pudding proper

requires is 15-20 minutes, or long enough to set the custard. A pudding made of similar materials, in a flat pan and baked in a slow oven, is equally good, and affords another agreeable variation. In seasons when eggs are scarce, a large tablespoonful of cornflour may be put to ¼ pint milk, or rather less, according to the quantity of bread used; and if this be whipped up with one egg, it will be sufficient to stiffen a pint pudding, so that it will stand firmly on the dish. For a boiled pudding the top should be well covered with the custard, as this will soon set, and thereby prevent the steam in the boiling pan from making the top layer of bread too sopped. In Worcestershire—whence it derives its name—it is generally made with cranberries. But gooseberries, currants, raspberries, strawberries, and so on, are equally suitable fruit for it.

Manchester Pudding.—This is a variety of the well-known Bakewell pudding, the difference consisting in the addition of milk and breadcrumbs to the cheesecake mixture, namely, butter, yolks of eggs, sugar, lemon juice and peel beaten to a cream, which in the Bakewell pudding is laid over the layer of jam. Alexandra pudding and Durham pudding are synonyms of the variety of Bakewell pudding known as Manchester. There is another kind of pudding, also called Manchester, which consists of breadcrumbs, milk, lemon rind, butter and sugar boiled together, eggs being added when cold, and the mixture baked in small shapes, and served with a morsel of jam on each, and with cinnamon sauce. (The G. C.)

Maraschino Jelly.—Take 2 calves' feet, chop them into convenient pieces, and put them into a saucepan with rather more than 2 qt. cold water; set the

saucepan on the fire; directly the water boils throw it away, and wash the pieces of feet carefully; then put them on again with 2 qt. cold water, and let them boil slowly for 3 hours, removing the scum carefully during the process; then strain the liquor into a basin, and when quite cold and set take off all the fat, and wash the top of the jelly with a little hot water, so as to get rid of every vestige of fat. Put the jelly into a saucepan on the fire; directly it is melted add sugar to taste, the juice and the thin rind of one lemon, and the whites of 3 eggs whisked to a froth. Beat up the mixture till it boils. Place the thin rind of a lemon at the bottom of a jelly bag, and pour the mixture over it. The bag should have been previously rinsed in boiling water, and the first ½ pint jelly that comes through must be returned to the bag. If the jelly does not come out quite clear, the operation of straining must be repeated. Add sufficient maraschino to flavour the jelly, then pour it into a mould, and put it on ice to set. At the time of serving dip the mould in warm water, and turn out the jelly.

Margot Pudding.—Cut 3 slices bread (thickness of five-shilling piece), spread lightly with butter and thickly with jam; lay the slices one above another in a pudding dish; pour over a glass of whisky or brandy, and when soaked in fill up with melted butter made as follows: 2 oz. butter, 4 teaspoonfuls cornflour, 3 tablespoonfuls sugar, 1 pint water, boil it, and pour over the bread, then bake till the pudding is a nice brown.

Marlborough Pudding.—(*a*) ¼ lb. butter, ¼ lb. sifted white sugar, 4 yolks of eggs well beaten; first put the sugar in a basin, then add and stir in the eggs; flavour with vanilla, and bake ½ hour in a dish lined with puff paste. The pudding is greatly improved if

some of the mixture is kept back, and, when all is ready, just warmed through and poured round as a sauce.

(*b*) Cover a pie dish with a thin puff paste, then take 1 oz. candied citron, 1 oz. of orange, and 1 oz. of lemon peel, sliced very thin, and lay them over the bottom of the dish. Dissolve 6 oz. butter without water, and add to it 6 oz. pounded sugar, the yolks of 4 well-beaten eggs. Stir them over the fire until the mixture boils, then pour it over the sweetmeats, bake the pudding in a moderate oven for ¾ hour, and serve it hot or cold.

Marlborough Tart.—Line a tart tin with good puff paste, set in a quick oven, and when half baked pour on the following mixture: 2 eggs well beaten, 2 oz. sifted sugar, 4 oz. citron or candied peel cut into strips, mix all together; finish the baking, and serve when cold.

Marmalade Pudding.—(*a*) Baked.—1 large tablespoonful marmalade, 1 breakfast-cup fine breadcrumbs, ½ teacup castor sugar, 1 egg, ½ pint milk. Put a layer of marmalade at the bottom of a pie dish. Rub some stale bread through a wire sieve until a breakfastcupful is made, mix this with the sugar, and put it over the marmalade. Beat up the egg, add to it the milk, pour this custard into the dish. Bake in a very moderate oven 1-1½ hour. Should be a pale brown.

(*b*) Boiled.-½ lb. suet, ½ lb. breadcrumbs, ½ lb. brown sugar, 2 oz. ground rice, 2 tablespoonfuls marmalade, 2 eggs. Chop up the suet (which should be dry beef suet) as finely as possible, make the breadcrumbs by rubbing stale crumb of bread through a wire sieve, beat up the eggs; mix all the ingredients well together in a large basin; let the

mixture stand overnight, if possible, before cooking; well grease a pudding basin, fill it with the mixture (it should be quite full), tie it over with a pudding cloth which should be dipped into boiling water and floured well, tie the corners of the cloth loosely over the top; put into a large saucepan of boiling water, boil steadily for 4 hours.

Meringues.—Whisk the whites of 12 eggs in a bowl until they take the appearance of a white substantial smooth froth, looking almost like snow. To obtain this, it is essential that the whisk and basin be perfectly clean and dry, if in the slightest degree greasy the eggs would not rise sufficiently. Lay aside the whisk, and with a spoon mix in 1 lb. castor sugar; this must be done very lightly, if worked too much it will lose its firmness, and it would be difficult to form the meringues. Cut some stiff foolscap paper into strips, about 2 in. wide, then take a tablespoon and gather it nearly full of the batter, by pressing it up against the side of the basin, and getting it as much as possible into the form of an egg; scoop this off slantingly on to the froth, passing the spoon sharply round it before leaving it, to make it smooth and round and quite like an egg. Proceed in this way till all the froth is used up, and leaving a space of about 2½ in. after each meringue. Place the bands of paper containing them side by side on the table, and, when all are made, shake some rather coarse-sifted sugar over them, and let them stand for about 3 minutes. To bake meringues it will be necessary to have a board made of well-seasoned wood, about 1 in. thick, to fit the oven. On this place the paper bands of meringues, holding them at each end of the paper, and giving each band a little shake before placing it on the board, to get rid of the superfluous sugar; place the bands close together,

and put the board into an oven of very moderate heat, to bake a light cream colour. When they are cooked remove them very carefully from the paper, and with a silver dessertspoon scoop out the soft white part from the inside. After this they must be put back into the oven for a short time to dry; the oven must be quite cool, and they must be watched to see that they do not become a deeper colour; this should be done on a baking-sheet, on which they should be carefully placed. If kept in a large covered glass jar in a perfectly dry place, these meringues will keep good for a long time. They must be quite cold before putting away. When required for table, fill the insides with whipped cream, slightly sweetened and flavoured with vanilla or any other flavouring preferred, or, better still, with a dessertspoonful of cream-ice; join two of the shells together, and dress them piled high in a glass or silver dish.

Mince Pies.—(*a*) An excellent and useful mincemeat can be made by the following recipe, especially in the country, where apples are cheap. But, if they are too expensive, half the given quantity can be used, and breadcrumbs substituted for the other half. Shred ½ lb. suet, roll it, a little at a time, on a board with 1 lb. raw sugar, mix with it 1½ lb. apples, ½ lb. raisins, ½ lb. currants, 2 oz. candied peel, all minced, 1 teaspoonful ground ginger, 1 of mixed spices, and the peel and juice of a lemon. Take care that the ingredients are well mixed together, and, if possible, let the mincemeat be prepared a few days before it is wanted for use. The crust for the pies can be made in the same way as for steak pie, or as follows: Rub ½ lb. lard into 1 lb. flour, make it into a paste with 1 gill cold water. As this is a short crust, as little water as possible should be used, and,

if well worked up, the given quantity will be sufficient. Put the paste on the board, roll it out once to the required thickness, line greased saucers or patty-tins with it, put in a liberal allowance of mincemeat, fit on a cover, and bake in a slow oven for 40 minutes.

(*b*) Have ready some mincemeat made in the following way: 6 lb. raisins, 6 lb. currants, 2 lb. dates, 2 lb. French plums, 6 lb. apples, ½ lb. each candied citron, lemon and orange peel, 12 lemons, 6 sweet oranges, 6 lb. Demerara sugar, 1 teaspoonful each of mixed spice and ground ginger, with 1 pint good brandy, 1 of Marsala, 1 of sherry, and a wineglass of noyeau or curaçao. Have the raisins, dates, and plums carefully stoned, the candied peel cut into small dice, the apples peeled, cored, and cut into small pieces. Mince finely all the above with the pulp from the lemons and oranges. Well clean and dry the currants, and add them, with the sugar and spices, to the minced ingredients. The lemons and oranges must be grated to obtain all the outside peel, the juice squeezed thoroughly from them, and the pulp, before being minced, must be freed from all the pips and white inner peel. Dissolve the hard sugar from the candied peel in the orange and lemon juice, and add it, with the grated rind, to the mincemeat. Mix all well together in a large pan, add the brandy, liqueur, and wines. Press the mincemeat closely into stone jars, after again thoroughly mixing it, and cover it closely. Keep it in a cool, dry place. Should a mincing machine be used, the ingredients for mincing should be mixed before putting them through it, except the suet, which is always better chopped with an ordinary chopper.

(*c*) Butter slightly a number of patty-pans, take a

piece of the paste, roll it out to the thickness of ¼ in., and line the pans with it. Put 1 wineglassful brandy into the mince, stir it well, and put a small quantity of it into each pan; brush the paste round with white of egg, and put on a cover of paste rolled out to about ⅓ in. thick. Press the edges well together, brush the top with cold water, strew finely powdered sugar over, and bake about ½ hour.

Mocha Pudding.—Beat up the yolks of 4 eggs with ¼ lb. powdered loaf sugar, add gradually 2 oz. flour and 2 oz. potato flour; lastly, the whites of 4 eggs whipped to a stiff froth. When the whole is well mixed, put it in a buttered plain mould and bake. Turn out the cake when done, and when it is quite cold cover it evenly all over with the following icing, ornamenting it with piping of the icing pushed through a paper cone. This last operation must be done with care, lest the heat of the hand warm the icing. When the cake is finished it should be put in a cold place, or on ice, till the time of serving. The Icing.—Take ½ lb. fresh butter and ¼ lb. powdered loaf sugar, and beat them to a cream in a bowl, adding drop by drop, during the process, ½ teacupful strongest coffee that can be made.

Mousseline Pudding.—4 oz. pounded sugar, 4 oz. fresh butter, the rind of 1 lemon and the juice of two, with the yolks of 10 eggs, to be mixed together in a saucepan and stirred on a slow fire until quite hot; then strain the mixture into a basin, and amalgamate lightly with it, as you would for a soufflé, the whites of the eggs whisked into a stiff froth. Pour into a well-buttered mould, and steam for 20 minutes. Serve with jam or fruit sauce. The water should boil when the pudding is put into steam, but on no account after.

Nesselrode Pudding.—Blanch about 35 large chestnuts, then rub through a sieve, and mix with a syrup made of 1 lb. clarified sugar, 1 pint cream, and the yolks of 10 eggs. Stir over a slow fire; when near boiling take it off, and pass it through a tammy. When cold, add 1 glass maraschino, set it in a freezing pot, add 1½ oz. citron, 3 oz. currants, and 2 oz. stoned raisins (previously soaked in maraschino); add a plateful of whipped cream, with the whites of 2 eggs beaten to a froth. When all is quite frozen put it in a mould; put it again in the freezing pan till required.

Newcastle Pudding.—Cut 4 penny sponge cakes in half and spread with jam, cook them in milk; make a plain custard of 2 eggs and ½ pint milk; boil the milk; when nearly cold add the eggs, and boil until it begins to thicken, then pour over the cakes.

Norfolk Dumplings.—Mix thoroughly 1 teaspoonful Borwick's baking powder and a little salt with 1 lb. flour in a dry state; then pour on gradually about ½ pint cold water or milk, mix quickly into a dough, to be put immediately in small pieces into boiling water, and boiled 20 minutes without taking the lid off. They eat very like dough dumplings when properly made. Serve with milk sauce. Together with potatoes, they form the staple food of the Norfolk poor, who, when unable to obtain meat dripping, eat them with treacle or honey. They may also be frequently seen on the tables of the wealthy, and, when accompanied by game, goose, or duck gravy, are by no means unworthy the attention of an epicure.

Oatmeal Pie.—Boil, in 1½ pint water, 2 tablespoonfuls Scotch oatmeal until it jellies on a plate; let it stand till cold, then cover the bottom of a

small pie dish with oatmeal; lay on it slices of Australian mutton; chop up an onion, some parsley, and two leaves of sage; put some over the meat, with pepper and salt, then another layer of oatmeal; lay on it slices of mutton and seasoning as before; cover all over with oatmeal, and dust the top with flour; bake for 1½ hour in a moderate oven.

Oatmeal Pudding.—Soak in water for 12 hours ½ pint fine oatmeal, pour 1 pint boiling milk over it, add a little salt, and put it into a buttered basin (just large enough to hold it), with a well-floured cloth tied tightly over it; boil for 1½ hour, turn it out and serve with cream, or boiled milk thickened with flour.

Omnibus Pudding.—Take 6 oz. fine flour, 6 oz. fresh suet shred fine, 6 oz. raisins stoned, 4 oz. treacle, 4 oz. milk. Mix well, put into a basin, tie a cloth over, and boil for 3-4 hours. Serve with brandy sauce.

Orange Chips.—Cut some Seville oranges in halves, squeeze the juice through a sieve; soak the peel in water; next dry; boil in the same till tender, drain and slice the peels, pour the juice over them; take an equal weight of sugar, put sugar, peels, and juice into a broad earthenware dish, and set it over the fire, not close enough to crack the dish, stir frequently until the chips candy; then set them in a cool place to dry, which process will take 3 weeks.

Orange Compote.—Put a handful of loaf sugar to boil with 1 gill water in a saucepan; when it boils add the thin rind of 3 oranges minced finely or cut into very narrow strips. Let the whole boil 5 minutes, add a liqueur-glass of brandy, and pour the syrup (hot) over 6 whole oranges, peeled and cored, or cut up in any form liked. Leave the oranges in a basin with the syrup till quite cold; then pile them up on a

dish and serve.

Orange Cream.—Soak 1 oz. packet of gelatine, and add it to 1 pint milk in which 6 oz. lump sugar has been dissolved. Add a little lemon peel, and boil all together for 10 minutes. Strain the milk and add to it ½ pint orange juice and the juice of 1 small lemon. Stir well, and pour into a mould till set. This is excellent. Improved by the substitution of cream for milk.

Orange Fool.—Mix the juice of 3 Seville oranges with 3 eggs well beaten, ½ pint cream, a little nutmeg and cinnamon, and finely sifted white sugar to taste. The orange juice must be carefully strained. Set the whole over a slow fire, and stir it until it becomes about the thickness of melted butter; it must on no account be allowed to boil; then pour it into a dish for eating cold.

Orange Fritters.—Cut some oranges in halves, use a sharp knife to remove the peel, pith, and pips. Stand the bits of orange in a basin with a small wineglassful of brandy and a spoonful of sugar for one hour. When ready to fry them drain them first on a sieve, then dip them separately in a batter made thus: Add 2 oz. melted butter to ¾ lb. flour, and 2 yolks of eggs. Mix these ingredients together with a wooden spoon, working in at intervals ½ pint tepid water; it must be worked up with the spoon until it looks creamy, and just before you use it add lightly 3 whites of eggs, whisked previously to a fine froth.

Orange Jelly.—Make a syrup with 1 pint water and 1 lb. loaf sugar, boil it with the thin rind of 4 oranges and 2 lemons, skim it carefully and add the juice of 8 oranges, let it boil about 20 minutes; skim and add the juice of a lemon and either 1 pint calvesfoot jelly, made as above, or 16 sheets best French gelatine

dissolved in ½ pint of water and clarified with white of egg. Peel 2 sweet oranges, removing every particle of skin of both kinds, core them to get rid of the pips, and cut them in thin slices in such a way as to get rid of the pellicle round each quarter. Proceed to fill the mould, disposing pieces of oranges in it in a symmetrical fashion, place it on ice to set, and turn it out when wanted.

Orange Mould.—Very pretty dish, made by peeling 3-4 large oranges, and dividing them into sections, being careful not to break the skin. Boil ¼ lb. lump sugar in 2 tablespoonfuls water to crackling height. Arrange the sections round the sides of a well-oiled basin, previously dipping each into the sugar, which will act as a sort of glue, and, when cold, will be found to have stuck firmly together, forming a shape. Turn out on a dish, and fill with coloured fruit, strawberries, raspberries, &c., upon which is placed some whipped cream.

Orange Pudding.—3 oz. stale sponge cakes or ratafias, 3 oranges, ½ pint milk, 3 eggs, ¼ lb. sugar. Pour boiled milk on sponge cakes (which should be in crumbs); rub the rind of 2 oranges, and add the juice of 3; beat up the eggs, stir them in, sweeten to taste. Put the mixture into a pie dish lined with puff taste; bake ½ hour; turn it out of the dish, and sprinkle sifted sugar over it.

Orange Puffs.—Grate the rind of 4 oranges, add 2 lb. sifted sugar, pound together and make it into a stiff paste with butter and juice of the fruit; roll it, cut it into shape and bake in a cool oven, serve piled up on a dish with sifted sugar over.

Orange Salad.—Peel 8 oranges with a sharp knife, so as to remove every vestige of skin from them; core them as you would core apples, and lay them whole

or cut in slices in a deep dish; strew over them plenty of powdered loaf sugar; then add 1 large wineglassful pale brandy; keep the dish covered close till the time of serving.

Orange Sponge.—Make an orange jelly with 1 oz. gelatine or isinglass to 1 pint water and about ¼ lb. sugar. Peel 2 oranges very thin, add the juice, rasp the sugar on the peel. Dissolve the gelatine thoroughly on the fire, then put in the orange and sugar, and, when quite melted, strain it clear into a basin. When nearly cold, but on no account set, whisk it well for a long time until it comes to a white froth, then pour it into a mould and put it in a cool place, then turn it out and serve in a glass dish.

Orange Tart.—Take 4 Seville oranges, squeeze the juice and pulp from them; boil the oranges until quite tender, add double their weight of sugar and pound fruit and sugar to a paste. With a teaspoonful of butter and the juice of the oranges, beat well together adding the pulp, also freed from pips and pith, line a shallow pie-dish with a light paste, put in the orange paste, bake it and cover with custard or cream.

Orange Tartlets.—Line some patty-pans with sweet short paste, fill them with uncooked rice, and bake to a light brown colour; remove the rice, and fill each tartlet with oranges prepared as for a compote, only cut into smaller pieces; pour syrup over before sending to table, or else sift sugar over, as preferred.

Orchard-street Pudding.-½ lb. breadcrumbs, 6 oz. beef suet chopped very fine, 3 tablespoonfuls marmalade, rind and juice of 1 lemon, 1 teaspoonful soda carbonate, 3 tablespoonfuls sugar, 3 eggs well whipped, a little grated nutmeg, the whole to be thoroughly mixed, put into a mould, and boil 3½

hours. It should be served with wine sauce.

Oswego Pudding.—Pour ½ teacupful boiling milk over 6 Oswego biscuits; beat them up with ½ oz. sugar and 1 oz. butter; stir in a well-beaten egg the last thing, and bake in a small greased pie-dish for 15 minutes. This makes a very light little pudding for 2 people, and without the butter is good for invalids.

Pancakes.—(*a*) Mix 2 tablespoonfuls flour with ½ pint cream, add 2 eggs, and beat the whole well till quite smooth; put in a tablespoonful of powdered sugar, a little powdered cinnamon, and a little grated nutmeg.

(*b*) Make a thin batter with 1 pint cream and some flour, put in ½ lb. fresh butter melted, 8 eggs well beaten, ½ nutmeg grated, and a little salt.

(*c*) Mix 1 pint milk with as much flour as will make a thin batter; add a glass of pale brandy, a little grated nutmeg, a little powdered ginger, and a pinch of salt; then add 4 eggs, beat all well together till smooth.

(*d*) Put into a basin 4 eggs, 4 tablespoonfuls flour, 1 of pale brandy, 1 of olive oil, and 2 of orange-flower water; mix the whole into a smooth paste, then dilute it to the proper thickness with either milk or water.

Warm a perfectly clean small frying pan, put into it a piece of butter the size of a cobnut, and as soon as, by tilting the pan, the butter has been made to spread all over the pan pour into it a ladleful of any of the above batters; again tilt the pan quickly so as to spread the batter evenly all over it, and directly the batter is well set run a knife round the pancake and turn it over for a minute; then roll it up and put

it in the screen or the oven to keep hot while the next pancake is cooked in the same manner; serve on a napkin with lemon quarters as a garnish. By using lard instead of butter this process of frying pancakes is rendered somewhat easier.

Paradise Pudding.—Put into a basin ½ lb. breadcrumbs, 4 apples, pared, cored, and minced, 4 oz. currants, 4 oz. sugar, salt, and grated nutmeg to taste, the rind of half a lemon, beat up 4 eggs; mix all well together, and stir in half a wineglassful of brandy; put into a buttered mould, and steam for 2 hours; serve with sweet sauce. Beer can be used instead of brandy, but not milk, as it makes the pudding heavy.

Paste for Patties.—(*a*) Take 1 lb. fine flour; pass it through a wire sieve on to a pastry slab; add a pinch of salt and 2-3 drops of lemon juice; wet it with cold water into a paste about the same consistence as the butter about to be used; flatten the paste with the hands; place on it 1 lb. butter that has been worked well in a dry cloth; fold up the sides and ends of the paste, and roll it out the length of ½ yd.; fold it in 3, turn it round, and roll it the other way; leave it 20 minutes, then roll it twice more, and so on until it has been rolled 6 times; this done, roll the paste to the thickness of ½ in.; cut it with a plain round cutter dipped in boiling water, turn each patty over, place them on a baking tin, egg the top, and with a small cutter make a deep incision to form the cover. Bake in a quick oven.

(*b*) Puff.—Take 1 lb. best flour, rub it through a sieve, place it a little distance from the fire for a short time to get thoroughly dry; then rub in the half of ¾ lb. butter, the juice of ½ lemon, mix it lightly up together; roll it out as thin as a crown piece, put a

layer of butter all over it, double it in 4, and roll it out again, do this twice, by which time all the butter will be in. Then fold it up and put it down in a plate on the stones of the larder for ½ hour to get cold. After this roll it out 3 times, and it is fit for use.

(*c*) Dripping.—Have cool hands, a cool room, fresh well-clarified beef dripping, and dry flour. Be as particular about making the pastry as if it were being made with the best butter. Cooks so often fail to make good pastry with dripping because they do not take pains with it. To every lb. of flour allow 6 oz. dripping and 1 teaspoonful baking powder. Put the flour into a basin with the baking powder and a pinch of salt; rub into it the dripping, which should be broken up into small pieces; when well rubbed in, moisten with about 1 gill water, enough to make a smooth, stiff paste. Flour the paste-board and the rolling-pin, and roll the paste out on the paste-board, fold it over again and roll again, repeating 3 times, handling it as lightly as possible. It is then ready.

Peach Cheese.—Take a number of green peaches, rub them carefully in a cloth to remove all dust. Put them into a stewpan with a small quantity of water—about ½ pint to 1 lb. of fruit (for large quantities a smaller proportion of water might be used). When the peaches are perfectly soft, rub them through a fine sieve with a wooden spoon, laying aside some of the stones, which should be broken, and their kernels added to the peach pulp. Weigh the pulp, stir it over the fire until quite hot, add half its weight in sugar, some lemon juice, and a little grated peel; stir the whole on the fire until well thickened, put into shapes. It should be quite hard when cold, and turn out easily. If the pulp be very watery, boil for 20 minutes before adding the sugar. This preserve will

keep for a long time if sufficiently cooked, only perfectly sound fruit should be used. It is not necessary to peel the peaches.

Peach Compote.—(*a*) Put into a casserole for every dozen peaches ¼ lb. sugar and a glass of water; bring it to the boil, and skim well; add the peaches, peeled, and either whole or in halves, without their stones in either case. Let them boil a few minutes until they feel done; then arrange them in a glass dish, reduce the syrup, and pour it over them.

(*b*) Boil 4 lb. sugar in 2½ pints water; let it simmer 10 minutes after coming to the boil; fill bottles with fruit, shaking it down; when the syrup is cold, fill up each bottle with enough to cover the fruit; cork them well at once; stand the bottles in a boiler of cold water, and let it come to the boil slowly; after which simmer a few minutes; let the bottles get cold in the water; keep them in a cool place.

Peach Cream.—Steep ½ oz. isinglass in ½ pint cream, and stir over the fire until dissolved. When almost cold, mix with it the strained juice from a tin of peaches, and the juice of a small lemon. Pour ¾ of this cream into a glass dish, and allow it to set. Colour the convex sides of the halves of peaches delicately with cochineal. Place them with the coloured sides upwards upon the set cream. Pour the remainder of the cream carefully between the fruit. Allow this also to set, and the dish will be ready to serve. ¾ pint blancmange, with the yolks of 3 eggs stirred to it while scalding hot, make a fair substitute for the cream.

Peach Toast.—Cut some round slices off some milk rolls, remove the crust and fry them a pale yellow in fresh butter. Take a tin of preserved peaches, turn out the liquor into a saucepan, add a little sugar and

a glass of white wine; boil it up, put in the peaches, simmer a few minutes, drain them, and place half a peach, concave side uppermost, on each piece of bread, put a piece of currant jelly in the cavity of each peach, pour the syrup round, and serve.

Pears, Stewed.—Peel the pears, and cut them into halves, without removing the stalks, and carefully take out the cores; then put them into a jar, with a lid, which should fit closely—empty salt jars answer the purpose perfectly; add a small quantity of lemon peel and 1 or 2 cloves. Pour over them a syrup of sugar and water, in the proportion of ½ lb. loaf sugar to every pint of water. After closing the jar, put into the oven, which must not be too hot. Let the pears bake till tender—about 5-6 hours; then turn them out of the jar to cool. To keep them, put them into clean jars or bottles when quite cold, and tie them down carefully like jam. If they do not keep, the fault will probably lie with the fruit. The proper baking pears should be used, and they must not be too ripe. If gently cooked, the colour will be good without any addition, but, if necessary, about 3 drops cochineal may be added when the fruit is nearly done.

Peripatetic Pudding.—Take 6 sponge cakes and 6 eggs, ¼ lb. sifted sugar, ½ lb. fresh butter, ½ lb. marmalade, and 2 glasses of sweet wine. Mix these ingredients well together, and paper the mould. Bake for ½ hour.

Piedmont Tartlets.—Make a paste with 1 oz. butter, 2 oz. flour, the yolk of an egg, a little water, a pinch of salt; roll it out to the thickness of ⅛ in., and line some patty-pans with it. Take 2 oz. finely grated Parmesan cheese, beat it up in a bowl with the yolks of 2 eggs; add pepper, salt, cayenne and nutmeg, according to taste, very little of the two latter, then

work in 3 tablespoonfuls cream, fill each patty-pan with the mixture and bake them in a moderate oven till done.

Pikelets.—1½ oz. German yeast, a little flour, 1 qt. warm milk, a cupful of melted butter, a little salt. Time to bake, 5 minutes after the top has blistered. Make the milk warm, and stir it into the yeast with a little salt. Add a sufficient quantity of flour to make it into a batter. Set it to rise for ½ hour, then add a cupful of melted butter. Stir it well in, pour it into iron rings previously placed on a hot plate, and bake them very lightly on both sides. When required, toast them on each side, taking care they do not burn; butter them nicely, cut them across, and put them upon a hot plate, serving them quickly hot and hot.

Pineapple Cream.—Dissolve 2 oz. isinglass in 1 small cupful boiling water; when dissolved add it to 1 qt. good cream, stirring it continually that it may not curdle. Then add a ¼ lb. sifted loaf sugar, and the juice of a pineapple, bruised and strained; whisk the whole thoroughly together for a few minutes; then pour into a mould, and set in ice or a very cold place until well set.

Pineapple Fritters.—Make a thick batter with 2 eggs, 1 teacupful new milk, 2 oz. sifted flour, 3 stale penny sponge cakes, 1 doz. ratafia biscuits, and 1 teaspoonful sugar reduced to a fine powder. For these fritters use the pineapples preserved in tins. Divide the slices into small triangular pieces, dip each in the batter, and fry to a golden brown colour in plenty of boiling lard. Dish them on a folded napkin, sprinkle them lightly with powdered sugar, and serve them as quickly as possible. Send to table with them, in a tureen, a sauce made as follows: Strain the pineapple juice, which will be left in the

tin, into a small enamelled saucepan, and add to it the juice of ½ lemon, 1 wineglassful white wine, and 1 teaspoonful powdered sugar. Bring this to boiling point, and thicken to the consistency of thin cream with arrowroot, mixed with a little cold water. If preferred, the pine may be minced and mixed with the batter.

Pineapple Jelly.—Take a tin of preserved pineapple, pound the contents in a mortar, add 6 oz. sugar and ½ pint water; boil the whole for ¼ hour, then strain through a tammy; add the juice of a lemon and 1 pint clarified calvesfoot jelly. Pour into a mould, and when set turn it out by dipping the mould in warm water. Pieces of pineapple may be put in the jelly.

Pineapple Toast.—Take a small tin of preserved pineapple and a stale sponge cake; cut the sponge cake in slices ½ in. thick, and trim them and the pineapple to the same shape; place lightly the slices of cake, on both sides, in butter. Arrange on a dish in a circle, alternately, a slice of cake and one of pineapple, take as much syrup out of the tin as may be necessary, add to it a glass of sherry or a liqueur glass of brandy; pour this over the dish and serve cold.

Plum Pudding.—(*a*) Put 10 oz. flour into a large basin, with a tiny pinch of salt, and, having passed 1 lb. suet through the mincing machine, rub it with both hands into the flour until it is quite smooth, then add 10 oz. fine breadcrumbs, mixing each thing well as you do it. Then add the 1 lb. currants, having well washed and dried and picked them (for there are stones among them), then add 2 lb. stoned raisins, then ½ lb. brown sugar, ½ lb. candied peel and the peel of a lemon grated, a small spoonful of spice; beat up 8 eggs, and with a little milk mix

altogether well with both hands, adding half a tumbler or less of brandy; this should be mixed at night and left until the morning, with a cloth thrown over it. The next morning mix it up well with your hand, and put it into a tin form, which should be well buttered; the tin should have a well-fitting cover, which should be buttered also. Put the tin into a cloth, and tie it so well down that there should be no risk of the cover coming off; put it into a saucepan of furiously boiling water, and let it boil 8 hours, taking great care that the water never ceases boiling. The pudding is much better boiled 3 hours more the second time, the day it is eaten. Boiling in a cloth without the tin covered shape spoils the goodness of the pudding, which all goes into the water. (E. C. Scouce).

(*b*) Not too rich, and very inexpensive: ½ lb. Valencia raisins stoned, ½ lb. currants, 3 oz. flour, ½ lb. beef suet chopped very fine, ½ lb. breadcrumbs grated, 2 oz. soft sugar, 2 oz. candied peel, and the rind of a small lemon, chopped very fine, ½ nutmeg grated; mix all well in a bowl, and add a wineglass of rum or brandy, and 4 eggs well beaten. Cover over with a plate, and let it stand all night; in the morning stir it up well, and add 1 small teacupful of milk; mix thoroughly, and put it into a well-buttered mould. Lay a buttered and floured paper over the top, and tie all in a large cloth. Boil 6 hours, a week or more before it is wanted, and then at least 4 hours the day the pudding is required; serve with wine sauce.

(*c*) That will keep.—1 lb. stale bread in crumbs (very fine, must be passed through a wire sieve), 6 oz. flour, 1¼ lb. raisins, weighed after stoning; 1¼ lb. moist sugar, 2¼ lb. currants, well cleaned and dried; 1½ lb. best beef suet, finely chopped and free

from skin; 3 oz. mixed candied peels, cut as thin as possible; a small teaspoonful of salt, and ½ small nutmeg grated. Mix all these dry ingredients together in a large earthen pan, then add the yolks and whites of 10 eggs well beaten together, and, lastly, 4 wineglassfuls sherry, and rather more than 3 of brandy; stir all these together very thoroughly with a wooden spoon. This quantity will make 3 puddings. Boil them 4 hours, either in basins or in earthen moulds tied over the top with a cloth. After this drain them and set them on the kitchen shelf, not too near the fire, but to keep dry. When wanted boil them for 1 hour. They will keep any time, and are as good at a year's end, or even better, than at first.

(*d*) Plain.—Take of currants, raisins (sultanas), and sugar each 1 lb., 2 lb. breadcrumbs brown or white, 2 lb. carrots grated, 2 lb. potatoes grated, 1 lb. suet, ½ lb. lemon peel, salt to taste, 1 oz. ground ginger, 1 lb. flour, 2 or 3 eggs, 2 teaspoonfuls soda carbonate, 1 ditto tartaric acid, the two latter well mixed with the flour and breadcrumbs, dry, a little brandy and rum if liked, with milk sufficient to moisten. This will make a large pudding, but can be divided. Boil 6-8 hours.

(*e*) 4 lb. raisins, 2 lb. currants, 2 lb. beef suet, 1 lb. moist sugar, 1 lb. flour, 1 lb. breadcrumbs, 8 oz. mixed candied peel, 3 tablespoonfuls golden syrup, ½ pint brandy, 1 nutmeg, 1 teacup beer, and 13 eggs. The above ingredients should be well mixed with a wooden spoon. This quantity will make 5 or 6 puddings, and should be boiled 11 hours; they will then keep good for some months (quite 6 months), and, when one is going to be served at table, should be boiled for 2 hours.

Plum Purée.—Stew a quantity of plums, with sugar

to taste, and not too much water. When quite done pass through a hair sieve, stir well, and when cold it is ready.

Plum Tart.—Stone some plums and stew them for an hour, with plenty of sugar and half a tumblerful of water. Make a short paste with the white of 1 and the yolks of 3 eggs, 1 oz. butter, 1 oz. sugar, a pinch of salt, a little water, and sufficient flour. Roll it out to the thickness of a penny piece, line a mould with it, uniting the joints with white of egg, fill it with rice and bake it. When done remove the rice, put it in the stewed fruit, and serve.

Poor Knights.—(*a*) These can be made out of slices of stale bread neatly trimmed. They should be about ½ in. thick, and should either be cut in fingers, squares, or some other shape. Soak the pieces in milk long enough to soften them, but not to break. Drain the pieces and fry in boiling dripping until nicely browned on both sides. Place them on kitchen paper to drain, and then serve with jam or marmalade, put between every 2 slices; scatter some castor sugar on the top, and serve.

(*b*) The bread used in Germany for these is the "brödchen," somewhat larger than dinner buns. These are cut into 3 rounds ½ in. thick; beat up 3 eggs in ½ pint milk, in which soak the bread till soft; then dip the pieces into brown breadcrumbs, and fry with butter over the fire till a golden colour, crisp, but not hard; put preserve between 2 pieces, sprinkle with white sugar, and serve hot. The bread from an ordinary English loaf is best, with the crust cut off before soaking.

Porter Jelly.—Put 1 cow's heel into 5 pints water, boil it down to 3 pints; when cold, skim off the fat. Then put it into a pan with the rind of a lemon, a

little cinnamon, sugar to your taste. When quite hot, just before it boils, add 1 tumbler porter, and the white of an egg to clear it; run it through a jelly bag. This may be taken either warm or cold, and is very strengthening.

Potato Pie.—For a pie for about 10 people, take a loin of mutton (it is more tender than beef), 4 sheep kidneys, a cow heel from the tripe shop, 20 oysters, ½ lb. mushrooms, an onion, pepper and salt. Cut the mutton into chops (taking off some of the fat, and also bones), the kidneys into about 4 pieces each, the heel into 9 portions, the onion sliced; mix all together, and put into a large pie dish; cover well with potatoes cut in pieces; a little water must also be put in, and then a good pie crust. It is a good plan to cook all in the dish a while before putting on the latter. If covered with another dish the top will not be brown. The large bones from the cow heel, mutton, trimmings of mushrooms and oysters, if well simmered, make good extra gravy, which can be poured in after the pie is cut into. The best dish is a large tin one, to be kept for the purpose. A clean table-napkin should be pinned round before sending to table.

Potato Pudding.—Boil 4 large potatoes, and pass them through a sieve; stir into them powdered loaf sugar to taste and the yolks of 2 or 3 eggs; add a few drops of essence of lemon, then the whites of the eggs whisked to a froth; mix quickly and well; pour into a plain mould, buttered and breadcrumbed, and bake for 20 minutes in a quick oven. Serve with sweet sauce.

President's Pudding.—Cut some slices of stale bread, and dip each one in a custard made thus: Beat up 1 egg with a wineglassful of milk and ½ oz. pounded

sugar, fry the bread quickly in butter, pile on a dish with layers of jam between the slices, pour a thin boiled custard over, and sift some sugar, then serve.

Primrose Pudding.—Make some batter with ½ lb. flour and ¾ pint milk; break 2 eggs into the flour, and stir well, add 2 oz. moist sugar and a pinch of salt, add gradually ¾ pint milk, stirring the ingredients all the time. Stir with a wooden spoon until the batter is perfectly smooth, let it stand an hour or more; then stir into it 1 qt. or more of freshly gathered primrose petals. Pour this mixture into a well-greased basin, put a buttered paper on the top, tie down the basin with a well-floured cloth and plunge it into perfectly boiling water, move it about a little for the first few minutes, and boil 1½ hour. Cowslips, rhubarb, or gooseberries can be used in the same way.

Prince's Pudding.—Take 1 pint breadcrumbs (brown crumbs made by baking and rolling out crusts will do), let them be quite dry, and mix in 1 teaspoonful baking powder, 1 oz. sugar, 1 oz. flour, 1 well-beaten egg, and enough milk to moisten the whole, but not to make it thin. Grease a pie dish, and put a layer of sultana raisins at the bottom, pour in the mixture carefully, and bake ½ hour; turn it out for serving. This makes a pretty pudding if put into a fluted mould lined with raisins, and then boiled for 1 hour.

Prune Cake.—Stone 1½ lb. prunes, crack the stones and add the kernels, blanched. Stew till soft with the rind and juice of a lemon, sugar to taste, and 1½ pint water. Stiffen with 1 oz. gelatine dissolved in a little water. It can be tinted with cochineal if desired, and is best served with custard or cream and ornamented with a few almonds.

Prune Mould.—Take 1¼ lb. good prunes, put them

on a fire, covered with cold water. Let them boil for a minute, then take them off, drain them, and take out the stones. Crack the stones, take out the kernels, and blanch them in boiling water for a minute, take off the brown skin. Dissolve half a sixpenny packet of gelatine in cold water. Put it on the fire with 4 oz. sugar. Let it boil 5 minutes; colour with cochineal and 2 glasses red wine. Place the plums, with a kernel on the outside of each, into a casserole mould, and pour in the liquid. When set turn it out, and fill the hole up in the middle with whipped cream.

Prunes, Stewed.—Stew 1 lb. prunes with a little sugar and water till they are quite soft, take out the stones, crack them, and put back the kernels; line the inside of a mould (first decorated with split almonds) with the prunes, keep on pouring in a little jelly to make it turn out (a small breakfastcupful of jelly or dissolved gelatine will be about enough). It is best made in a mould with a hole, which should be filled with whipped cream.

Punch Jelly.—Take 2 calves' feet, chop them into convenient pieces, and put them in a saucepan with rather more than 2 qt. water, set the saucepan on the fire; directly the water boils throw it away, and wash the pieces of feet carefully, then put them on again with 2 qt. cold water, and let them boil slowly for 3 hours, removing the scum carefully during the process; then strain the liquor into a basin, and when quite cold and set, take off all fat and wash the top of the jelly with hot water so as to get rid of every vestige of fat. Put the jelly in a saucepan on the fire; directly it is melted add sugar to taste, the juice and rind of a lemon, and the whites of 3 eggs whisked to a froth. Beat up the mixture till it boils. Place the thin rind of a lemon at the bottom of a jelly bag, and

pour the mixture over it. The bag should have been previously rinsed in boiling water; and the first ½ pint of jelly that comes through must be returned to the bag. If the jelly does not come out quite clear, the operation of straining must be repeated; add sufficient rum to the clarified jelly to flavour it well, pour into a mould and place it on ice to set. At the time of serving dip the mould in hot water, and turn out the jelly.

Queen Adelaide's Pudding.—Take the crumb of a 3*d.* loaf, rubbed fine, ½ lb. beef suet, free from skin, and rubbed fine, ½ oz. each of citron, lemon, orange chopped fine, ½ nutmeg grated, ½ lb. currants well washed and picked, pounded white sugar to taste, 1 wineglassful sherry, and 6 eggs well beaten and strained. The whole to be well mixed and put into a buttered mould, and kept continually boiling for 4 hours. Serve with wine sauce.

Queen Mab's Pudding (to be eaten cold).—Throw into 1 pint new milk the thin rind of a lemon, heat it slowly by the side of the fire, and keep it at boiling point until strongly flavoured; sprinkle in a small pinch of salt and ¾ oz. finest isinglass. When dissolved, strain through muslin into a clean saucepan with 5 oz. powdered and sifted loaf sugar and ½ pint rich cream. Give the whole one boil, stir it briskly, and add by degrees the well-beaten yolks of 5 eggs. Next thicken the mixture as a custard over a slow fire, taking care not to keep it over the fire a moment longer than necessary; then pour it into a basin, adding 1 large tablespoonful orange-flower water, the same of brandy. Stir till nearly cold, when mix with it 1½ oz. citron, cut in thin strips, and 2 oz. dried cherries. Pour into a mould just rubbed with a drop or two of pure salad oil. For sauce, serve round

the pudding, as a garnish, strawberry, raspberry, or any fruit syrup preferred.

Quince Cakes.—Boil quinces till soft enough to pass a knife through, drain the fruit on a sieve, peel them, scrape, and extract the core; pass the pulp through a sieve, boil with an equal quantity of powdered sugar till the mass easily separates from the saucepan. Put into moulds, and keep for some days in a warm place.

Railway Pudding.—Carefully stone raisins enough to line a small well-greased pie dish, with the fruit opened. Fill the dish up with breadcrumbs, and pour over a little milk with which a well-beaten egg has been mixed. Bake, and serve turned out of the dish.

Raised Pie in China Mould.—This may either be made with veal and bacon, with chicken, rabbits, or game. A mixture of these three last, or any of them together makes a most delicious pie. Almost any game may be used in this way, but great care must be taken that it is perfectly fresh. Streaky bacon must be used in the proportion of ¼ lb. bacon to every lb. of meat. If veal, it should be cut as for cutlets, but rather smaller. If poultry or game, only the best parts should be used. Cut into pieces not too large, lay them in a flat dish, dredge them plentifully on both sides with flour, also with black pepper and salt; place a layer at the bottom of the mould-liner in which the meat is to be baked, packing them closely together; lay thin slices of bacon about 2 in. wide over this, dredge some flour and a little pepper, but no salt over the bacon, and proceed with alternate layers of meat and bacon until the liner is full, taking care that the top layer is of meat and bacon mixed; pour lukewarm water over this until you see it reaches the top of the liner; cover it with a crust of

flour and water, in which you may mix a little well clarified dripping to prevent it from drying up too fast. This crust is merely to keep in the moisture while baking, and is not served with the pie. Place it in a moderately hot oven, and let it bake 4-5 hours, according to the size of the pie. When sufficiently baked, remove the crust, and set the pie in a cool place until the next day to get perfectly cold; place the liner in the china mould, and serve with chopped aspic jelly, covering the meat. Hare does not mix well with any of the above; but, should you have a cold tongue, some small pieces cut into squares, and not too thin, will be found a good addition, particularly if the pie be made of chicken or rabbit.

Raisin Pudding.—Rub ½ lb. dripping into 1 lb. flour; mix 1 teaspoonful baking powder well with the flour; add 1 teacupful raisins, 1 oz. candied lemon peel, ¼ lb. moist sugar, and 1 teaspoonful mixed spice. Beat 2 eggs well, mix 1 gill milk with the eggs, and stir into the dry ingredients. This should make a stiff batter. Bake 1 hour in a moderate oven, in a greased Yorkshire pudding tin. It is lighter and crisper on the outside when baked in a shallow tin. It does not require any sauce.

Raspberry and Currant Tartlets.—Line some patty-pans with short paste rolled out as above, fill them with uncooked rice to keep their shape, and bake them in a moderate oven till done. Remove the stalks from some raspberries and currants, add some syrup made with sugar and a little brandy or sherry; empty the tartlets of the rice, fill each with the fruit, and put them into the oven to get hot. They may also be served cold.

Raspberry Custard.—Take ½ pint ripe raspberries or raspberry jam, press through a sieve to clear it of

seeds, mix with the juice 1 pint milk in which 1 dessertspoonful corn-flour has been stirred, free from lumps; beat a large egg thoroughly, mix it with the other ingredients, and set the whole in a clean white saucepan to boil; stir constantly, or it will be lumpy.

Ravioli.—Make a firm paste with flour, eggs, and a little water. Roll it out in sheets as thin as possible; cut them out in rounds about 3 in. diameter, put on each a morsel of the stuffing described below; fold them over, and turn up the edges, thus forming tiny rissoles. Let them dry for two hours, then put them carefully in boiling salted water, to boil for 20 minutes. Drain them and dress them with tomato sauce and Parmesan cheese. The stuffing: Boil some spinach, pass it through a sieve, and squeeze out effectually all moisture from it. Mix with it half its bulk of fresh curd, or the same quantity of breadcrumbs soaked in cream, season with grated nutmeg, pepper, salt, and grated Parmesan cheese.

Rhubarb Cream.—Bake an ordinary rhubarb tart and cut off the top crust, leaving only the outer edge. Whip, till very stiff, cream slightly coloured with cochineal, and place in its stead. Garnish with triangles of the top crust, in the centre of each of which is placed a clot of white cream.

Rhubarb Flummery.—Peel and cut up 2 lb. rhubarb, put it in a basin with a little cold water, not enough to quite cover it, place a plate over the top, and set it in the oven till soft. Soak ½ oz. gelatine in 3-4 tablespoonfuls water, and, having strained the juice from the rhubarb, put the juice into a stewpan with the melted gelatine, and stir it until quite dissolved. With a wooden spoon rub the softened rhubarb through a sieve, mix this with the gelatine, add 6 tablespoonfuls thick cream, stirring in as much

powdered sugar as may make it sweet enough, probably 6-8 oz. Set this on the fire again to warm, but on no account to boil, and stirring it all the time. When hot, turn it into a mould or basin dipped in cold water, and let it stand till set. Serve in a glass dish with custard round it.

Rhubarb Fool.—Cut up a bundle of spring rhubarb, and gently stew it till soft, with a teacupful of moist sugar; add the juice of a lemon, mash all up well, and turn into a glass dish. Beat ½ pint cream and pour it over the rhubarb, mix it together till it becomes frothy. Let it stand ½ hour before serving.

Rhubarb Fritters.—Peel young rhubarb and cut the stalks into lengths of about 2-2½ in. Make a batter by mixing 6 large tablespoonfuls flour with 1 pint milk, as smoothly as possible; add a pinch of salt and 2 well-beaten eggs. If the rhubarb be very young and tender it may not require peeling, it would then be sufficient to wipe each piece with a damp clean cloth; dip each piece into the batter and fry in boiling lard until a nice golden brown. Serve very hot, piled high on a napkin, and well powdered over with castor sugar. Half this quantity would be enough for a small dish.

Rhubarb Jelly.—Take some rhubarb, wipe it with a clean wet cloth, peel it, and cut it into pieces 1 in. long. To each lb. of rhubarb add ¾ lb. white sugar. Put it to boil for about 10 minutes, or until the juice is well drawn. Strain it into a preserving pan, let it boil quickly until it clings to the spoon, skim it, and put it into jam pots or moulds. The quickest way to know if it will set is to drop a little on to a plate to cool.

Rhubarb Mould.—Take 1 qt. red rhubarb and cut it

in pieces; put it in a saucepan with a lid, and let it boil till quite a pulp; melt ½ oz. gelatine in hot water; when dissolved put it with 1 lb. powdered white sugar to the rhubarb, and boil for 15 minutes; add a few drops of essence of lemon; pour the rhubarb into a mould. Next day dip the mould in hot water, turn out into a glass dish, pour round it some custard made as follows: The yolks of 2 eggs, a tumbler of milk, 4 lumps of sugar; simmer till thick; add a few drops of essence of vanilla.

Rhubarb Pudding.—Well butter a pie dish, and line the bottom and sides with slices of thin bread and butter; moisten those at the bottom of the dish by sprinkling a little hot water over them; over these put a layer of rhubarb cut into small pieces; scatter moist sugar over the rhubarb, and grate some of the rind from a fresh lemon over the sugar; then add another layer of bread and butter, and sprinkle a teaspoonful or two of hot water over them, and repeat the rhubarb, sugar, and lemon; finish by covering the top with bread and butter, slightly moistening it as before; scatter a very little of the moist sugar all over the top of the pudding, and add little bits of butter here and there above the sugar, as well as round the edge of the dish. Bake in rather a slow oven at first, and send it to table nicely browned.

Rhubarb, Stewed.—To 1 lb. rhubarb, cut in pieces 1-2 in. in length, allow ½ lb. loaf sugar, and the grated rind of one lemon. Have ready a large tin saucepan of boiling water, throw the rhubarb in, and stir the pieces down with a wooden or silver spoon. Put the cover on, and for 3-4 minutes it may be left, then the cover taken off; the rhubarb is not again left until it is done. It may be quietly turned in the

saucepan with the spoon so as not to break the rhubarb. The moment it boils it softens, and in three minutes or less time, according to whether the rhubarb is old or young, strain it off quickly with the cover tilted on the saucepan. Let it slip from the saucepan into a pie dish; sprinkle the loaf sugar and grated lemon over it, and leave until cold.

Rhubarb with Figs.—6 lb. rhubarb (weighed after being skinned and cut), 5 lb. moist sugar, 1 lb. figs, and ¼ lb. candied lemon peel, cut small; let the sugar and other ingredients remain on the top of rhubarb till next day; boil 1 hour.

Rice, Boiled.—Take 1 lb. Patna rice, wash it well in several different waters; pick from it all discoloured grain, husk, &c., and put it into a very clean saucepan with a little alum or salt to raise the scum. Let it boil till tender; it need not be covered. Try by taking out a grain and pressing it between your thumb and finger; if done it will mash easily, and you will know the rice is cooked enough. Turn the rice into a fine colander, or any strainer; and let cold water run on it from the tap to separate the grains; shake off the water, and put the rice between 2 plates to warm in the oven, of which the door should be left open. Care must be taken that the rice does not get too dry. Cooked in this way, every grain will be separate, while at the same time the rice will be thoroughly done—a combination very seldom arrived at except by very careful cooks.

Rice Croquettes.—(*a*) Boil ¼ lb. rice in milk flavoured with the thin rind of a lemon, or a piece of vanilla, and sweetened to taste. When the rice is done and has absorbed all the milk, remove the substance used for flavouring and work in 3 or 4 eggs (leaving out the whites of 2) into the rice;

spread it out to get cold, and then fashion it into croquettes to be egged, breadcrumbed, and fried in the usual way.

Rice Croquettes.—(*b*) Boil 3 oz. rice in some broth, stir it well, add some butter and 2 yolks of eggs little by little. Of this mixture take 1 tablespoonful on to a well-floured board, and press it out thin; prepare some forcemeat of game, take a spoonful for each croquette and lay it on the rice, form it into a roll so that the rice can be spread smoothly over it; when all are prepared in this way, dip them in egg and vermicelli, and fry them in butter.

Rice, Empress.—Boil 3 tablespoonfuls rice, picked and washed clean, in 1 pint milk, with sugar to taste, and a piece of vanilla; when quite done put it into a basin to get cold. Make a custard with 1 gill milk and the yolks of 4 eggs; when cold mix it with the rice. Beat up to a froth 1 gill cream, with some sugar and a pinch of isinglass dissolved in a little water; mix this very lightly with the rice and custard; fill a mould with the mixture, and set it on ice. When moderately iced turn it out on a dish, and serve.

Rice Fritters.—Boil 3 tablespoonfuls until it has fully swelled, then drain it quite dry, and mix with it 4 well-beaten eggs, ¼ lb. currants, and a little grated lemon peel; nutmeg and sugar to taste. Stir in as much flour as will thicken it, and fry in hot lard.

Rice.—Kedgeree.—Put 1 breakfastcupful well-dried boiled rice into a deep dish; add to it nearly as much cooked white fish, well freed from all bones, with some finely chopped parsley, 2 anchovies, 3 chilies, with pepper and salt to taste. Break over all 2 fresh eggs boiled for not more than 3½ minutes. Mix these ingredients thoroughly together with a fork; melt rather more than a tablespoonful of butter in a

stewpan, and make the mixture very hot over the fire.

Rice Mange.—Rub smooth about 2 oz. ground rice in a little milk, then take 1 qt. milk and boil it with the peel of half a lemon, a bay leaf, and a few almonds; sweeten it with loaf sugar, and stir the rice into it over the fire, until it is thick, and then put it into a mould; when turned out cover it with a custard. If the mould has a hole in it, it may be filled with sweetmeat instead. Wet the mould before you put in the rice.

Rice Meringue.—Put 1 teacupful rice into ½ pint milk and let it simmer till soft, then add the yolks of 3 beaten-up eggs to the rice in the stewpan, and beat up the whole with a teaspoonful of moist sugar. Turn it out into a buttered tin or pie-dish, piling it up high in the centre, and spread a thick layer of apricot jam over it. Whisk the whites of the 3 eggs to a froth with a teaspoonful of castor sugar, spread the froth over the jam, and sprinkle sugar on the top. Bake for 20 minutes; if a very hot oven, leave the door partly open. Serve at once, in the pie dish, with napkin round. The pie dish can be placed within a silver dish for serving.

Rice, Moulded, with Mushrooms.-½ lb. rice, 3 oz. butter, 4 cloves, 1 blade mace, 1 onion, 1 lemon, 12 good-sized mushrooms, 1½ pint stock or broth, a few breadcrumbs. Wash the rice, and put into 1½ pint boiling stock or broth, adding 1 oz. butter, the onion, cloves, and mace; stir the rice occasionally to prevent its sticking to the bottom of the stewpan; let it stew slowly with the lid on. In about 1½ hour it should be tender and dry; if not quite dry, stir over the fire for a few minutes with the lid off, then it will soon dry. Take from the fire, and stir into it the yolks of 3 and

the white of 1 egg, 2 oz. butter, a little salt; stir over the fire a minute to set the eggs; butter a plain mould (a border mould would be best); sprinkle the bottom and sides with fine breadcrumbs; when the rice has cooled a little, fill the mould, and bake in a well-heated oven 30-40 minutes, so as to be of a golden-brown shade; let it stand 5 minutes after it is taken from the oven, then slip a knife round the inside of the mould, and turn out on the dish in which it is to be served; scoop out the centre, and fill with the mushrooms already prepared thus: Peel the mushrooms, put into a stewpan 2 oz. butter, let it brown, put in the mushrooms, sprinkle with salt and pepper and a blade of mace pounded, a dredge of flour, and the juice of half a lemon; shake round, and stew gently ¼ hour. (E. A. Robbins.)

Rice Pie.—Take of coarse oatmeal and of rice each one large cupful. Put it into a saucepan with enough cold water to cover it, and simmer until it is tender. Then add 2 oz. raisins or currants, 2 oz. brown sugar, 2 oz. suet, a little spice, and ½ pint skim milk. Bake in a cool oven 1 hour.

Rice Pudding.—Pick and wash in 2 or 3 waters, 2 handfuls of rice, and put it to cook in rather less than 1 qt. milk, sweetened to taste, and with the addition of the thin rind of 1 lemon, cut in one piece, and a small stick of cinnamon. Let the rice simmer gently until it has absorbed all the milk. Turn it out into a basin, and when cold, remove the lemon rind and cinnamon. Then stir into it the yolks of 4 eggs, and 1 whole egg beaten up, add a small quantity of candied citron cut into small pieces, and mix it well in. Butter and breadcrumb a plain tin mould, put the mixture into it and bake in a quick oven for about ½ hour. To ascertain when the pudding is done, insert a bright

trussing needle into it, it will come out clean when the pudding is done.

Rice, Savoury.—Rice is not so much used in England as it deserves to be, or is too often sent to table in such a way as to make it unpalatable. The following mode of cooking it is an excellent one, and forms a good substitute for potatoes when that vegetable is scarce, especially as an accompaniment to a hash or stew, with rich gravy: Put 2 tablespoonfuls Carolina rice into a stone jar with ½ pint good stock, 1 tablespoonful Worcester sauce, ½ tomato, 1 onion chopped finely, a very little garlic (if the flavour is not liked, this may be omitted), ½ oz. butter, and the same of dripping or bacon fat; a little black pepper, 1 teaspoonful salt, and 1 chili, or cayenne pepper to taste; cover with a perforated lid to allow evaporation, and set in a slow oven for about 2 hours, until all the liquor is absorbed. On no account stir the rice, but shake occasionally if necessary; every grain will then be separate.

Rice Shape.—Boil 2 oz. Patna rice, well picked and washed, in 1 pint milk, sweetened to taste, and flavoured with vanilla; dissolve ½ oz. gelatine in ½ pint milk, and add it to the rice with ½ pint cream. Stir the mixture lightly until cold, put it into a shape, set it on ice or in a cold place, and when firm turn it out and serve with custard or jam, or with both.

Rice Soufflé.—Pick and wash a teacupful of rice. Put it into a saucepan with 1 pint milk sweetened to taste, and a pod of vanilla; let the milk boil till the rice is thoroughly done. When cold, remove the vanilla and work in the yolks of 6 eggs one by one; then stir in the whites of 8 eggs whipped to a stiff froth. Pour the mixture into a plain cake mould; put it into the oven at once; bake for about ½ hour, and

serve in the mould with a napkin pinned round it.

Rice Sweet Dish.—Boil some rice in milk, thick, but not too soft, add sugar and vanilla or cinnamon, and spread it out to cool on a buttered tin plate; stand the plate to keep a little warm, and cut pieces from the rice, roll it on a board spread with breadcrumbs into croquettes, sprinkle with egg and crumbs, and bake or fry in butter. The flavouring can be varied by sprinkling grated chocolate in the rice, or pounded almonds, currants, raisins, &c. In rolling out spread preserve, roll the rice round it and serve with chocolate or caramel sauce.

Richelieu Pudding.—Remove the outer skin from the white flesh either of a pheasant or a fowl; mince it finely. Stew some truffles in white wine, and mince them also. Make a smooth paste with a little water, butter, flour, and salt to taste: leave it to get cold. Take 8 oz. meat, 4 oz. butter, 2 oz. paste, and a small quantity of the minced truffles; pound all well in a mortar, adding gradually the whites of 2 eggs, the yolks of 3, and a small quantity of sauce (made from the trimmings of the fowl); add salt, pepper, and nutmeg. When quite smooth roll out the forcemeat with flour, and shape it into balls or cutlets; drop them into nearly boiling stock, do not let them quite boil. When sufficiently cooked, drain and leave them till cold, egg and breadcrumb them; after 2 hours, egg and breadcrumb them again, and fry in boiling lard. Serve with truffle sauce, or make a sauce with the trimmings of the fowl or game, flavour it well with shallot, and add a glass of sherry or white wine.

Richmond Maids of Honour.—To 6 oz. fresh butter add ½ lb. dry curd, and mix well together. In another basin beat up the yolks of 4 eggs with a wineglassful of brandy; to this add a very mealy cold

boiled potato, well powdered, and free from lumps, 6 oz. castor sugar, 1 oz. each sweet and bitter almonds well pounded, the juice of 1 and the grated rinds of 3 lemons, and ½ grated nutmeg. Mix these well together, and add to the curds and butter. Again mix very thoroughly. Butter a number of tartlet pans, line them with the best puff paste, and place a spoonful of the mixture into each; put them without delay into the oven, and bake quickly. When done the paste should be very light and pale-coloured, and the interior a delicate golden-brown.

Risotto.-½ lb. whole rice, 3 oz. butter, 1 shallot or small onion, some rich gravy, 2 gr. saffron, a little grated nutmeg, 3 oz. Parmesan cheese, pepper and salt to taste. Wash the rice, melt the butter in a stewpan, and fry the shallot, chopped, until of a light gold colour. Put in the rice and fry it, stirring constantly for 10 minutes, over a slow fire; then add some boiling, strong gravy and boil all up for 18 minutes; draw it back, have ready the saffron soaked in a little hot water, strain it into the rice, then add 3 oz. grated Parmesan, a few dice of fresh butter, and a pinch of grated nutmeg; stir all together for a minute over the fire, and serve at once very hot. The risotto should be of a pale gold colour, the rice kept whole, and not too dry.

Roman Pudding.—Butter your basin and line it with well-boiled macaroni, round like a beehive; have ready veal, ham, tongue, chicken, or cold game (all cut very fine), 1 oz. Parmesan cheese, a little nutmeg, pepper, salt, lemon peel, and cayenne, 2 eggs, and a cupful of cream. Mix all together, and fill your basin; boil for ½ hour, glaze it, and serve it up with good brown gravy. It is very good cold. Less cream if you do not wish it to be very rich.

Russian Jelly.—Take 2 oz. Nelson's or 14 sheets best French gelatine, soak them in a little more than 1 pint hot water. When dissolved add sugar to taste, the juice of 1 lemon, the whites of 2 eggs beaten up to a froth, and 2 liqueur glasses of cognac. Whisk on the fire till the whole boils; place the thin rind of the lemon at the bottom of a jelly bag, pour the mixture over, and when it has passed out clear and is almost set, whisk it with an egg whisk until it assumes the consistency of white of egg whisked to a froth. Fill a mould with the frothed jelly, press it well down, and place it in a cool place or on ice to set.

Sago Pudding.—Take fruit of almost any kind, apples, rhubarb, raspberries, blackberries, &c.; stew until soft with water or not as required, and then add sufficient small sago to make it thick, and stew till all is a jelly. It is particularly nice made with rhubarb, and can be eaten hot or cold turned out of a shape.

St. Honoré Pudding.—Make a stiff, short paste with flour, butter, eggs, and water; roll it out flat, cut out a round about 6 in. in diameter, and place it on a baking sheet. Make some *choux* paste as follows: Put about 1 pint water into a saucepan with a few grains of salt, a piece of butter the size of an egg, and as much sugar, with plenty of grated lemon peel. When the water boils, throw gradually into it sufficient flour to make a thick paste; then take it off the fire, let it remain 10 minutes, and work into it 3 or 4 eggs. When cold, put this paste into a biscuit bag, and press out a roll of it all round the disc of short paste, uniting the two ends neatly together. Then on another baking sheet press out a number of balls the size of a walnut, put the 2 sheets in a moderate oven until the paste is baked to a good colour. Then stick with white of egg all these balls on the top of the roll

of *choux* paste, quite close together. In the case so prepared place a layer of stewed pears, and over it some whipped cream well heaped up in the centre. The roll and border of *choux* balls may be, or not, glazed with sugar at the time of baking, and may be ornamented with glacé cherries, grapes, &c., according to taste.

Samp Pancakes.—Boil 1 pint samp, drain it, and add to it while hot 1 pint white corn meal, 1 saltspoonful salt, and 3 tablespoonfuls of fresh butter. When cool add 3 eggs, beaten very light, or 3 tablespoonfuls strong yeast; the whole should form a thick batter. Bake them upon a griddle, which should be greased or scraped before each cake is baked; serve with butter. If yeast be used in preference to eggs, they should be made several hours before they are needed. Cover them in a warm place, and do not bake them until they are well risen.

Samp Pudding.—Boil 1 pint milk, and stir into it 3 tablespoonfuls butter and 3 of sugar, with 1 tablespoonful nutmeg and powdered cinnamon mixed; set it away to cool; then add 6 well-beaten eggs with 1 pint cold boiled samp, beat it well, pour it into a deep dish, and bake for 1 hour; ½ pint molasses may be used instead of sugar, and the pudding may be tied in a cloth, and boiled instead of baked.

Singing Hinny.—1 lb. flour, ¼ lb. butter, ¼ lb. currants, mix with cream, roll it out rather thin, and bake on a girdle.

Sir Watkin Wynn's Pudding.—6 oz. chopped lemon peel, 4 oz. beef suet chopped fine, 4 oz. white breadcrumbs, 1 tablespoonful of flour, 3 oz. moist sugar, 2 oz. apricot jam, a small liqueur glass of maraschino or of curaçoa, 1 dessertspoonful milk, 3

fresh eggs. Mix all together, pour into a buttered shape, and steam 3 hours. Apricot jam sauce to be served under the pudding.

Snowballs.—(*a*) Wash ½ lb. rice thoroughly, then take some small pudding cloths, grease them, and spread over each a layer of rice. Pare and core some apples, put one in the middle of each layer of rice, draw up the ends of the cloth carefully, so that the apple is smothered in the grain, tie tightly, and boil. (*b*) Boil the rice till quite soft, sweetening it to taste, then put it into small round cups. When quite cold turn out, and sift white sugar over them. These are very nice eaten with custard.

Snow Cake.—1 lb. potato flour, ¼ lb. white sugar, ½ lb. butter, worked to a cream, the whites of 6 eggs well whisked. Mix all together for 20 minutes, season with ½ teaspoonful essence of lemon. Bake in a moderate oven. To test if baked stick a clean knife through the middle, and when it comes out clean and dry the cake is ready; it must be put into a buttered tin. The cake should have a pretty brown colour outside, not too dark; inside it is white as snow, hence the name.

Snow Mould.—Melt ½ small packet Nelson's gelatine in ½ pint water, add to it ½ lb. grated sugar, the whites of 2 eggs, and the juice of 2 good-sized lemons. Whip the whole mixture for about 20 minutes, pour into a mould. Serve with custard over.

Snow Pancakes.—Mix in a basin ¼ lb. flour, with a little salt, some grated lemon peel, and sufficient new milk to make rather a thick batter, mix and beat the mixture well. Melt some butter (or fresh dripping) in a frying pan, divide the batter into 4 parts, and just before frying beat up very quickly 1 tablespoonful fresh snow into each pancake. Fry on both sides till

of a pale brown colour, fold them up, inserting a little sugar within the folds, sprinkle sugar over them, and serve immediately with a cut lemon and powdered sugar.

Snowdon Pudding.—Put 1½ oz. sago (the small kind), or ground rice, and 6 oz. veal suet chopped as finely as possible, and quite free from skin, into a basin, add a pinch of salt, 12 oz. sifted breadcrumbs, ¼ lb. orange marmalade, rather more than less, and the yolks and whites of 4 eggs well beaten. Mix well, add 3 teaspoonfuls brandy, and sweeten to taste with powdered loaf sugar. The above quantity would probably take about 4 tablespoonfuls, but no rule can be laid down for it, as some marmalade is so sweet that but little sugar would be wanted. Butter a plain mould, not sparing the butter, ornament the bottom and sides with dried cherries or raisins, and then fill it with the mixture. In doing this be very careful not to displace the fruit; it would not do to pour it in, it should be put in with a spoon. Cover with buttered writing-paper, and steam for 1½ hour. Turn out carefully, letting it stand to cool for 1-2 minutes before doing so. Dilute some marmalade by pouring a very little boiling water over it, just enough to enable the chips of peel to be strained off; if not sweet enough, stir in a little white sugar, and pour it as sauce round, but not over the pudding. If preferred, wine sauce may be served with it, but the other looks better, and keeps up the flavour of the marmalade used in making the pudding.

Soufflé.—Butter, 3 oz.; sugar, 3 oz.; flour, 6 oz.; milk, 1 pint; rind of 1 lemon, a little grated nutmeg, ½ wineglass of brandy. Beat the butter to a cream (this may be done quickly by putting it into a warm basin, and stirring it backwards with the hand), add

4 well-whisked eggs, the flour, and sugar (some of the lumps of which have been rubbed on a fresh lemon to extract the flavour, and then pounded with the rest), a grate of nutmeg, the brandy, and by degrees the milk. Butter a soufflé dish or pie dish, pour into it the mixture, and bake in a well-heated oven 30-40 minutes, but do not take from the oven till wanted for table. Many good light puddings are spoiled by taking from the oven or pot before they are wanted.

Sponge Cake Pudding.—Butter a mould or basin, and stick it over with small pieces of preserved ginger, or sultana raisins. Soak some sponge cake in sherry, and when the wine is absorbed put it into the basin, and fill it up with custard. Boil about 1 hour, and serve with sweet sauce.

Sponge Pudding.—Rub 6 oz. butter or beef dripping into 1 lb. dry flour, in which a level dessertspoonful of ground ginger and 6 oz. brown sugar have been mixed; dissolve 2 level teaspoonfuls soda carbonate in ½ pint milk, mixing it smooth and free from lumps before adding to the flour. Beat all together into a soft batter, and pour into a buttered basin. Allow the pudding plenty of room to swell in the cloth, which it does considerably; plunge into very fast boiling water, and keep boiling 2½ hours. Turn it out, and serve with wine sauce; but some prefer to eat it dry.

Strawberry Chartreuse.—Take 1 qt. calvesfoot jelly, well flavoured with lemon peel alone. Take a quantity of fine strawberries freed from stalks, and cut in half length-wise. Warm the jelly sufficiently to pour out. Have 2 plain moulds, one about 1¼ in. more in diameter than the other; pour a very little jelly at the bottom of the larger mould, and place in it a layer of strawberries, cover them with more jelly,

but only put enough to get a smooth surface; lay this on ice to set. When it is quite firm, put the small mould inside the large one, taking care to place it exactly in the middle, so that the vacant space between the two moulds be of the same width. In this vacant space dispose strawberries prepared as above, filling up the interstices as you go on with jelly until the whole of the space is filled up. Place the mould upon ice; whip 1 pint cream to a froth, dissolve ½ oz. isinglass in a little water, mix it with rather more than a cupful of strawberry juice sweetened to taste and obtained by mashing the fruit and pressing it through a tammy. Add this to the whipped cream a little at a time. When the cream is ready and the jelly set, remove the inner mould by pouring warm water into it, and fill up the inner space of the chartreuse with the cream. Set it on ice for an hour, turn out, and serve.

Strawberry Cream.—Take 3 pints ripe strawberries, and crush each one separately. Put them in a basin with 4 oz. powdered loaf sugar, stir until the sugar is melted, and well mixed with the pulped strawberries, then put them in a trifle dish. Now put 1 qt. cream in a saucepan on a stove, and when at boiling point stir in 2 oz. arrowroot mixed with a little cold new milk. Let this boil for 1 minute, then set it aside until sufficiently cool not to risk breaking your dish, when pour it over the pulped strawberries, and put the dish in a cool place until the cream is cold and set. Just before serving cover the cream with the whites of 6 eggs, beaten to a solid froth. If colour is liked, a portion of the white of egg may be coloured with a few drops of prepared cochineal, and put in the centre of the dish. Raspberries are very good served in this way.

Strawberry Shortcake.—1 qt. flour, 5 oz. lard, 1 even teaspoonful soda, 2 teaspoonfuls cream of tartar, a pinch of salt. Mix the salt and cream of tartar with the flour, pass it through a sieve, then rub the lard with the flour, add the soda dissolved in enough milk to form a soft dough; divide it into 4 parts, roll one part out, cover a straight-sided Vienna cake tin with it, roll out another piece and lay it upon the first, cut the edges off evenly. Repeat this with the remaining two pieces and another tin. Bake quickly. When done lift the upper piece of crust from each cake., butter the inner surfaces and place between the two crusts a layer 1 in. thick of fresh berries slightly mashed and sweetened. Cover the top with fresh berries, sift a little sugar over them and serve at once. It is eaten in slices with rich cream poured over it. A pretty way to make them is to cut the dough with a tart-cutter 3½ in. in diameter; bake two pieces, one on top of the other, place strawberries between, as above, and serve one little cake to each person with cream round it.

Strawberry Tartlets.—Make some short paste with 2 oz. sugar, 2 oz. butter, the yolks of 4 eggs, a little water, a pinch of salt, and sufficient flour; work it lightly, and roll it out to the thickness of ⅛ in. Line some patty-pans with it, fill them with uncooked rice to keep their shape, and bake them in a moderate oven till done. Remove the stalks from some strawberries, add some syrup made with sugar and a little brandy or sherry. Empty the tartlets of the rice, fill each with the strawberries. Put them in the oven to get warm, and serve.

Suet Pudding.—(*a*) ½ lb. flour, ½ lb. beef suet chopped fine, 1 teaspoonful salt. Mix with sufficient milk or water to keep them together; boil 2½ hours

in a basin or a cloth. (*b*) 1 lb. beef suet chopped fine, 6 large spoonfuls flour, 1 teaspoonful grated ginger, 1 teaspoonful of salt, 1½ pint milk, and 4 eggs. Boil 3 hours in a basin, or 2½ hours in a cloth, (*c*) 1½ pint milk mixed with 1 lb. flour, add 2 eggs, 4 large spoonfuls beef suet chopped fine, ½ lb. currants or raisins stoned, 1 teaspoonful grated ginger, the juice of a lemon (or the rind of one grated), a very little salt and brown sugar to taste. Butter a pie dish, fill with the mixture, bake 1½ hour, turn it out, and serve with powdered sugar over and wine sauce round.

Swiss Pastry.—Weigh 3 or more eggs in the shell, and take their weight in powdered sugar, in dried flour, and in fresh butter. Put the butter in a basin, and set it over another containing hot water to remain until melted; then stir in the sugar by degrees, using a wooden spoon. When well mixed gradually add the flour, and also a pinch of salt, stirring all the time. When the flour is all in, break in one of the eggs without beating it, merely removing the speck, and then adding the egg, both yolk and white; whisk the batter well; then add another egg in the same way, again whisk, and so on till all the eggs are in. Continue the whisking until the batter looks light. Have ready a shallow tin with a rim to it, which must be lined with paper plentifully buttered; pour in the mixture directly it is ready, and put it at once into the oven to bake until firm and slightly brown. The pastry should not be more than 1 in. thick. A very clean Yorkshire pudding tin may be used to bake it in, or a good-sized cutlet pan is as good as anything. When cold, cut it into any fancy shapes, splitting the cake and putting strawberry or apricot jam between; cut into fingers, which maybe iced over the top, some pink and some white—they

make a very pretty dish. For making into a set shape, hollow oval cutters are the best, in graduated sizes. Put the largest piece at the bottom of either a glass or silver dish, spread a layer of strawberry or raspberry jam on it, then the next size, and so on till the smallest piece at the top is also covered with jam. Make a border round of apricot jam, and fill up the hollow with whipped cream. A very slight sprinkling of finely chopped pistachio nuts may be strewn over the top of the cream by way of ornament if desired.

Swiss Pudding.—Take the yolks of 7 eggs, ½ oz. isinglass, beat them well, add 1 pint good milk and sugar to taste. Put this in a mould, and boil the pudding ¾ hour exactly. Let it stand in the mould till cold. The sauce for this pudding is made with ¼ pint white wine, ¼ lb. sugar, with the juice and the rind of a lemon pared very thin. Boil this till it becomes like a syrup. When cold, pour it round the pudding, but not till it is ready to be sent to table, then put a few strips of orange marmalade or apricot jam on the top and round the pudding.

Swiss Roll.—Take the weight of 3 or 4 eggs in their shells of finely powdered sugar, and the same weight of butter and flour. Melt the butter, add the sugar and the yolks of the eggs (freed from the speck); beat the mixture well, add the beaten-up whites of half the eggs, then half the flour, the rest of the whites (also beaten up), and of the flour. When quite smooth spread it out about ½ in. thick over a well-buttered tin, and bake for 15-20 minutes in a moderate oven, spread it all over equally with jam, roll it up, and put it into the oven again for a short time, sprinkle with powdered sugar, and serve cold; if liked, with custard over it.

Tansy Pudding.—Boil 1 qt. milk with a little lemon

peel and 2 laurel leaves, strain it over a ¼ lb. Naples biscuit; beat up the yolks of 8 and the whites of 4 eggs with 1 spoonful rose-water; put 1 handful tansy leaves and 2 handfuls spinach in a mortar, pound them and squeeze the juice through a cloth; grate in half a nutmeg, put in ½ lb. fine sugar with ½ lb. butter melted. Mix the ingredients all together, put it over a slow fire, and keep it stirring till it is thick, then take it off and set it away to cool, and stir in a glass of brandy. Put a puff paste round the edge of the dish, pour in the ingredients, put a little candied sweetmeats over it, and bake it ¾ hour in a moderate oven.

Tapioca Cream.—Take equal quantities pearl tapioca and raw cream, boil the tapioca thoroughly, whip the cream till it drops thickly from the spoon; mix the two together, flavour with lemon or vanilla essence, and sweeten to taste, serve cold in a glass dish. This is excellent, eaten with either preserved peaches, pears, &c., or stewed fruit.

Tapioca Pudding.—Boil ¼ lb. tapioca with 1 pint milk sweetened to taste, and flavoured with either lemon peel, vanilla, or orange-flower water according to taste; pour the mixture into a buttered pie dish, and bake for ½ hour. If preferred with eggs, the boiled tapioca should be allowed to cool, and then 2 eggs well beaten up may be added before baking; but this kind of pudding is more wholesome, especially for children, without eggs, if made with plenty of milk.

Tapioca Snow.—Take 3 tablespoonfuls tapioca, and put in a stewpan with a piece of butter the size of a hazel nut and 1 pint milk; let it boil until transparent. Whip 2 yolks of eggs for 10 minutes, and put into it. Turn out into a dish, then whip the

whites of the eggs to a strong froth with a pinch of salt, and when they are well frothed, add 3 oz. not too finely pounded sugar. If liked, flavour the tapioca.

Tapioca Soufflé.—Soak 1 tablespoonful tapioca in water for 2 hours, set it to boil, adding powdered loaf sugar to taste, and milk till the mixture is of the consistency of porridge; flavour it with grated lemon peel, work in when cold the yolks of 3 and the whites of 4 or 5 eggs whisked to a stiff froth; then pour quickly into a soufflé mould, and bake till it has well risen; serve immediately.

Tipsy Puddings.—Beat up for about 10 minutes 4 eggs, freed from the speck, with 4 oz. powdered loaf sugar; then gradually incorporate with them 4 oz. finest pastry flour. Warm some dariole moulds and prepare them as follows; Put some liquefied fresh butter in the mould, turn it round in all directions so as to get it evenly buttered, pour off superfluous butter, and before it has time to cool put some glacé sugar (loaf sugar very finely sifted) into it, turn it over so as to get a coating of sugar all over, then tap the mould gently on the table so as to get rid of all the sugar that does not adhere to the butter. When all the moulds are thus prepared fill them evenly with the composition, and bake for 20-25 minutes in a slow oven. Turn out the puddings, trimming the tops if necessary. Melt 3 tablespoonfuls powdered loaf sugar in ½ tumbler old rum; dispose the puddings on a dish, and with a spoon pour the sweetened rum over each in turn. Strew some minced pistachio nuts over the top of the puddings, placing a preserved cherry on each, and serve cold.

Treacle Pie.—Line a pie dish with thin paste, cover with treacle as for roly-poly pudding, and continue

alternate layers of paste and treacle till the dish is full, finishing with paste; bake in a moderate oven.

Treacle Pudding.-½ lb. flour, 1 oz. suet (finely chopped), ¼ lb. treacle, pinch salt, 1 teaspoonful ginger, 1 teaspoonful baking powder. Mix, cover with greased paper, and steam 3 hours, taking care that it never stops cooking. The baking powder is home made. The pudding should be like sponge cake.

Trifle.—Place in a glass dish a layer of macaroons and ratafias, moisten them with 1 glass sherry and ½ glass brandy; put a layer of apricot jam or quince jelly over this. Make a plain custard, and when cold pour it over the jam or jelly. Take 1½ pint rich cream, ¼ lb. sifted sugar, the juice of 1 lemon, the grated peel of ½ lemon, 2 tablespoonfuls noyeau, and 1 of white wine; whisk the whole well together, and as the froth rises lay it on a sieve in a cool place. Cover the custard with the whipped cream. Ornament with crystallized fruit and strips of angelica.

Tutti Fruiti.—Soak 4 penny sponge cakes in 1 wineglassful orange or raisin wine, and put over them a layer of jam. Make a custard with the yolks of 3 eggs, and pour over the whole. Make a stiff whip of the whites, and arrange this over the custard. Scatter all over the top two pennyworth of hundreds-and-thousands, and arrange some very thin strips of candied peel in a pattern on the top of the whip, and serve.

Vanilla Cream.—Boil a stick of vanilla in 1½ pint milk, with sugar to taste. Beat up the yolks of 8 eggs, pour the flavoured milk on them, and keep on stirring in a bain-marie until the custard thickens. Melt 9 sheets best French gelatine in a little milk,

add this to the custard. Whisk to a froth ½ pint cream, mix quickly with the custard, put into a mould, place it in a cold place or on ice to set, and at the time of serving dip the mould in hot water, and turn out the cream.

Vanilla Soufflé.—Put into a saucepan a piece of fresh butter the size of a walnut, 1 large tablespoonful flour, a small pinch of salt, and stir in gradually ½ pint milk; add powdered loaf sugar to taste, and stir on the fire till the mixture thickens and boils. When nearly cold work into it the yolks of 4 eggs, and as much vanilla essence as will flavour it strongly, and then, quickly and thoroughly, the whites of 6 eggs whisked to a stiff froth; pour the mixture into a tin large enough to allow room for rising, strew a little finely powdered sugar over it, and place the tin at once into a quick oven. It will take 15-20 minutes to cook, and as soon as the soufflé has well risen, and the top has taken a good colour, it is ready, and must be served immediately in the tin, a little finely powdered sugar being sprinkled on the top.

Venus Pudding.—Take a quart mould, butter it well, and ornament it with candied ginger; make a rich custard with the yolks of 12 and the whites of 6 eggs, 1 pint cream, and loaf sugar to taste, then dissolve 1 oz. isinglass in sufficient milk to fill up the mould; when cold add a glass of rum or sherry; pour the mixture into the mould, and place it on ice to set. Before adding the isinglass put aside a little of the custard for sauce, add some ginger syrup to this, and serve cold with the pudding.

Victoria Pudding.—This requires care in its preparation, and should be made the day before it is wanted. Make a custard with 4 eggs, 1 pint milk, and

¾ oz. isinglass, flavouring it with vanilla and brandy. The vanilla should be cut into small pieces, tied up in a muslin bag, and boiled in the milk; the brandy should be added when cold; a very small quantity of the latter is sufficient. Let the custard get quite cold, when it will become thick and lumpy. Dip a jelly-mould into cold water, and with a spoon arrange the custard in the design at the bottom of the mould, carefully filling all the holes. Slice some penny sponge cakes in halves, dip them in sherry or Marsala, and then place them in layers in the centre of the mould, with preserves (either strawberry or raspberry) between each layer, filling up in the meanwhile the space between the cake and the mould with custard, so that when turned out the custard appears as a crust around it. It should remain in the mould for at least 12 hours to stiffen. Turn it out on a dish and garnish with strawberry jelly.

Waffles.—1 qt. sour milk, 4 eggs, 3 oz. butter, ½ teaspoonful salt, 2 teaspoonfuls soda, flour enough to make a thick batter. Bake and serve hot.

Wigs.—Take ¼ peck of fine flour, ½ lb. butter rubbed in fine, ½ lb. sugar, ½ nutmeg, ½ race of ginger, 3 eggs, beat well, and put to ½ pint yeast and 3 spoonfuls sack; make a hole in the flour, and pour in, with as much milk just warm as will make it into a light paste. Let it stand before the fire, to rise, ½ hour; then make it into 1½ doz. wigs, brush them over with egg, and put into the oven. Bake ½ hour in a quick oven.

Wine Jelly.—2 oz. gelatine, ¾ lb. loaf sugar, 3 lemons, ½ pint sherry, 1 wineglassful brandy, whites of 4 eggs, 1½ pint water. Put the water, gelatine, sugar, and the rinds of the lemons, peeled very thinly, into a pan. Stir till the gelatine and sugar

have dissolved, and boil; then add the strained lemon juice, wine, and the whites of eggs, whipped with a little cold water. Bring slowly to the boil, and throw in a little cold water 3 times to check the boiling and throw off the scum. Allow to simmer ¼ hour, then strain through a cloth or jelly bag (which has been rinsed out in hot water) 2 or 3 times until clear, then add brandy. When the jelly is beginning to set, pour into a wet mould.

Wine Roll.—Soak a penny roll in raisin wine till it has quite absorbed all the liquid. Sprinkle it thickly with "hundreds-and-thousands," and pour round it a rich custard. Jam may be previously spread over the roll (before soaking) if liked.

Winter Cream.-½ oz. gelatine, 1 pint new milk, 1 pint cream, 2 yolks eggs, ½ pot apricots, ½ pot strawberry jam (pound pots), juice of 1 lemon, a few drops of ratafia essence, a few drops of cochineal. Soak the gelatine in a little of the milk; when it has absorbed the milk, put it into a clean copper stewpan with the rest of the milk and the cream; set on the fire, keeping it stirred with a wooden spoon; when it is nearly boiling stir into it the well-beaten yolks of 2 eggs, but be sure it does not boil, or the cream will be curdled. Now take from the fire and pour into a large basin; mix with it thoroughly the jam, which has been rubbed through a hair sieve, adding the ratafia and the lemon juice, also a little cochineal to give it a brighter colour. When the cream begins to set, whisk it a few minutes, and put into a mould, and set away in a cool place. In a few hours it will be ready to serve. (E. A. Robbins.)

Yorkshire Pudding.—5 tablespoonfuls flour, pinch of salt, 1 pint new milk, 2 eggs. Put flour and salt into a bowl, add slowly the milk to make a smooth

batter, then add the eggs, previously well beaten. Fat should be put into the tin and allowed to come to boil, the batter is then to be poured in and baked 20 minutes in a hot oven. Can be finished under the joint if desired.

Confectionery.—The following recipes comprise the few kinds which are adopted for home manufacture.

Almond Hardbake.—Mix 1½ lb. moist sugar with ¾ pint water, put the mixture into an earthenware pipkin, and let it boil until it is brittle. Blanch 2½ oz. sweet almonds, split them in halves lengthwise through the broadest part of the almond, and add them and 3 oz. butter to the boiled sugar; let it continue to boil until it hardens. Try by letting a little bit of the hardbake fall into cold water; if it hardens immediately, it is done. Oil a flat dish, and pour the hardbake on it to set.

Barley Sugar.—Dissolve and boil 1½ lb. loaf sugar in ½ pint water and the white of ½ egg; when it is at candy height, add a teaspoonful of strained lemon juice, and boil it quickly till it recovers its former state; pour it over a marble slab, and when it becomes stiff cut it in strips and twist it.

Chestnuts, Candied.—Remove the outer skin from some large chestnuts, rejecting any one of them which is not perfectly sound; throw them into a tinned pan full of boiling water, and let them boil just long enough to allow of the second skin being removed. Having done this, put them into another similar pan full of boiling water, and as soon as they are done (they should be tender, but rather underdone) drain the water from them, and put them into a basin full of lukewarm water, with the juice of

1 or 2 lemons squeezed in it. When the water is perfectly cold take out the chestnuts very carefully, and dry them; put them into a basin, and cover them with clarified sugar boiling hot, prepared as follows: Take 6 lb. pounded sugar and put it into a sugar boiler—an untinned copper vessel—with 1 qt. water. Beat up the whites of 3 eggs with 1 pint water, and add this to the rest. Set the pan on the fire, and keep stirring the sugar; when it rises add a little cold water, and repeat this every time the sugar rises until 1 pint water has been so expended, and by that time the sugar will no longer rise, and a dark scum will have gathered on the top. Remove the scum carefully, and strain the syrup through a wetted napkin. Put the syrup back into the boiler—having previously scoured it quite clean—and boil until on taking some between thumb and finger and drawing them apart the sugar will form a thread. The next day put the chestnuts with the syrup into the sugar boiler, and let them boil for 5 minutes, then put them by in the syrup to remain another day. The third day strain off the syrup, boil it till on being raised on the skimmer, and blown through it will form into bubbles; pour this over the chestnuts. On the following day prepare some syrup as above, and boil it till a small modicum dropped into cold water will harden, and can be made into a ball; drain the chestnuts from the former syrup, dip them carefully one by one in the fresh syrup, and put them on a wire sieve in a warm place to dry. When dry they are ready.

Chocolate Creams.—(*a*) Mix 2 oz. Bermuda arrowroot smoothly with 1½ gill cold water; add 12 oz. pulverised sugar, and boil rapidly 8-10 minutes, stirring continually. Remove it from the fire, and stir till a little cool; flavour with vanilla or rose; continue

stirring till it creams, then roll into little balls. Melt some chocolate over steam (add no water), and when the cream balls are cold roll them in it one by one, and lay on a buttered slab to cool. The creams may be varied by dividing the cream into 3 parts, adding grated coconut to one, chopped almonds to another, and pistachios to the third.

(*b*) Grate 8 oz. vanilla chocolate; put into a stewpan, with 8 oz. sugar, 8 yolks of eggs, 1 pint cream. Stir the whole over the fire until the preparation begins to thicken, allowing the yolks to sufficiently set without curdling; strain the cream through a clean napkin, placed over a fine hair sieve, then pass it again through a tammy cloth with pressure into a basin, then clarify 1 oz. best cut isinglass, or gelatine; mix the whole well together, and pour it into a mould embedded in rough ice.

(*c*) Put 1 lb. loaf sugar in a stewpan; pour upon it as much milk or thin cream as the sugar will absorb. Dissolve it over the fire, and boil slowly until it will candy when dropped into cold water. Neither stir it, nor allow it to stick to the pan; take it off and stir it until you can cream it with a spoon. Add a tablespoonful of extract of vanilla, and beat it till cool enough to handle. Then fashion it into balls the size of a filbert; lay these aside on buttered paper. Put ½ lb. unsweetened pure chocolate in a tin plate over a kettle of boiling water, and when it is dissolved dip the bonbons into it and lay them out on buttered paper to cool. If the sugar grains like sand instead of creaming, it has been boiled too long, and it will be necessary to begin anew with other sugar.

Coconut Candy.—Place in an earthen pipkin 1 lb. best loaf sugar cut as for table, with a breakfastcupful of cold spring water. Let it remain

until the sugar is dissolved, and then set it on a clear fire to boil for about 5 minutes, or rather more. As the scum rises carefully skim it away until the sugar looks quite white and thick, and then stir into it ¼ lb. grated coconut, taking care that it is a nice fresh one. Again set it on the fire, and with a wooden spoon stir it continuously until it rises quite up in the pipkin, then at once spread it out on well-dried sheets of writing-paper, which should be warmed before the fire before putting the coconut upon them; the paste should be rather more than ½ in. thick. Let it remain in this way until nearly but not quite cold, when the paper must be removed, and it can then be cut up into small squares. Let it get thoroughly dry before storing it in tin boxes for use. It is an improvement to give it a slightly pink colour by adding a few drops of cochineal to the sugar just before putting in the coconut. Some people grate this, and spread it out to dry for a day or two before it is used for candy.

Marzipan.—(*a*) ½ lb. almonds, ¾ lb. sugar, the white of an egg, and the juice of half a lemon. The whole to be well pounded together till it acquires the consistency of a soft dough.

(*b*) Blanch, and then pound very fine 1 lb. sweet and a few bitter almonds, adding a few spoonfuls of rosewater; put the almond paste in a stewpan with 1 lb. powdered sugar, and stir over the fire till a smooth paste is obtained, which will not stick to the finger when touched. Turn it out on to a pasteboard well strewn with powdered sugar; roll out the paste, divide it into cakes of any shape you like, and put them on sheets of paper on the baking sheet well sprinkled with sugar; bake in a slow oven until of a pale yellow colour.

Popcorn Candy.—Put into an iron kettle 1 tablespoonful butter, 3 tablespoonfuls water, and 1 cup white sugar; boil until ready to candy, then throw in 3 qt. nicely popped corn; stir vigorously until the sugar is evenly distributed over the corn; take the kettle from the fire, and stir until it cools a little, and in this way you may have each kernel separate and all coated with the sugar. Of course, it must have your undivided attention from the first to prevent scorching. Almonds, walnuts, or, in fact, any nuts are delicious prepared in this way.

Toffee.—(*a*) Take 1 breakfastcupful rich cream (if slightly sour it would be just as good, or better), 1 breakfastcupful pounded white sugar, pour the above into a very clean copper saucepan, and boil slowly over a clear but not too hot fire. The mixture will first become quite liquid, and will afterwards gradually thicken; when almost done pour in 1 dessertspoonful essence of vanilla and 1 of whisky. When the mixture becomes very frothy, and leaves the sides of the pan clean, pour it out as quickly as possible on to a flat buttered dish. It should set at once, cut it into squares; before it is cold it should be quite smooth, and of a creamy white; it should be "short," without being at all crisp or crumbly. The only difficulty is to know the exact moment to take it off the fire. This can only be learned by practice.

(*b*) Put 3 oz. butter into a brass preserving pan, and, as soon as it is melted, add 1 lb. brown sugar. Keep these stirred gently over a moderate fire for 15 minutes, or until a little of it, dropped into cold water, breaks clean between the teeth without sticking to them. When it is boiled to this point it must be poured out immediately, or it will burn. The grated rind of a lemon, or a small teaspoonful of

powdered ginger added when half done, very much improves the taste.

(*c*) 1 lb. treacle or golden syrup, 1 lb. moist whity-brown or Demerara (this is best) sugar, ½ lb. fresh butter. Mix the treacle and sugar well together in a large china-lined saucepan, and add the butter broken into small pieces. Place the saucepan on a clear fire, and stir slowly until all be incorporated. After this stop stirring, or the toffee will "sugar"; boil about ½ hour, and be careful not to let it burn. The juice of ½ lemon added is a great improvement. Have a buttered tin ready to pour the toffee on, and when nearly done put a little into cold water to taste if it be done enough.

(*d*) Put ¼ lb. butter into a saucepan over a clear fire, and when it is melted add to it 1 lb. brown sugar; boil for 15 minutes. Have ready some almonds (1½ oz.) blanched and halved, and a little very finely grated lemon peel. Add these to the mixture, boil and stir until when dropped into cold water it hardens directly; then immediately pour it on to well-buttered dishes or on to marble slabs. The almonds may be added after the toffee is put on to the dishes. Also, ½ lb. treacle and ½ lb. sugar may be substituted for the 1 lb. sugar. When nearly cold, it should be marked with the back of a knife.

Rahat Lukum.—Make a syrup with 3 lb. best sugar and 3 pints water; clear it with the whites of 3 eggs and the juice of a lemon. Dissolve 6 oz. purest wheat starch in ¾ pint cold water, strain it, and add it to the clear syrup when it is boiling; reduce the whole by boiling to ⅔. It should be very thick and stringy. Flavour the paste with attar of roses or any sweet essence. Have ready a large dish well covered with almond oil; empty the paste on the dish when it is

cool, spread it about 1 in. thick, then have ready another dish covered with finely-powdered sugar, and when the paste is quite cold turn it over very carefully upon the sugared dish. Absorb the oil with silver paper or blotting paper; cut the paste into pieces 2-3 in. square; powder them with sugar, and keep them very dry. A finer rahat is made with rose or cherry syrup, with blanched almonds stirred in before the paste thickens. This recipe was obtained at Athens from a Sciote lady. The ladies of Scios are considered the most skilful confectioners in the Levant.

Ices.—The following general remarks on ices are condensed from a series of papers on the subject by Mary Hooper, in the *Queen*.

Freezing-powders.—Ice, in combination with salt, is the best material for making ices; but when travelling, or in remote districts where ice is difficult to procure, freezing powders are of the greatest service, and those of the best makers are perfectly satisfactory in their action. Indeed, there is no doubt freezing powders would be more largely used than they are at present, were it not that they are more expensive than ice. For cooling water and other liquids, and for refrigerating food in the sick chamber, where it is sometimes impossible either to keep or manage ice for this purpose, freezing powders are invaluable. They are useful also when a very rapid and strong freezing mixture is required, being used instead of salt with the ice. It is desirable in choosing a freezing machine to ascertain if it is as well adapted for the use of powders as of ice, as some of them lined with metal would be corroded by the action of the former.

Keeping and Choosing Ice.—It is often necessary—in cases of sickness, for instance, in the houses of the poor—to keep a small quantity of ice without a refrigerator. This is best done by wrapping the ice first in paper—newspaper answers as well as any other—and then covering it up in woollen or other cloths; place the ice thus wrapped as much as possible out of draughts. Each time the ice is opened, dry paper should be supplied; the sheets will last for some time, and can be dried as often as desired. There is a great difference in the quality of ice. Rough English ice, from being frozen at a low temperature, is brittle, and melts rapidly; and that taken from ponds is utterly unfit for drinking purposes, for there is abundant proof that the poisonous properties of such water, and the living organisms it contains, are not destroyed by its having been frozen. Much of the foreign ice sold in this country as Wenham Lake, is uncleanly, and a necessary rule to observe in the choice of ice for the table is that it is perfectly clear and crystal-like, and of a smooth and shining surface. In all cases, after being broken up, ice should be rinsed before being sent to the table. A proper awl for breaking ice into small pieces costs but a few pence, and should always be kept at hand; otherwise, to their great injury, forks and knives, with a hammer, and other unsuitable implements, are substituted. When not in use, the point of the awl should be stuck into a cork, both to prevent its being broken or causing injury to inadvertent people.

Freezing-machines.—The only way to avoid failure in the domestic manufacture of ices is to have one of the small patented machines, which, besides being certain in action, require but 3-4 lb. ice to freeze as many quarts of ices.

The principle which guides all freezing operations is—first, to have the vessel which contains the material to be frozen embedded in the freezing mixture, ice and salt, and then so rapidly and skilfully to rotate it that ice soon begins to be made at the sides. This is then scraped to the middle, and the whole thoroughly mixed, so as to ensure an equal freezing throughout the mass. This process is continued until a satisfactory result is obtained, when the ices will be left in the freezing mixture to harden and ripen. The cost of the necessary apparatus—namely, a pail, which should have a hole, stopped with a cork, near the bottom, in order that water may be drawn off as the ice melts, a pewter freezing pot, and spatula—for freezing in the primitive manner, will be at least equal to that of a patent machine for making ices. There are a large number of these competing for public favour, each one possessing some special feature of merit. In the choice of such a machine it should be ascertained that it is simple in action, not liable to get out of order, of good seasoned wood and the best workmanship, and that ices are made in it rapidly, and with but a small quantity of freezing material. The tendency in most perpendicular machines is to freeze too hard at the bottom and too lightly at the top. This defect is remedied by the Patent Horizontal Revolving Freezer (Kent, 199 High Holborn), and the arrangement by which the ices are turned from the sides of the freezing pot to the middle is perfectly satisfactory. In one of these small freezers so small a quantity as 1 pint to 3 qt. can be frozen with 3 lb. ice in as many minutes. The tubs being closed at the end, and perfectly air-tight, prevents the waste of ice by the action of the atmosphere, and thus secures a uniformity and intensity of cold within the freezer,

tending to produce very perfect, light, and smooth ices.

For whatever method ice is required for freezing, it is necessary both that it should be broken small, that is in pieces about the size of small walnuts, and be thoroughly mixed with the salt. The easiest way of breaking ice is to put it in a sack and crush it with a wooden mallet. This done, well rolled salt of strong good quality should be mixed with the ice, in the proportion of 1 lb. salt to 2-3 lb. ice. It is safe to say that nearly all the failures in making ices result from the neglect of these simple directions.

The expense of a thermometer for taking the temperature of ices, and a saccharometer for ascertaining the correct amount of sweetness in ices, is but small, and they are real helps to inexperienced confectioners. For instance, if there is any doubt about the ices being sufficiently frozen, if the thermometer registers less than 22°F. you will be sure that the ices will not melt too rapidly on being served. Even in the hottest weather, a well-made ice will not dissolve as soon as taken from the freezer.

As it is only for a short period in the year that the favourite fruits for flavouring ices can be had fresh, it is necessary to make of them syrups or preserves. To make strawberry and the like preserves without sugar is somewhat difficult in domestic practice, though, if the niceties of the process are observed, failure ought not to follow.

Dessert ices are now served in many beautiful forms, to represent flowers, fruit, vegetables, and other tasteful objects. For these special moulds are provided, into which the ices, having been made as before described, are pressed. After being left embedded in ice for more than an hour, the moulds

are dipped in lukewarm water to facilitate turning out, and, having been carefully wiped to free them from salt, the moulds are opened, the ices placed on a suitable dish, and they are then rapidly painted with carefully prepared vegetable colours, as the nature of the case may require. These ornamental ices must have considerable care, but any person with ordinary skill, and able to give time and attention to detail, may manage them.

In colouring ices before freezing with a pink tinge, it is desirable to avoid cochineal, as it is prepared with a strong acid, which, in coming in contact with the pewter, is apt to turn the cream of a violet shade. Breton's vegetable colourings, to be had at Italian warehouses, are as pure and good as any which can be made at home, and the vegetable carmine is free from the acid of cochineal. In families where ices are in constant request it is desirable to have simple syrup—that is, sugar boiled to the requisite strength —always ready prepared. The most useful quality of syrup is that registering 30°-36° on the saccharometer. The preparation of this is easy, nevertheless it requires care.

Simple Syrup.—Put 2 lb. finest lump sugar into a copper pan with 1 qt. cold water; stir occasionally until the sugar is dissolved; let it come to the boil, and take off any scum as it rises. Draw the pan to the side of the fire, and let the syrup boil gently until it registers 30°-36°. If the sugar is boiled too fast, it will cause trouble to an inexperienced operator, as it will candy. Should this happen, more water must be added to the sugar, and boiling go on again until the syrup attains the requisite strength. If a small quantity of syrup is made, it must be tested by the saccharometer in a deep mug or jug, as in the boiling

pan there will not be depth of liquid for the instrument. If no saccharometer is at hand, an approximate idea of the strength of the syrup can be obtained by letting a drop fall into a glass of cold water; if it retains its shape, the syrup will answer your purpose. If fine lump sugar is used, the syrup, when done as directed, will be perfectly bright, with a slight yellow tinge, and as thick as new honey; no other process of clarification will be needed. This syrup is exceedingly useful for many purposes, and will keep for any length of time.

Brown Bread Ice.—(*a*) Make a custard of eggs and milk, flavoured with vanilla. Cut up some brown bread into dice, dry it in the oven, and put it hot into the cold custard; freeze; pour iced custard round it in the dish in which it is to be served.

(*b*) To 6 yolks of eggs, well beaten, add gradually 1 pint boiling milk, with ½ lb. sugar boiled in it. Pour this on to some very fine crumbs of brown loaf; beat all together; add ¼ pint cream.

Cake, Iced.—(*a*) Mix thoroughly ½ lb. flour, ½ lb. ground rice, ½ lb. currants, ¼ lb. sugar, 5 oz. mace and cloves, some mixed peel, a few bitter almonds pounded, some sweet almonds split, 1 teaspoonful carbonate of soda, melt ½ lb. fresh butter in ¾ pint warm milk, add the yolks and whites of 4 eggs beaten separately; pour this by degrees on to the dry ingredients, add a glass of brandy, beat it well; put into a buttered mould, and bake.

(*b*) Beat up the whites of 2 eggs; then add ½ lb. castor sugar and the juice of a lemon or a few drops of orange-flower water. Beat the mixture until it hangs upon the fork in flakes, then spread over the cake, dipping the knife in cold water occasionally. Stand it before the fire, and keep turning the cake

constantly, or the sugar will catch and turn brown. As soon as it begins to harden it may be removed. The icing must not be put on until the cake itself is cold, otherwise it will not set. A few drops of cochineal will colour it if desired.

Cherry Water Ice.—Take out the stones of the cherries, pound them in a mortar in order to get the flavour, and then pass them through a sieve with the fruit. Add syrup, and freeze as strawberry water ice. The flavour of the kernel should come out well in cherry ices, a few drops of home-made extract of almonds (bitter almonds infused in spirit) is therefore an improvement. If the cherries do not give sufficient sharpness, add a little lemon juice.

Chocolate Ice Cream.—Mix 2 teaspoonfuls Van Houten's cocoa in a gill of cold milk, stir it into 1 pint cream or custard, add vanilla flavour, and sweeten. Scraped and sifted chocolate, so as to bring it to a fine powder, can be used; but the cocoa named is on all accounts best for this cream.

Chocolate Icing.—Put into a saucepan ½ lb. powdered loaf sugar, 2 oz. grated chocolate, and about 1 gill water; stir on the fire until the mixture assumes the consistence of a thick, smooth cream. Lay the icing evenly on the cake or pastry, with a palette knife, and put it into the oven for a minute or two to set the icing.

Coconut Ice.—Put on in a brass or copper pan 4 lb. loaf sugar, with 2 pints of cold water, stir till it comes to the boil, by which time the sugar should be quite dissolved, let it boil to candy light, and draw it to the side. Have a large coconut pared and grated, mix together with the milk, add ¾ of it to the sugar, and stir till it begins to candy. Have a sheet of paper greased and laid upon a stone slab; on it place 4 iron

rods so as to form a square, into which pour the tablet. Repeat the above process with 2 lb. sugar and 1 pint cold water, adding a little cochineal to colour it, and the remainder of the grated coconut; when ready, pour it over the first sheet of tablet, which will be set by the time you have done the second; when quite cold, turn it over, draw off the paper, and cut it in stripes 3-4 in. long.

Coffee Ice Cream.—Make a custard, without any flavour, of 1 pint cream and 4 yolks of eggs. Put into this ¼ lb. freshly-roasted mocha coffee berries; they should, if possible, be used hot. Cover up the stewpan closely with its lid, putting a napkin over to keep in the steam. Let the custard stand for an hour, strain and sweeten, and when cold put it into the freezing pot. Cream thus prepared will not take the colour of the coffee, and when carefully made is very delicate and delicious. Coffee ice cream is also made with a strong infusion of coffee, or Branson's extract of coffee can be used. To make the infusion, put 2 oz. ground coffee into a French cafetière, and pour over it 1 gill fast-boiling water. When the infusion has all run through boil it up, and pour it over 2 oz. more coffee. Put the infusion thus obtained to 1 pint sweetened cream or custard and freeze.

Ginger Ice Cream.—Make a custard of 1 pint cream and 4 eggs put to it. Cut up in small pieces 2 oz. preserved ginger, add sufficient ground ginger to flavour well, and syrup or sugar to taste. Stir occasionally until cold, and put it into the freezing pot. Care should be taken to use fresh and good ground ginger, as otherwise it is apt to impart a mouldy kind of flavour.

Lemon Water Ice.—Wash the lemons in cold water in order to ensure cleanliness. Take a few lumps of

sugar, and rub them over the peel until you have enough to flavour the ices; probably 2 fine lemons will be sufficient. Put this lemon sugar into 1 qt. cold filtered water, and let it stand 10 minutes, or while the lemons are squeezed. About ½ pint juice is usually needed, with sufficient syrup to register 24° by the saccharometer. Having strained the juice and water flavoured with the lemon sugar, add the syrup, and strain into the freezing pot. When the ices register 22° F., press well down in the pot, and leave them in the freezing mixture for an hour. A little Nelson's gelatine is useful to give richness and body to water ices; but care must be taken not to use more than the quantity named. Soak and dissolve in boiling water ¼ oz. Nelson's gelatine, add it to the quart of water to be used for the ices, thoroughly mix it with the other materials, and afterwards strain them.

Pineapple Ice Cream.—Press the juice from a fine ripe pineapple, add that of a lemon, with syrup or pounded sugar to give the required sweetness. Mix with an equal quantity of rich cream, and strain into the freezing pot. Or, make a custard as follows: boil 1 pint milk, pour it whilst boiling on the yolks of 6 eggs; stir rapidly over the fire until it thickens, taking care not to curdle it. With a little experience a perfect custard may be thickened in this way in less than 7 minutes, a much longer time being required if the milk is not boiled. When cold, add pineapple pulp made as follows: Boil 1 lb. pineapple sliced and peeled, in 1 gill water for 10 minutes, pound the fruit and rub it through a sieve, add syrup or sugar to taste. When cold mix with the custard, and strain into the freezing pot. Lemon juice can be added if necessary.

Strawberry Ice Cream.—Pick and press through a coarse sieve fine ripe strawberries to make as much juice as you require, then strain through a coarse sieve, and mix with it fine powdered sugar in the proportion of ¼ lb. to each ½ pint of juice. Stir into each ½ pint of the sweetened juice 1½ pint rich cream, and a few drops of pink colouring. Mix all well together and strain into the freezing pot. As the flavour of strawberries varies in different seasons, and they are more acid at one time than another, some judgment in the use of sugar is necessary, and sufficient of it should always be used to bring out the flavour of the fruit. Sometimes it will happen, after freezing has begun, that a little more sweetness is desirable. This is best given by adding a little plain syrup, taking care to mix it well in; for the perfection of ices depends in a great measure on all the materials being well incorporated. For this reason the direction is given to strain into the freezing pot after all is stirred together.

The product from 2 qt. cream, made as above, should be 3-3½ qt. firm ice cream of the highest quality. It is probable, however, that by some machines and the ordinary ice pail so good a result would not be obtained. The horizontal freezer will yield the given quality.

When the fresh fruit juice cannot be procured, preserved juice or preserved strawberries must be substituted. Of these the first is the best; but when there is not a fairly suitable apparatus, or other conditions are unfavourable for its domestic manufacture, it will be best to purchase it. In this case it should be borne in mind that a preparation of the fresh juice is necessarily somewhat expensive, and that a cheap article is generally flavoured with

some unwholesome chemical imitation of the true flavour.

Vanilla Ice Cream.—This favourite ice is easily made. It is needlessly expensive to use the vanilla pod itself. To flavour 1 pint custard a whole pod would have to be boiled in the milk. But, as the bright essence is often wanting in delicacy, and is not unfrequently merely an imitation of vanilla made from deleterious material, it is desirable to have a home-made extract. To make it, cut the pods into very small pieces, put them into a small bottle with 1 tablespoonful brandy to each pod; let them stand for a week or longer, shaking occasionally. Drain the extract into another bottle, and keep well corked. The flavour of the vanilla pod itself will not have been exhausted by taking the extract, and, if boiled in milk, will flavour puddings, creams, custards, &c. Vanilla sugar is made by putting the pods into a closed jar of fine sifted sugar, and allowing them to remain in it for a week or longer. Afterwards the extract can be made. There is a great difference in the quality of vanilla, and when it is deficient in flavour, it has without doubt been deprived of aroma by some such process as that of making vanilla sugar. Vanilla ices require a good custard, made of cream with 4 eggs to the pint, and to be well sweetened. Vanilla extract must be used with reference to its strength, and the flavour of it should be kept delicate. Should it be preferred to use the pod itself for flavouring, it is usual to strain the milk or cream in which it has been boiled in a strainer, coarse enough to allow the seeds to pass through, and thus a distinctive character is given to the ices. Water ices are occasionally flavoured with vanilla, but are not to be recommended. For invalids and delicate persons vanilla is useful, as it is a safe and light

stimulant.

Cheese (Fromage).—The cookery of cheese is a much-neglected subject in this country, though deserving of study.

Baked (Fondu).—(*a*) Take ¼ lb. grated cheese, add it to 1 gill milk in which is dissolved as much powdered bicarbonate of potash as will stand upon a threepenny-piece; mustard, pepper, &c. Heat this carefully until the cheese is completely dissolved. Then beat up 3 eggs, yolk and whites together, and add them to this solution of cheese, stirring the whole. Now take a shallow metal or earthenware dish or tray that will bear heating; put a little butter on this and heat the butter till it frizzles. Then pour the mixture into this, and bake or fry it until it is nearly solidified. A cheaper dish may be made by increasing the proportion of cheese—say 6-8 oz. to 3 eggs, or only 1 egg to ¼ lb. cheese for a hard-working man with powerful digestion. The chief difficulty in preparing this dish conveniently is that of obtaining suitable vessels for the final frying or baking, as each portion should be poured into and fried or baked in a separate dish, so that each person may, as in Switzerland, have his own fondu complete, and eat it from the dish as it comes from the fire. (Prof. W. M. Williams.)

(*b*) Melt ½ oz. fresh butter in a saucepan, stir into it 1 tablespoonful flour; when the two are well amalgamated put in a small quantity of milk and about 3 oz. grated Parmesan cheese. Stir the mixture on a slow fire till it assumes the appearance of thick cream, but be careful not to let it boil, then add 1 clove of garlic, a small quantity of flour of mustard, a dash of powdered nutmeg, and some white pepper;

mix thoroughly, and, if required, add a little salt; keep on stirring the mixture at a very moderate heat for about 10 minutes, then remove the pod of garlic, take the saucepan off the fire, and stir the contents occasionally until quite cold, when you stir into them the yolks of 3 eggs, beaten up with a little milk and strained, and finally the whites of 5 eggs whisked into a stiff froth. Pour the mixture into a deep, round tin, put it into the oven, which must not be too hot; in about 20-30 minutes the fondu will have risen and taken colour. Pin a napkin round the tin, and serve quickly.

Biscuits (Galettes).—(*a*) Take 4 oz. grated cheese, 3 oz. finely grated breadcrumbs, 2 oz. butter, 1 teaspoonful flour of mustard, 1 saltspoonful cayenne, 1 of white pepper, and 2 beaten-up eggs; melt the butter and mix all the ingredients together, and let them stand an hour. Knead and work out the paste as thin as possible, and cut into triangles or roll it up into thin sticks about 3 in. long. Bake in a quick oven for 16-18 minutes; serve hot.

(*b*) Have a little puff or short paste ready, and sprinkle over it a little cayenne, and as much grated Parmesan cheese as the dough will take; double up the paste, roll it out rather thin, and cut it with a round paste cutter, glaze with an egg, arrange on a floured tin, and bake in a sharp oven till of a light yellow colour.

Boiled.—(*a*) Put 1 tablespoonful milk in a saucepan, with a bit of butter the size of a nutmeg, and ¼ lb. good cheese, grated fine. Put the whole on a slow fire until it boils, then add 1 egg well beaten. Stir all well together, turn it into your dish, and brown it. Serve very hot.

(*b*) Put 4 oz. good cheese, sliced as thin as

possible, 2 tablespoonfuls cream, a piece of butter the size of 2 walnuts, into a saucepan and boil, stirring it gently all the time till it becomes thick and smooth, then add a raw egg and a little cayenne pepper. Put the saucepan again on the fire, stirring as before till the whole is quite hot. Serve on small squares of dry toast. The above is enough for four people.

Boulettes.—Take equal weights of eggs, breadcrumbs, butter, and grated cheese; these must be well beaten together, leaving out half the whites of the eggs; season them with salt and a little cayenne pepper, and make them up into little balls; these must be dipped in egg and breadcrumbs, and fried a light brown in lard or well-clarified dripping. The fat must not quite boil before the balls are put in, or they will become too dark a colour before they are sufficiently cooked; they should be served up high in a dish on a napkin.

Canapés.—Cut some stale bread in thin slices, which must be stamped out into shapes with a cutter. Fry these lightly in butter or boiling lard; cover the top of each with Parmesan or Cheshire cheese, add a little pepper and salt and mustard, and put them before the fire till the cheese is dissolved. Serve hot on a napkin.

Custard.—(*a*) Butter a rather small flat dish (one that will stand the oven—an old strong one would be best), whisk 2 eggs a minute or two, and mix with them ¼ pint cream, or cream and milk mixed; now grate 2-3 oz. dry pieces of any kind of cheese, to these add a little salt and a few grains of cayenne pepper, mix all well together, pour into the buttered dish, and bake in a rather sharp oven 10-15 minutes; when done, set the dish over another, a size larger,

and send to table immediately. The custard should be firm, and brown and light in the time stated.

(*b*) A breakfastcupful of sliced cheese, the same quantity of milk, and 2 eggs; butter a pie-dish, put in the cheese, pour the milk over, and then stir in the beaten-up eggs; bake for ½ hour; if a smaller quantity is required, put a teacupful of cheese and milk and 1 egg.

(*c*) Cut the cheese into shreds, or grate it, or chop it up fine like suet. To every lb. cheese thus treated add ¼ oz. potash bicarbonate. Put the mixture of cheese and bicarbonate into a saucepan with either 3 times its bulk of cold water or 4 times its bulk of cold milk, and mix well. Put the saucepan on the fire and bring the mixture slowly to the boiling point, taking care to stir it all the time. Having got it to boil, keep it hot until the cheese is melted, which does not take long. Turn it out into a dish, and the result gives a beautiful nutritious mixture which thickens like a custard in cooling. This custard may be eaten with impunity even by those persons who would be ill after eating a piece of cheese the size of a nut, and is peculiarly adapted as food for all persons who work hard with either brain or muscle. Fancy dishes may be made in the following manner, e.g., take the mixture of cheese and bicarbonate and water (or milk) given above, and add to it 2 eggs, white and yolk beaten up together, for every ¼ lb. of cheese in the mixture. Put into a dish or a series of little dishes (previously buttered), and bake till brown. This must be eaten with bread or biscuit. Another way is to make the mixture a little thinner by adding a little more milk or water, and to put it in a pie-dish with slices of bread laid one over the other. The custard should be poured in cold, and left for an hour to soak

before it is baked. This dish is a great improvement on the ordinary bread and butter pudding.

Cream.—Take 2 tablespoonfuls raw cream, rather less than 2 tablespoonfuls grated Parmesan cheese, a very little cayenne pepper, and salt to taste. Mix these ingredients carefully together and quite smoothly, then spread it on some good puff paste, lay another piece of puff paste over it, then press round carefully with the fingers, cut out with fancy cutters into any shapes you may select, egg and breadcrumb the shapes, and fry in boiling lard or butter.

Fritters (Beignets).—Put about 1 pint water into a saucepan with a piece of butter the size of an egg, the least bit of cayenne, and plenty of black pepper. When the water boils throw gradually into it sufficient flour to form a thick paste; then take it off the fire and work into it about ¼ lb. ground Parmesan cheese, and then the yolks of 3 or 4 eggs and the whites of 2 beaten up to a froth. Let the paste rest for 2 hours, and proceed to fry by dropping pieces of it the size of a walnut into plenty of hot lard. Serve sprinkled with very fine salt.

Meringues.—2 oz. Parmesan cheese, 1 oz. Gloucester or any other kind of good cheese that is dry (the piece that has become too mean-looking to go to table in its present state will do admirably for this purpose, also for many other dishes), the whites of 2 eggs, pepper and salt, lard to fry. Grate the cheese on a coarse grater, and beat the eggs on a plate, with the blade of a broad knife, to a firm froth, add to this the cheese and a little salt and pepper, make into balls the size of a walnut, throw them into plenty of boiling lard, and fry 2-3 minutes, when they will be a delicate brown and double their former size; drain on a piece of kitchen paper. Put a

clean napkin into a dish, arrange the meringues on it, and send to table as quickly as possible. There should be a little fresh parsley between the meringues; it improves the appearance.

Potato.—Take 6 medium-sized potatoes, as nearly as possible equal in shape; wash them quite clean, dry them, and on that side of them which will more readily stand uppermost make an incision ¼ in. deep with a patty cutter as large as the size of each potato will allow; then put the potatoes in the oven to bake. When quite done, remove the covers (marked out with the patty cutter), and with a teaspoon empty each potato as thoroughly as is possible without breaking the skin; pass through a sieve what is taken out of the potatoes. Take 4 tablespoonfuls of the potato snow thus obtained, 1½ tablespoonfuls grated Parmesan cheese, and mix the two thoroughly with ½ gill milk and the yolks of 2 eggs, pepper and salt to taste, and the least bit of cayenne or grated nutmeg, or both. Beat up the whites of 3 eggs to a stiff froth, mix the whole well together, fill quickly the potato skins with the mixture flush with the top, and bake them long enough for the mixture to rise and take a golden-brown colour; about 20 minutes.

Potted.—(*a*) Cut ½ lb. good, sound, mellow Stilton cheese in slices, with 2 oz. fresh butter. The cheese must not be either green or very ripe. Add a small quantity of mace and some made mustard. Pound all together in a mortar until a thick, smooth paste, and the ingredients well amalgamated. Then press it down in a jar or glass, and run some oiled butter over the top.

(*b*) Beat 3 lb. Cheshire cheese in a mortar with ½ lb. butter, a large glass of sherry, a little mace, cayenne pepper, and salt. Mix all thoroughly

together, put into pots, and pour a little clarified butter over the top.

Pudding.—(*a*) Take 4 tablespoonfuls finely grated breadcrumbs, the same quantity of grated cheese, and 2 eggs, mustard, pepper, and salt to taste. Butter a pie-dish, then put in the breadcrumbs, cheese, mustard, &c.; beat up the 2 yolks with a small cup of milk, and put into the pie-dish; beat the whites into a froth, and put them in with a good-sized lump of butter. Place the dish in a quick oven for 20 minutes, and serve very hot. Enough for 4 or 5 persons.

(*b*) Melt ½ oz. fresh butter in a saucepan, stir into it 1 tablespoonful flour; when the two are well amalgamated, put in a small quantity of milk and about 3 oz. grated Parmesan cheese. Stir the mixture on a slow fire till it assumes the appearance of thick cream, but be careful not to let it boil; then add some white pepper; mix thoroughly, and, if required, add a little salt; keep on stirring the mixture at a very moderate heat for about 10 minutes; take the saucepan off the fire, and stir the contents occasionally until quite cold, then stir into them the yolks of 3 eggs beaten up with a little milk and strained, and finally the whites of 5 eggs whisked into a stiff froth. Put the mixture into a pudding dish, and put it into the oven at once. Serve quickly as soon as the pudding has risen, and the top is well browned.

(*c*) Mix 2 eggs with 5 oz. cheese and ½ pint boiling milk; put into a pie-dish, and bake ¼ hour: to be turned out and sent to table on a napkin.

(*d*) Soak in fresh milk a breakfastcupful of stale breadcrumbs; add to it 2 well-beaten eggs, 1 oz. butter, and 6 oz. grated cheese; mix well, strew

breadcrumbs over the top, and bake a light brown. (Bessie Tremaine.)

(*e*) ¼ lb. cheese chopped very fine, 1 egg well beaten, teacupful of new milk or cream, a small piece of butter dissolved in it, cayenne pepper and salt; bake for 20 minutes.

(*f*) Take 6 oz. grated cheese, 2 eggs, 1 oz. butter, a small teacupful of milk, and beat up all together in a basin; then put them in a small baking dish and bake a light brown.

Puffs (Talmouses).—Put into a stewpan 3 oz. butter with 1½ gill milk, stir them together over the fire with a wooden spoon. Directly it boils gradually add 3 oz. flour, and continue stirring until it separates from the sides of the pan, forming a ball of paste, then add by degrees 6 beaten eggs, ½ lb. Parmesan cheese, and ¼ lb. Gruyère, or the whole quantity may be Parmesan if more convenient. Season well with salt, pepper, and a very little cayenne. When thoroughly mixed, make the paste up into little balls no larger than a pigeon's egg, and fry them in hot lard; it must not be boiling, or they will be too dark a colour; they take a very short time to fry, and should be a light golden brown. Let them drain on paper for a minute or two before the fire, and serve in pyramid on a folded napkin garnished with parsley. Half this quantity would be enough for a small dish. Another way: Equal weight of eggs, butter, fresh breadcrumbs, and grated cheese; mix the dry ingredients together, seasoning rather highly with pepper and salt and a little cayenne. Put them into a mortar with the butter, the yolks of all and the whites of half the number of eggs, and pound them together until thoroughly mixed. Make up into small balls, egg and breadcrumb them, and fry in hot, but

not boiling, lard as before. To be similarly drained and served. Two eggs and their weight of other ingredients make a small dish.

Ramakins.—(*a*) 2 eggs, 2 spoonfuls flour, 2 oz. melted butter, 2 oz. grated cheese. Mix all well together, and bake for ¼ hour.

(*b*) 3 oz. toasting cheese, 4 oz. good Cheshire cheese, 2 oz. butter, and the yolks of 3 eggs; pound altogether very fine in a mortar; boil a fresh roll in thin cream, or good milk, only give it one boil up, then mix the whites of the eggs with the roll, and all the other ingredients in a basin, and beat it very well with a fork; then put it into paper cases, or one large one, and bake in a Dutch oven. The mixture will be good if made overnight, which is sometimes a convenience. (F. R. A.)

(*c*) ¼ lb. Cheshire cheese, ¼ lb. Parmesan, ¼ lb. fresh butter, 4 eggs, the crumb of a small roll, pepper, salt, and mace to taste. Boil the crumb of the roll in milk for 5 minutes, strain, and put into a mortar; add the cheese, which should be finely scraped, the butter, the yolks of the eggs, and seasoning, and pound these ingredients well together. Whisk the whites of the eggs, mix them with the paste, and put it into small saucers, half filled. Bake 10-12 minutes. (W. C. D.)

Roasted.—Grate 3 oz. fat Cheshire cheese, mix with it the yolks of 2 eggs, 4 oz. grated bread, and 3 oz. butter; beat the whole well in a mortar, with 1 dessertspoonful mustard, and a little salt and pepper. Toast some bread, cut it into proper pieces, lay the paste as above thick upon them; put them into a Dutch oven, covered with a dish, till hot through, remove the dish, and let the cheese brown a little; serve as hot as possible.

Sandwiches.—(*a*) Take 2 oz. grated cheese, 2 oz. pounded ham, 1 teaspoonful mixed mustard, a very small quantity of cayenne pepper and salt; mix all together with the beaten-up yolk of an egg. Spread the mixture between thin slices of bread, and fry in boiling lard or butter.

(*b*) Cut some slices of bread a day old, ⅛ in. thick, and some very thin slices of Gruyère cheese. Pick the leaves of a quantity of watercress, and mince them as fine as you can, then dry them in a cloth, mince them still more, and dry them again; then knead them with as much fresh butter as they will take up, adding a very little salt and white pepper; butter the slices of bread with this mixture, put the slices of Gruyère between 2 slices of bread, press them lightly, cut out the sandwiches into the shape of Savoy biscuits, and serve immediately.

Scallop.—Soak a small teacupful of stale breadcrumbs in fresh milk; beat into this one large egg, a teaspoonful of melted butter, and 3 oz. grated cheese, pepper and salt to taste. Strew sifted crumbs over the top, and bake till it is of a delicate brown.

Soufflé.—(*a*) Take 6 oz. grated cheese, 2 eggs, 1 oz. butter, a small teacupful of milk, and beat up all together in a basin; then put them in a small baking dish and bake a light brown. (H. E. C.)

(*b*) In a medium-sized round-bottomed saucepan, melt 1 oz. butter, add 1 oz. flour, and ¼ pint milk, 3 oz. grated Parmesan, salt, cayenne or pepper to taste, and boil well. Then stir in the yolks of 2 or 3 eggs, and beat the mixture thoroughly with a wooden spoon. Whip the whites of 3 or 4 eggs to the stiffest froth, and stir very lightly but thoroughly into the saucepan. Bake immediately in a very hot oven for 20 minutes, and serve at once in the dish in which it

is cooked. The mixture can also be steamed for the same time or rather longer, or it can be baked for 5 minutes in paper cases. If it is baked as a whole, use earthenware made thoroughly hot before the soufflé is put in. Pretty red pans can be bought quite suitable to send to table, and as the great difficulty with soufflés is to get them to table before they cool and sink, it is very advantageous to have some pan that retains heat longer than the tin commonly used. The pan or tin must be well greased. Fresh-grated Parmesan is the best cheese for the purpose, or sometimes Gruyère for a change, but any dry well-flavoured cheese can be used. (E. A. B.)

Stewed.—Cut ½ lb. Cheshire and Gloucester cheese in thin slices, put it into a stewpan with a little ale or white wine, and keep it stirring over the fire till it is melted; then put in a spoonful of mustard, the yolks of 2 eggs; beat up, stir it a moment over the fire, then put it in a small deep dish or soup plate, and brown it with a very hot iron or salamander; have ready thin toasted sippets or fried ones, cut triangularly. Stick them all round, and in the middle. Send it up hot and quick.

Straws (Bâtons).—(*a*) Equal proportions of butter, flour, and cheese seasoned with salt and cayenne, and just enough butter to roll the mixture into a good paste. Cut the straws the desired size with a paste cutter, and bake them in a quick oven till they are quite crisp and a golden blown colour. The ordinary American cheese makes them as well as any other.

(*b*) 4 oz. flour, 4 oz. butter, 4 oz. Parmesan or other good cheese, grated, a little salt, and as much cayenne pepper as would cover a sixpenny piece. First mix the dry ingredients, and then proceed as for

puff paste; cut the mixture into very narrow straws 4 in. long, round them at the sides with a knife, and bake a pale gold colour; serve hot. (F. C.)

(*c*) ½ lb. dried flour, ¼ lb. butter, ¼ lb. grated Parmesan or Gruyère cheese, 1 teaspoonful flour of mustard, 1 saltspoonful cayenne, and 1 saltspoonful salt. Rub the butter into the flour, then mix the whole well together; beat the whites of 2 eggs with ¼ pint cold water, and stir in enough to form a firm paste; knead the paste well, then roll it out ⅛ in. thick, and cut it into straw-like strips about 5 in. long. Bake in a quick oven till of a pale brown colour —about 5 minutes. Pile them on a dish prettily, and serve either hot or cold. Must be kept in a dry place.

(*d*) ¼ lb. Parmesan cheese, ¼ lb. flour, 2 oz. butter, ½ teaspoonful dry mustard, and a little cayenne pepper; grate the cheese, mix it and the flour into a paste with as small a quantity of water as possible, and the butter, which will be nearly sufficient to make the paste without water; roll and cut as thick as straws, and mark with the marker in stripes; bake a nice brown. This quantity will probably last for some time, and can be kept in a tin. When required for use re-warm before the fire, which crisps them better than re-warming in the oven.

(*e*) ¼ lb. butter, ¼ lb. Parmesan cheese grated, ¼ lb. fine flour, well mixed with 1 small saltspoonful cayenne pepper, 1 egg, and a little salt. Roll it out into a thin paste, and bake a light brown. Cut it into a neat form, and serve quite hot on a napkin.

(*f*) Make a paste with 6 oz. flour, 4 oz. butter, 3 oz. grated Parmesan cheese, moisten with a little cream or milk, season with salt, white pepper, and cayenne; roll it out thin, cut into narrow strips, and bake in a

moderate oven.

Tartlets.—Make a paste with 1 oz. butter, 2 oz. flour, the yolk of 1 egg, a little water, a pinch of salt, roll it out to the thickness of ⅛ in., and line some patty pans with it. Take 2 oz. finely grated Parmesan cheese, beat it up in a bowl with the yolks of 2 eggs; add pepper, salt, cayenne, and nutmeg, according to taste—very little of the two latter; then work in 3 tablespoonfuls cream, fill each patty pan with the mixture, and bake in a moderate oven till done.

Tomato.—Take some tomatoes (the tinned ones do very well), chop them finely, cut up some cheese in small pieces, mix with a little milk, and season with pepper and salt. Have some slices of toast ready, and when the mixture is soft pour it over the toast, and serve very hot. Time, about 10 minutes. (E. Brace.)

Toast (Rôties).—(*a*) Grate some rich cheese, add pepper to taste, a beaten egg, and sufficient milk to make it of the consistency of thick cream. Warm the mixture on the fire, and when quite hot pour it over some slices of hot buttered toast; serve immediately.

(*b*) English Rarebit.—Toast a slice of bread on both sides, put it into a cheese plate, pour a glass of red wine over it, and put it to the fire till it soaks up the wine; then cut some cheese in very thin slices, and put it thick on the bread; put it in a tin oven before the fire, toast it till it is brown, and serve it up hot. Or this way: Toast your bread, soak it in the wine, and set it before the fire to keep hot; cut the cheese in very thin slices, rub some butter over a pewter plate, lay the cheese on it, pour in 2-3 spoonfuls white wine, set it over a chafing dish of coals, and cover it with another plate for 2-3 minutes; uncover it, and stir it till it is done and well mixed, put in a little mustard, put it on the bread, brown it with a

hot iron or salamander, and send it away hot.

(*c*) Scotch Rarebit.—Toast a piece of bread nicely on both sides, and butter it; cut a slice of cheese nearly the size of the bread, put it in a cheese toaster, and toast one side, then put the toasted side on the bread, and toast the other side nicely.

(*d*) Welsh Rarebit.—Slice some rich cheese into a stewpan, pour in a very little old ale, and set over the fire to simmer. When the cheese is quite melted pour it on to some hot toast, and serve quickly. Mustard and pepper should be spread on the cheese before serving. Some use butter, but ale is far nicer.

(*e*) Ditto.—Take rather a thick slice of either Cheddar or Gloucester cheese, cut into small pieces, put it into a small saucepan, with 1 teaspoonful mustard, 2 tablespoonfuls ale, a very little salt, and a small piece of butter; let it get well heated, stir it up well till it becomes the consistency of thick cream. Pour the mixture on a slice of toast cut into four, dredge a little pepper on the top and serve on a table napkin, very hot.

(*f*) Ditto.—Use a small iron saucepan. Grease with butter all the inside; then pour 3-4 tablespoonfuls good rich milk or cream into it; then 3-4 large mustardspoonfuls of made mustard; then about ½ oz. butter in small pieces; then about a ¼ lb. good Cheddar cheese; then dust the whole over with ground black pepper, and be not afraid of putting on too much pepper. Set the saucepan aside. Place a dish before the fire which is to go to table. Take a round of a loaf of bread, cut very thick and the hard crust cut off; toast, and then butter one side only, and put it, toasted side downwards, on the dish before the fire. Now set the little saucepan on the fire, and stir its contents with an iron spoon till the

cheese is melted. Immediately then pour it on the bread which is before the fire and send to table; of course, with hot plates. (L.)

(*g*) Ditto.—Make some slices of toast about ¼ in. thick, trim off the crusts, and spread them with butter. Slice very thinly some rich cheese (about ¼ lb.) into a stewpan, add 1 small teaspoonful flour of mustard, a little salt and cayenne, ½ oz. butter, and pour over it a very little ale or porter, let it simmer until quite hot, pour it on the toast, and serve immediately.

Eggs (Œufs).—Few English cooks have any idea of the number of ways in which these nutritious articles may be dressed.

À la Bonne Femme.—Slice an onion, fry it in butter to a light brown, add a teaspoonful of vinegar; butter a dish, spread the onion and vinegar over it, break the eggs into it, put the dish into the oven; when the eggs are done strew fried breadcrumbs over them, and serve very hot.

À la Maître d'Hôtel.—(*a*) Make a sauce with boiling milk, rather highly seasoned and thickened with butter and flour and an onion chopped small; let it simmer gently for ½ hour, then add 2 oz. fresh butter and some finely chopped parsley; next lay in 4-6 hard-boiled eggs, cut in quarters or sliced, heat them through carefully, and serve very hot; squeeze in the juice of a lemon just before serving.

(*b*) Take 6 eggs, boil hard, and when ready plunge them into cold water to enable you to take off the shells easily; this must be carefully done so as not to damage the appearance of the eggs; then cut them into rounds—each, if properly managed, will cut 4.

Have ready a sauce made as follows: Add to ½ pint ordinary good white sauce, a slight sprinkling of nutmeg, some very finely chopped parsley, say a teaspoonful, and about a saltspoonful of the green part of some shallots also very finely chopped. Put the eggs into this, make them hot, and serve heaped high on a dish, with the sauce poured round and over the eggs.

À la Tartuffe.—Fry lightly some bacon; when done, lay it in a dish that will stand the fire, pour over it 2 spoonfuls strong stock flavoured with wine, and break in carefully 5 or 6 eggs, dusting them with pepper and salt. Let them cook over a slow fire, and pass a heated shovel over them to set the whites. The yolks *must not harden*.

And Artichokes.—Strip the green leaves from 6 artichokes, and boil the bottoms in hard water for ½ hour, boil 3 eggs for 10-12 minutes, cut them across, and place on each artichoke half an egg, leaving the round end uppermost; put them each on a small round of toast, which must be cut with a round cutter, and serve on a very hot dish, with a little good melted butter or some rich gravy.

And Caviar.—Cut some small slices of French rolls into rounds, lightly butter them, then spread some very fresh Russian caviar on them, add a sprinkle of lemon juice. Now cut some hard-boiled eggs into rounds, and lay a round on each round of French roll.

And Mushrooms.—(*a*) 1 lb. mushrooms, 2 raw eggs, 2 hard-boiled, 3 oz. butter, 2 tablespoonfuls mushroom ketchup, 1 of vinegar, 1 onion, a little grated nutmeg, mashed potatoes. Peel the mushrooms and put into a rather large stewpan, with the butter, a small onion minced fine, a little grated

nutmeg, 2 tablespoonfuls mushroom ketchup, 1 of vinegar, a little salt and pepper; let them stew about 20 minutes with the lid on, when done, add the yolks of 2 eggs to thicken the sauce, but do not let them boil after the eggs are in, or the sauce will curdle. Have ready some nicely mashed potatoes and 2 hard-boiled eggs, put a wall of the potatoes round an entrée dish, pour some of the sauce in the centre of the dish, then arrange the mushrooms piled high in the middle of the dish, and the remainder of the sauce over, and ornament the dish with the eggs cut in quarters or in slices, and serve. (E. A. Robbins.)

(*b*) Put 2 oz. butter into a stewpan; break over it 4 fresh eggs; add 1 tablespoonful chopped mushrooms, ½ teaspoonful salt, ¼ ditto pepper. Stir this mixture over a clear fire continually with a wooden spoon till it is of a thickish consistency, and serve very hot, poured over hot buttered toast.

And Olives.—4 or 5 eggs, 4 large or 6 small olives, 1 slice ham, cooked, ½ oz. butter, a pinch of red pepper. Boil the eggs about 8 minutes, and put into cold water, as they will peel better. Pare the olives, and mince them, also the ham. Now take the shells off the eggs, cut a small piece off each end to make them stand. Now cut in halves, take out the yolks carefully, and put in the mortar with the ham and olives; pound to a smooth paste with ½ oz. butter, season with a little red pepper, and fill the whites of the eggs. Put a napkin on a dish, stand the half eggs on it, having smoothed over the top, and add some strips of toast. Or they can be served without the napkin and a little tartar sauce poured round them. The eggs should stand up like little cups.

And Sorrel.—Boil a number of eggs in their shells for 3-4 minutes, then dip them into cold water,

carefully remove the shells, and place them again in hot water to make them quite hot; drain, and serve them on the following purée with sippets of bread fried in butter round the dish. Pick and wash a quantity of sorrel, put it into a saucepan with a little water and some salt, when thoroughly done drain off all the moisture and pass the sorrel through a hair sieve. Amalgamate a piece of butter and 1 tablespoonful flour in a saucepan on the fire, put in the sorrel and stir well for some minutes, then add pepper and salt to taste, and the yolk of 1 egg beaten up with a little cold stock and strained.

And Tomatoes.—Boil some ripe tomatoes, and pulp them through a coarse sieve. Mix this pulp with 3 or 4 eggs (according to the size of your dish), a little very finely chopped onion (some persons like freshly-cut garlic rubbed across the pan instead), pepper and salt, and fry all together lightly; a little chopped ham or cold boiled potato may be added if liked.

Au Gratin.—(*a*) Wash, bone, and mince finely an anchovy; mince some parsley and chives, or shallot; mix all these well with some fine breadcrumbs, season highly with pepper and salt, and a dash of nutmeg; place some of this mixture and a little piece of butter in as many small cups (that will stand the fire) as you wish to cook eggs. Set them over a clear, gentle fire, and when this gratin is nearly done, break an egg gently into each cup. When done, pass a hot shovel over each to set the whites, dust over them a little salt and pepper, and serve them in their pots, very hot. Bacon minced may be substituted for the anchovy, but then less butter will be required; chopped mushrooms are also a good addition.

(*b*) Cut some hard-boiled eggs in slices, and lay them on a well-buttered dish, with grated Parmesan

cheese, black pepper, and the least bit of powdered nutmeg; sprinkle some baked breadcrumbs over all, put the dish in the oven, and serve as soon as the contents begin to colour.

(*c*) Slices of hard-boiled eggs laid on a dish with baked breadcrumbs, grated Parmesan cheese, pepper and salt, the least bit of nutmeg, and some butter; put into the oven, and serve as soon as they begin to take colour.

(*d*) Put into a dish that will bear the oven 1 tablespoonful flour, several yolks of eggs, a little very finely chopped parsley and shallot, some salt, pepper, and nutmeg; mix all well together, and put them into the oven just long enough to let the mixture attach itself to the dish. Then take it out, put a few bits of butter on this gratin, and break on it carefully the number of eggs you desire to cook, seasoning them with a little pepper and salt. Let them just simmer in the oven, and serve, while the yolks are still quite soft, with a garnish of either fried or fresh parsley. The dish which they are cooked in should be placed on a neatly folded napkin, and must be thus served.

Baked.—(*a*) Melt 1 oz. butter in a pie-dish, put the dish into the oven just to brown the butter, break 6 eggs separately into a cup and pour them carefully into the pie-dish; bake them for about 5 minutes or until the white is set, then sift a tablespoonful of fine breadcrumbs, which have been previously browned, over the eggs, through a tin strainer; warm over with a salamander and serve; garnish the dish with parsley.

(*b*) Beat up 4 eggs well, to each egg allow 2 tablespoonfuls new milk and ½ teaspoonful finely

chopped parsley, seasoning with pepper and salt to taste. Melt some butter in an enamelled pie-dish, pour in the mixture, and bake quickly in a hot oven.

Bread.—1 pint sifted meal, nearly 1 pint buttermilk, 1 egg, a lump of lard the size of a small walnut, and 1 teaspoonful salt. Just before baking, add 1 teaspoonful soda dissolved in 2 tablespoonfuls warm water, and add 1 teaspoonful salt. If the milk is sweet, add 2 tablespoonfuls cream of tartar.

Buttered.—(*a*) Make a thick square of buttered toast, buttering it well on both sides, and cutting it into 4 or 6 pieces; let it stand before the fire to keep hot, but not sufficiently near to dry it up. Break 3 fresh eggs into a stewpan over the fire (both yolks and whites), having previously melted in it a piece of butter the size of a walnut; add a little salt, and 1 tablespoonful cream or good milk; stir it rapidly over the fire until it begins to thicken; then take it off and beat it until quite smooth; set it on the fire again, and keep stirring until it is very hot and thick. With a spoon heap this lightly up on to the square of buttered toast which has been keeping hot before the fire, making it stand as high as possible. Serve instantly.

(*b*) Boil 2 eggs hard. Let them get cold. Chop up yolks and whites finely, and spread them on hot buttered toast with pepper and salt to taste.

Curried.—(*a*) Boil 6 eggs quite hard, and when cold cut each into 4 pieces, so that they may stand on the dish with the points uppermost; lay aside. Fry 2 onions, shred very fine, in butter, add 1 tablespoonful powder, 2 oz. butter rolled in flour, and by degrees ½ pint veal stock; let the whole boil up for ¼ hour, then stir in very slowly 2 tablespoonfuls cream, simmer 5 minutes; put in the

eggs and let them heat slowly for 4-5 minutes, and serve in the sauce with boiled rice.

(*b*) Cut an onion in very thin and very small slices; fry in butter, flour them while doing to thicken the butter; they must not burn. Take 1 tablespoonful curry powder, or be guided by the strength of it; place in a bowl, squeeze the juice of ½ lemon, add a pinch of salt, 1 teacupful rich gravy or stock, ½ teacupful milk or a little cream, stir all together well; boil some eggs hard, take off the shells, cut them into quarters or halves, stir your curry powder that has been mixed as before directed; let all boil together, and when boiling take off the fire and put in the eggs; serve in a deep dish, with snowballs of rice round. If the eggs are required to be soft, poach them instead of boiling hard.

(*c*) Slice 1 large or 2 small onions into rounds, and fry in a good quantity of butter until quite brown, but not in the least black; then add 2 tablespoonfuls good gravy, well freed from grease, and, when that has mixed nicely with the onions and butter, add 1 small teaspoonful good curry powder; thoroughly mix this with your gravy, &c., and avoid lumps; let all simmer gently for 10 minutes, then put in 6 hard-boiled eggs cut in rounds, and let them cook till thoroughly hot, serve either with rice round, or, as some like it better, with the rice on a separate dish. Salt to taste should, of course, be added to the above.

(*d*) Boil 6 eggs quite hard, shell them, and cut them up into thick rounds or pieces. Pile them in the middle of a small dish, with plain boiled rice arranged in a ring around them. Slice 2 or 3 onions, and fry them in a little butter, add 1-2 spoonfuls curry powder to 1 dessertspoonful flour, and with ½ pint water; pour them into the frying-pan. When the

curry is made, pour over the eggs. Garnish with slices of lemon.

(*e*) For this dish the eggs must be boiled hard, the shells removed, and the eggs cut in halves. A good curry sauce, made after the proper Indian fashion, should have been prepared previously, and then heated up again, the eggs, while still hot from boiling, being placed with the halves upright in a hot dish, with the curry poured round, but not over them, the dish garnished with fried rice balls nicely browned, and plain boiled rice sent to table with it, but in a separate dish.

(*f*) Fry 2 onions in butter, with 1 tablespoonful curry powder and 1 pint good broth. Let it all stew till tender; then mix in a cup of cream (or milk thickened with arrowroot and a dust of sugar). Simmer a few minutes; then lay in 6-8 hard-boiled eggs, cut in half or quarters, and heat them through, but *do not let it boil*. If procurable, use coconut milk instead of cream. Serve with rice.

(*g*) Cut 2 onions in slices, and fry them to a light golden colour in plenty of butter, add 1 tablespoonful curry powder and a sprinkling of flour, moisten with a cupful of stock, and simmer gently for 10 minutes, then add 6 hard-boiled eggs cut in slices, simmer for a few minutes longer, and serve.

(*h*) Mix very smoothly some curry powder with nicely flavoured rich gravy, halve some hard-boiled eggs, take out the yolks, and beat them in a little of the gravy and curry powder; replace them into the whites, of which the under part must be cut a little to make them stand nicely in the dish. Simmer them in the rest of the gravy, thicken it with a little butter and flour, garnish with fried onions, and serve with boiled rice in a separate dish.

Devilled.—Boil a number of eggs very hard; when cold, remove the shells, and cut each egg in half. Take out the yolks and pound them in a mortar with a few boned anchovies, pepper, salt, and a pinch of dry mustard, moistening with a little butter. Fill the empty whites cut in halves with this mixture, and arrange in a dish garnished with parsley. This is a great favourite at Cinderella suppers.

En Matelote.—Put a good piece of butter or lard into a saucepan, cook in it several—about 1 doz.—small onions whole; let them only slightly colour, add a little white wine and stock in equal quantities, pepper and salt to taste, also a sprinkling of nutmeg and a small bunch of sweet herbs. Let all simmer gently for about 15 minutes, then reduce, strain off the herbs and the onions, reserving the latter; break as many eggs as you may require, very carefully so as not to break the yolks, into the sauce, and poach them one after the other. When sufficiently cooked, serve them on a hot dish with the onions (whole) round them, thicken the sauce to a proper consistency, pour over the eggs and serve at once with little fried sippets round.

Fried.—Parboil some well-washed rice in plain water, then simmer till quite done in some good gravy, with a very little curry powder. Serve with some fried eggs on the top.

Forced.—(*a*) Boil 4 or 5 eggs 10-15 minutes; when done put into cold water. When cold take off the shells, and cut in half lengthways, take out the yolks, and put in a mortar with 1 teaspoonful chopped parsley, 1 teaspoonful lemon thyme, and ¼ teaspoonful green onion, all finely minced; 1 teaspoonful essence of anchovies, 1 grate of nutmeg, a little salt, a few grains of cayenne, and 1 oz. butter.

Pound these ingredients well together; when quite smooth use this mixture to fill the whites of the eggs. Oil a border mould or shallow mould with funnel, put a little melted aspic in the bottom, let it set, and then put some of the half eggs on the aspic; then pour over them very gently some more of the aspic, let this set, and put on more of the eggs and more aspic; by this time the mould should be full; set on the ice or in a cool place to get firm till wanted, turn out in the usual way, and fill up the centre or form a border of small salad around, add a little oil and vinegar over, and serve.

(*b*) 10-12 eggs, 1 oz. truffles, ½ pint mushrooms, 1 blade of mace, a grate of nutmeg, 1 dessertspoonful parsley, a small slice of onion, 4 oz. butter, ¼ pint cream, a little good white stock, a small bunch of sweet herbs, 1 wineglass white wine, the juice of 1 lemon, or a little of the peel, a few slices of ham or tongue, pepper and salt. For the croustade have a stale quartern tin loaf rather close, pare off the crust, and with a sharp knife carve the crumb into the shape of a fluted cup or vase, make an incision all round the top about 1 in. from the outer edge, and after it is fried scoop out the middle carefully. The croustade should be fried in plenty of boiling lard in a large stewpan or frying kettle, and should be of a golden brown. When done drain it on a sieve or on a piece of white paper, and keep warm till wanted. Boil the eggs about 10 minutes, then put them into cold water. When cold shell carefully. Cut the eggs in half, take out the yolks, and put the whites aside till wanted. Mince very fine the parsley, truffles, mushrooms, onion, and a little of the ham separately, and then all together. Pound the mace, and put to it a grate of nutmeg. Chop the eggs a little, add them to the other ingredients in a stewpan, with 2 oz. butter,

and a little pepper and salt. Stir over the fire a few minutes, then add the yolks of 2 uncooked eggs to bind the mixture. When it thickens, and seems cooked, turn it out on a plate. Fill the whites of the eggs with this mixture, and put the halves together to look like whole eggs. When they are all filled put them in a basin, and stand the basin in a little hot water to keep the eggs hot while you make the sauce. For this stir the remainder of the butter and a tablespoonful of flour over the fire. When the butter is dissolved stir into it a little white stock in which has been boiled a small bunch of sweet herbs, a small onion, a little thin lemon rind, and the cream. When it boils add to it the wine, lemon juice, a pinch of sugar, and pepper and salt to taste. Pile the eggs high in the croustade, and serve croustade with pieces of ham previously warmed, and the chopped truffles between the eggs; pour the sauce round the base and serve.

In Cases.—Oil some small paper cases as for ramakins, put into each a piece of butter the size of a hazel nut, with a small pinch of minced parsley, some pepper, salt, and the least bit of cayenne. Break an egg into each case, add a teaspoonful of grated Parmesan and a sprinkling of baked breadcrumbs. Put the cases in the oven for about 5 minutes, and serve. They may also be so prepared a number at a time in a silver dish, and served in it.

Nogg.—Beat up the yolks of 4 eggs with 4 dessertspoonfuls powdered sugar; add ½ tumblerful brandy gradually, a teaspoonful at a time, and beating continually; add a pint of rich cream gradually, and still beating: beat up the whites of two eggs separately and thoroughly, and put this on top of the mixture. (S. H. R.)

Omelets. Apricot.—Beat up the whites of 4 and the yolks of 6 eggs with a very small pinch of salt. Put a piece of fresh butter in the omelet pan, and directly it is melted pour in the eggs. As soon as they are set, fold up the omelet, inserting within the fold as much apricot jam as will lie in it. Turn out the omelet neatly on its dish, cover it with powdered sugar, and glaze it with a red-hot salamander.

Brussels Sprouts.—Boil 25 young Brussels sprouts until they are tender, divide each sprout into 4 or more portions according to size, dry on a cloth, beat up 6 eggs, yolks and whites; mix the sprouts with them, adding pepper and salt to taste. Melt 1 oz. fresh butter in the pan, when hot, put in the mixture, sprinkle with pepper and salt, and fry until of a nice brown colour. Serve quickly, sending butter sauce, sharpened with a dash of lime juice, to table with it.

Cheese.—(*a*) Grate 4 oz. good cooking cheese, beat up 6 eggs, only using the whites of 4; add the grated cheese to them, and by degrees ½ pint cream. Season well with pepper and salt, using cayenne pepper, if liked, and fry with butter in the ordinary way, serving as quickly as possible when ready.

(*b*) Beat up 3 or 4 eggs with 1-2 tablespoonfuls grated Parmesan cheese, and pepper and salt to taste. Put a piece of butter, the size of an egg, into a frying-pan; as soon as it is melted pour in the omelet mixture, and, holding the handle of the pan with one hand, stir the omelet with the other by means of a spoon. The moment it begins to set, cease stirring, but keep on shaking the pan for a minute or so: then with the spoon double up the omelet, and keep shaking the pan until the under side of the omelet has become of a golden colour. Turn it out on a hot dish and serve, with plenty of grated Parmesan

cheese strewn over it. The cheese must be of good quality, and grated at the time—not the musty powder which so often does duty for Parmesan.

Haricot Beans.—These make a very nourishing omelet; but require to be carefully prepared beforehand, i.e. they should steep at least 6 hours in cold, slightly salted, water. It is a good plan to set them to steep overnight, especially if they are required for luncheon or early dinner. After steeping they must be boiled in fresh water until perfectly soft, and then mashed in milk, for ½ pint beans ½ teacupful milk will be required; when mashed, rub through a sieve or fine colander; then add 2 tablespoonfuls finely grated breadcrumbs, ½ oz. finely chopped parsley, and 4 eggs, yolks and whites, well beaten, a tablespoonful of melted butter, or else olive oil, and salt and pepper to taste. Mix the whole thoroughly, and pour into a buttered pan or enamelled dish. Bake ¾-1 hour in the oven, which should not be too hot; when served send a sharp brown sauce to table with it.

Macaroni.—Boil 2 oz. macaroni until it is perfectly tender; then drain it. Rub 2 tablespoonfuls flour into a smooth paste with a little cold water, boil in a lined saucepan ½ pint new milk, pour it when boiling on the flour paste, and stir well until thickened. Add to it the macaroni, which should be cut up into small bits; have ready beaten 4 eggs and ½ oz. parsley chopped up fine; add these to the milk at the same time as the macaroni, season with white pepper and salt, and pour the mixture while hot into an enamelled pie-dish, which should be well buttered. Bake in a moderately hot oven until browned over, then turn out, and serve with onion sauce, if liked; if not, with brown sauce.

Plain.—(*a*) Beat up 3 or 4 eggs with 1 dessertspoonful parsley very finely minced, and pepper and salt to taste. Put a piece of butter the size of an egg into a frying-pan; as soon as it is melted, pour in the omelet mixture, and, holding the handle of the pan with one hand, stir the omelet with the other by means of a spoon. The moment it begins to set cease stirring, but keep on shaking the pan for a minute or so; then, with the spoon, double up the omelet and keep shaking the pan until the under side of the omelet has become of a golden colour. Turn it out on a hot dish, and serve.

(*b*) Break 3 eggs, yolks and white, into a basin, add salt and pepper to taste, and beat them with a Dover's whisk till thoroughly blended. Have the frying-pan previously on the fire with a lump of butter in it, the size of a walnut. Throw in the beaten eggs just before the butter boils. Let them set, and then fold up the omelet, and serve on a hot dish. A few chopped herbs and parsley may be added to the eggs before frying.

Plain Sweet.—Beat up well 3 eggs (whites and yolks), add to them 1 oz. butter broken up into small pieces and 1 oz. sifted sugar; stir well together, put 1 oz. fresh butter into the omelet pan; when it fritters pour in the mixture, and continue stirring until it is set, then turn the edges over until the omelet is of an oval shape, brown it with a salamander, and sift sugar over before sending to table. This will only make a small omelet; if a larger is required, double the proportions of the ingredients.

Potato.—Boil 6 mealy potatoes, then dry them well, and mash them with ½ oz. butter, add 1 oz. breadcrumbs, very finely grated, the yolks of 6 eggs and the whites of 4 seasoning with white pepper and

salt; melt a little butter in the omelet pan, and when it is quite hot pour in the mixture, and fry it of a nice golden brown colour over a not too fierce fire. For omelet making a gas boiling-burner is far preferable to a stove; the heat can be so nicely regulated, and the operation so much more comfortably carried on than over a hot coal range.

Rice (Savoury).—Boil 3 oz. rice, after well washing in 2 or 3 waters, in 1 pint water until the water is entirely absorbed, when it is nearly cold; add to it 3 well-beaten eggs and ¼ oz. chopped parsley. Butter a lined pie-dish, pour in the omelet, and bake in a moderate oven. Serve with fine herbs sauce.

Rice (Sweet).—Follow the above recipe, only use instead of chopped parsley 1 oz. sifted white sugar, and omit the seasoning and sauce.

Rum.—Make a plain sweet omelet with 4 whites and 6 yolks of eggs. When cooked strew sugar over, and, instead of glazing it, pour a wineglassful of hot rum over it, and set it alight as it is being put on the table.

Savoury.—(*a*) Beat up 3 or 4 eggs with 1 dessertspoonful parsley very finely minced, ½ clove of shallot, also finely minced, pepper and salt to taste. Put a piece of butter the size of an egg into a frying-pan; as soon as it is melted pour in the omelet mixture, and, holding the handle of the pan with one hand, stir the omelet with the other by means of a spoon. The moment it begins to set, cease stirring, but keep shaking the pan for a minute or so; then with the spoon double up the omelet, and keep shaking the pan until one side of the omelet has become a golden colour, and it is ready.

(*b*) Beat 2 eggs in a basin, season with cayenne and

salt, mix with it 1 teaspoonful each of finely chopped onion and parsley, melt ½ oz. butter in an omelet pan, pour the mixture into this, and keep stirring it over the fire until it sets, then roll and serve. About 3 minutes will serve to cook this omelet, which should be of a delicate brown when done.

(*c*) Besides parsley, add a very few fresh sweet herbs and a few chives, all very finely minced. Powdered sweet herbs may be used, but in either case great care should be taken not to put in too many.

Shallot (Francatelli's recipe).—Break 3 eggs into a basin, add 1 spoonful cream, a small pat of butter, broken into pieces, a little chopped parsley, and the shallots, well chopped, some pepper and salt; then put 2 oz. butter into the omelet pan. While the butter is melting, whip the eggs and other ingredients well together until they become frothy. As soon as the butter begins to fritter, pour the eggs into the pan, and stir the omelet; as the eggs appear to set, roll the omelet into the form of an oval cushion. Allow it to acquire a golden-brown colour on one side over the fire, and then turn it out on its dish. Pour a thin sauce, or gravy, or half glaze under it, and serve.

Soufflé.—Break carefully 6 eggs, separating the yolks and whites. Strain the yolks and add to them 2 tablespoonfuls powdered sugar and a little lemon juice or orange-flower water, stir well together. Whip the whites into a stiff froth, and then mix lightly with the rest. Heat some fresh butter in the pan, pour in the mixture, when ready sprinkle it over with sugar, and either put it into the oven for a few minutes to rise, or else hold a salamander over it. (Eliot James.)

Spinach.—Chop up all together ¼ lb. spinach (it should be young and tender), ¼ lb. beets, ½ oz.

parsley, and ½ oz. leeks and lemon-thyme mixed. Season the mixture with salt and pepper, then add by degrees, a heaped-up tablespoonful of well-dried flour, 4 spoonfuls milk, 4 eggs well beaten, and 2 oz. butter melted; mix the whole well together, put into a pan, and bake 20 minutes in the oven. This is rather more solid food than the ordinary fried omelet, but, when well made, an appetising dish. If beet is not liked, sprouts can be used instead.

Sweet.—(*a*) Beat up the whites of 4 and the yolks of 6 eggs, with a very small pinch of salt. Put a piece of fresh butter in the omelet pan, and directly it is melted pour in the eggs. As soon as they are set fold up the omelet, inserting within the fold as much apricot jam as will lie in it. Turn out the omelet neatly on its dish, cover it with powdered sugar, and glaze it with a red-hot salamander.

(*b*) Beat up the eggs as in (*a*), with the addition of a large pinch of powdered cinnamon, and 2 tablespoonfuls powdered loaf sugar. When cooked glaze with sugar and serve.

Swiss.—Made with grated cheese in the following manner: Grate 2 oz. Parmesan cheese, melt 2 oz. butter, and add to the cheese also ½ oz. finely chopped parsley, 1 oz. breadcrumbs, finely grated, ¼ pint new milk, and 4 eggs well beaten; fry in the usual way, with a little butter in the pan, which must be properly heated before the mixture is put in.

Tomato.—Scald 6 ripe tomatoes, pare them and remove the ends and seeds. Stew them until tender, then mash them and rub through a sieve; add 2 oz. finely grated breadcrumbs, 4 well-beaten eggs, 4 tablespoonfuls milk, and salt and pepper to taste. Mix all thoroughly, pour into a buttered dish and bake in a moderately hot oven. Serve with vinegar or

brown sauce, not made with stock, as is ordinary brown sauce, but merely browned butter thickening thinned with vinegar.

Poached.—(*a*) To be covered with the white, they should be broken into a saucepan with plenty of boiling water, enough to cover them.

(*b*) Stir the water round very fast, then drop the egg in the middle of the whirlpool, and keep stirring the same way till it is set.

(*c*) Fill a shallow sauté pan with water and sufficient salt; add a little vinegar, a few peppercorns, and some leaves of parsley. When the water is on the point of boiling (it should never be allowed to boil) break 2 or more eggs into it (according to the size of the pan), and put on the cover. When done, take them out carefully, brush them clean on both sides with a paste brush, and cut each egg with a round fluted paste cutter, so as to get them of a uniform shape. Serve on a purée made as follows: Pick and wash perfectly clean 2-3 lb. spinach, put it into a saucepan with a little water, and let it boil till quite done, turn it out on a hair sieve to drain, squeeze the water out, and pass the spinach through the sieve. Put a good lump of butter into a saucepan, fry it a light brown, add a pinch of flour, mix well, put in the spinach, pepper and salt to taste, and a little milk, stir well, dispose the spinach on a dish, laying the poached eggs on the top of it, and a border of fried sippets round it.

(*d*) Poach some eggs (one for each person and one over) in salted water, with a little vinegar, some peppercorns, and a few leaves of parsley, in a shallow sauté pan, just long enough to set the yolks slightly; take out each egg with a slice, brush it clean with a paste brush, and cut it with a round fluted

paste cutter, about 2 in. diameter, so as to get all the eggs a uniform shape, and leave neither too much nor too little white round them. Turn the egg over carefully, brush it clean, and lay it in the soup tureen, ready filled with boiling hot clear consommé. The water in which the eggs are poached should be kept at boiling point, but never boil. Some leaves or very small sprigs of chervil may be served in the soup.

(*e*) Served with a sauce composed of curry powder mixed to a paste in milk, to which is added sliced onions and butter; the sauce should be strained, and then poured round the poached eggs, which have been previously arranged in a hot dish.

Purée.—Beat the yolks of 7 hard-boiled eggs in a mortar with 1½ oz. fresh butter, a little very finely minced parsley, some salt and pepper to taste, and the yolks of 3 raw eggs; mince the whites of the boiled eggs as fine as possible, and toss them over the fire, with about ½ pint good gravy, till they become rather thick; press the pounded yolks through a colander in the centre of a dish, put the minced whites round them, and arrange as a garnish some sippets of bread, brushed over with beaten egg; put the dish into the oven, or before the fire in a Dutch oven, to brown, and serve very hot. This is an extremely pretty dish.

Rolls.—Allow one egg for each person, ¾ pint of milk and 4 teaspoonfuls flour for every three eggs; beat whites and yolks separately, mix the flour smoothly with the milk, then add the eggs and whisk well. Fry a little at a time in a buttered omelet-pan, roll as an omelet; serve very hot. To be eaten with sugar or treacle.

Savoury.—Take 4 eggs, boil them hard, when cold

shell them, and cut them in half lengthwise, take out the yolks, beat into a smooth paste. To each egg allow a good slice of butter, ½ teaspoonful anchovy sauce, and cayenne pepper to taste. This should all be thoroughly mixed with the yolks; then fill the white halves with this paste. Serve on a napkin, and garnish with parsley. This is a most appetising dish, either for dinner or supper, and enough for 8 persons.

Scalloped.—(*a*) Mash some potatoes very smoothly, and boil some rice. Boil 5 eggs for 3 minutes; when they are cold remove the shells, and chop the eggs up roughly. Mix a teacupful of the mashed potatoes, the same quantity of rice, and the eggs together; add some chopped capers, very little vinegar, some melted butter, pepper, salt, and Worcester sauce. Put the mixture into scallop shells, with breadcrumbs and a little butter. Bake a light brown.

(*b*) Boil 3 or 4 eggs hard. When cold, remove the shells and chop the eggs roughly, have ready a small teacupful of mashed potatoes, another of rice; mix all together, add capers, a little melted butter, pepper, and salt, put into scallop shells with breadcrumbs on top, and bake a pale brown.

Scotch.—Boil some eggs hard enough to set the whites, so that you can remove the shells without breaking the white. After peeling the shell clean off, cover them completely with a savoury forcemeat, in which let ham or finely chopped anchovy bear due proportion. Fry of a gold colour, and serve with good gravy in the dish.

Scrambled.—(*a*) Break 4 eggs into a clean stewpan with 1 oz. butter, and a little salt and pepper; beat it all up until the yolks and whites are well mixed, then stir it over the fire with a wooden spoon till cooked;

it should never be clotted or hard. A spoonful of stock, or any sauce, is a great improvement. Mushrooms minced and tossed in a little butter, cold asparagus cut into nice pieces, or even sliced cucumber placed in with the eggs 1-2 minutes before serving, make pleasant varieties of this little dish.

(*b*) Put in a saucepan 2 tablespoonfuls cream and a piece of butter the size of a walnut, well beat up 4 eggs, and when the butter is melted and quite hot pour in the eggs, and stir over the fire for a few minutes.

(*c*) Beat up 3 eggs well, add ½ teacupful cream or milk, salt to taste, and a small pat of butter; pour into a shallow stewpan, stir over a clear fire until the mixture grows quite thick; have ready a buttered slice of toast on a hot dish, turn the eggs out on to the toast, and serve with a sprinkling of pepper.

(*d*) Take a piece of butter about the size of a walnut, put it into a saucepan to melt. Take 3 eggs, break them, and put them into the saucepan with a little salt. Put the saucepan on the fire, stir the eggs quickly till they begin to set, then serve on a piece of dried toast. Take care to stir the eggs quickly, and take them out of the saucepan as soon as they begin to set, or they become hard.

(*e*) Beat up some eggs in a basin with pepper, salt, and a small quantity of French tomato sauce; melt some butter in a saucepan; add the eggs, and stir with a spoon until nearly set. Serve on toast, or in a very hot dish. If no tomato sauce is added to the eggs, a little chopped parsley should be sprinkled over them just before serving.

(*f*) Peel a large tomato, free it from pips, and chop it up small, also chop 2 slices Spanish onion; put

both into a saucepan with plenty of butter, and pepper and salt to taste; stir on the fire till the onion is quite cooked, but not coloured; then throw in 4 eggs beaten up, and keep on stirring the whole till the eggs are nearly set; serve at once within a circle of bread sippets fried in butter.

Snow.—Whisk the whites of 6 eggs with a little powdered lump sugar into a stiff froth; set 1 qt. milk, sweetened to taste, to boil; drop the egg froth in it by tablespoonfuls; a few seconds will cook them; take them out, and put them on a sieve to drain. When all the egg froth is cooked, strain what is left of the milk; let it get cold, and mix gradually with it the yolks of the eggs with any flavouring you like. Put the vessel containing this into a saucepanful of water, and keep stirring on the fire until the custard thickens. To serve, pile up the whites on the dish, pour the custard round them, and sprinkle the top with "hundreds and thousands."

Stewed.—Mince an onion very small, and fry it in good butter till well coloured, stir in some good stock, well seasoned with pepper and salt, and a very little flour; let it stew till the onion is quite soft, the flour thoroughly cooked, and the sauce rather thick. Lay in as many hard-boiled eggs as you please, cut in quarters or slices, and stir them very gently (lest the yolk should break from the white) till quite hot, when they should be served at once.

Stuffed.—(*a*) Make a savoury forcemeat with some very finely minced ham, veal, and one anchovy, with seasoning of salt, pepper, and a little cayenne. Have ready 6 or 7 hard-boiled eggs. Take the shells off very carefully, cover them thickly with the forcemeat. Brush the yolk of a beaten egg over them, and set them to brown in a moderate oven for about

15 minutes. When done put them on a hot dish, and pour some good brown gravy round them. A slight variation, and perhaps an improvement, is very carefully to open the eggs without entirely separating the tops, to take out the yolks, add them to the forcemeat, and when all has been well pounded together, to replace the yolks by this forcemeat, close the eggs carefully, and proceed as above.

(*b*) Take 6 hard-boiled eggs, cut them in half crosswise, remove the yolks, and cut a small piece off each half egg, so as to make them stand upright. Take 6 anchovies, bone and wash them clean, pound them in a mortar with 1 oz. butter, the yolks of the eggs, pepper, and a little tarragon finely chopped, fill up the whites with this mixture, pile them up on a dish and serve.

(*c*) Cut some hard-boiled eggs in half. Mince the yolks with olives, capers, anchovies, and truffles, a little tarragon and chervil; add some pepper and salt. Fill each half egg with this mixture, pour some liquefied butter over, warm in the oven, and serve each egg on a bread sippet, cut with an ornamental cutter, and fried in butter.

Sur Plat.—This is a most convenient dish when a slight meal is wanted in a hurry. Put a fireproof china saucepan on the fire, or on a spirit lamp. Place a lump of butter in it, and as soon as it melts, break in 3 or 4 eggs. Let them remain long enough for the whites to set, sprinkle with salt and pepper, and serve in the saucepan very hot.

Swiss.—(*a*) Although sometimes made with Parmesan, Gruyère is the correct cheese to use. Spread the bottom of a silver dish rather thickly with good fresh butter and cover it with very thin slices of the cheese, which should not be an old one or it

would not melt well. Over this break as many eggs as you wish to have, taking care to keep the yolks whole; sprinkle a little salt, some black pepper, and a very little grated nutmeg over this, and pour over it about a quarter of a pint of good thick cream. Finish by strewing the top with grated cheese, and bake for ¼ hour. If not brown enough, pass the salamander over the top and serve immediately; very thin and nicely cut dry toast should be handed with it on a plate.

(*b*) Butter well a stoneware or silver or pewter dish that will stand the heat of the oven; line the sides of the dish with shavings of Gruyère or some good American toasting cheese. Drop on to the already buttered dish 4 or 6 raw eggs, pour over them about 3 tablespoonfuls of good cream; season with salt, cayenne, and a small grate of nutmeg, sprinkle a little grated cheese over all, and 2 tablespoonfuls more cream; place in the oven for about 7 minutes, or till the eggs are set.

(*c*) Spread the bottom of a dish with 2 oz. fresh butter; cover this with grated cheese; break 8 whole eggs upon the cheese without breaking the yolks. Season with red pepper and salt if necessary; pour a little thick cream on the surface, strew about 2 oz. grated cheese on the top, and set the eggs in a moderate oven for about ¼ hour. Pass a hot salamander over the top to brown it.

(*d*) Mix with 2 oz. grated cheese, 2 oz. oiled butter, 6 eggs, salt, pepper, and some finely chopped parsley, tarragon, and spring onions. Fry lightly, brown the top, and serve very hot.

Sauces, Butters, Gravies, Stuffings, &c.—These

are employed to lend a zest to the flavour of the foods they accompany, seldom contributing any nutritious element themselves.

Agro Dolce.—This sauce is made thus: ½ lb. *pignoli* or pine-cone kernels, 6 oz. fine chocolate, 10 oz. sugar, ½ pint best vinegar, 3 oz. *candito* or candied orange or lemon, all mixed in rich good gravy, made from the material which composes the dish, such as wild boar, hare, &c.

Anchovy Butter (au Beurre d'anchois).—(*a*) Take 2 oz. fresh butter, 4 oz. boned anchovies, pounded to a smooth paste, and 3 oz. watercress, well washed and picked from the stalks. Mix the 3 ingredients well together, and pass them through a hair sieve. Shape the butter into small balls, ice them, and serve with dry toast or biscuits.

(*b*) 3 or 4 anchovies boned and pounded, 3 oz. parsley, weighed after it has been picked from the stalks, wash clean; boil for 8-10 minutes, till tender, with a small piece of soda in the water to keep it green; strain the water off and squeeze the parsley dry with the hand. Pound up in a mortar the parsley with 4 oz. fresh butter and the anchovies. Rub this through a sieve and let it drop on the dish on which it is sent to table. It should have a rocky appearance. Toast to be served at the same time.

(*c*) And Olive.—Take equal parts anchovies (washed, boned, and pounded fine), French olives (stoned, washed, chopped up, and then pounded), and fresh butter. Mix these 3 ingredients well together, and pass them through a very clean sieve, shape the mixture into balls, ice, and serve with Oliver biscuits, or with little squares of crisp toast.

(*d*) Heat a dinner-plate until it will melt ½ oz.

butter placed on it; take the yolk of a fresh egg, beat it with a fork into the butter, add 1 teaspoonful anchovy sauce, cayenne pepper and salt to taste. Have ready some freshly-browned squares of toast, dip them into the mixture, covering both sides, and serve at once. (Bessie Tremaine.)

Apple Sauce.—(*a*) Pare, carefully core, and cut up the fruit; put it into a preserving pot or jar, and stand it in a saucepan of water over the fire till cooked. When quite done pulp the fruit, sweeten to taste with a little brown sugar; add (if liked) a piece of butter about the size of a large bean, and flavour with a little ground cinnamon or a few cloves; if the latter, they must be put in while the apples are cooking, taking care not to break them during the pulping. (Bessie Tremaine.)

(*b*) Peel and core 6 large apples, add to them 1 gill water and 2 tablespoonfuls moist sugar—the apples must be cut in pieces. Place the saucepan containing these ingredients on the fire to boil until the apples are soft; a little more water may be added if necessary, but the less the better; rub through a colander or sieve, or if in a hurry, mash with a fork. This must be warmed up again before serving, and a little more sugar added if necessary.

Apricot Sauce.—(*a*) Halve the apricots and take out the stones; break these, crush the kernels, and stew them with the fruit in a little water. Add a glass of white wine (some light German or French wine is better than sherry); sugar to taste and a spoonful of arrowroot or flour, mixed with water, to thicken. Strain before serving.

(*b*) Put half a pot of apricot jam in a saucepan with ½ pint water and a glass of sherry; boil, strain, and serve.

Béchamel Sauce.—Time, 2 hours; put 1 pint white stock into a stewpan with a bunch of sweet herbs, a small sprig of parsley, a bay leaf, 2 cloves, and a little salt; set it over a gentle fire to draw out the flavour of the herbs, then boil it until reduced to nearly half the quantity; mix 1 tablespoonful arrowroot in 1 pint cream and let it simmer for a few minutes; then pour in very gradually the ½ pint stock, and simmer it all together for 10-12 minutes, or until it is of the proper consistency. Should it be too thick, add a little milk or white stock.

Black Butter (Beurre noir).—Put a large piece of butter into a saucepan, and leave it on the fire until the butter becomes of a dark brown colour, but do not let it burn; then throw in some parsley chopped fine, a wineglassful of tarragon vinegar, a little salt, and some powdered white pepper, and serve.

Bordelaise Sauce.—Mince finely 2 or 3 shallots, blanch them for a few minutes, press out the water from them, and put them into a saucepan with a cupful of white wine, let them boil 20 minutes, then add 2 cupfuls Spanish sauce, a dust of pepper, and some parsley finely minced; let the sauce give a boil or two, and it is ready. Well-flavoured gravy, thickened with browned flour and butter, may be used instead of Spanish sauce.

Brandy Butter.—(*a*) 6 oz. butter, 6 oz. powdered loaf sugar, a small glass of brandy, and the same quantity of sherry. Beat the butter and sugar to a cream; add the brandy and sherry very slowly, beating all the time. It is best iced.

(*b*) Beat 2 oz. fresh butter to a cream, then add 2 oz. sifted sugar, and 1 wineglassful brandy drop by drop, mixing well all the time; continue beating until they are all thoroughly incorporated and the mixture

looks like smooth solid cream. It is better than the usual melted butter with many puddings besides plum pudding.

(*c*) Take ¾ lb. fresh butter and beat it to a cream, add ¼ lb. finely sifted sugar, add very slowly 1½ wineglass brandy, and continue beating until well mixed.

Brandy Sauce.—(*a*) Mix 1 dessertspoonful French potato flour in a little cold water, stir into it ½ pint boiling water. Let it boil for 2 minutes; add 3 oz. lump sugar, the juice of a lemon, a grate of nutmeg, and 1 oz. sweet, fresh butter. When this is dissolved stir in 1 gill brandy, and do not afterwards boil the sauce.

(*b*) Mix 1 tablespoonful potato flour or arrowroot with a little cold water, then add as much water as will make enough sauce, with powdered loaf sugar to taste, and keep it on the fire until the sauce thickens; put into it at the time of serving as much brandy as may be necessary.

Breadcrumbs.—(*a*) Baked (Chapelure).—Bake any odd pieces of bread (taking care that none of them be greasy) to a rich brown colour. When cold pound them in a mortar, sift them through a fine sieve, and put them by for use.

(*b*) Fried.—Toast carefully in the oven a few thin slices of bread with the crusts cut off, and then rub them down or pass them through a colander. Put a liberal allowance of lard into a stewpan or frying pan, make it very hot, and take care that the fat is perfectly clear and transparent. Fry the prepared crumbs, taking care not to overdo them, and drain them before the fire very thoroughly and completely, as the whole success of fried crumbs consists in their

being sent to table perfectly dry and quite hot.

(*c*) Plain.—Take the crumb of a stale loaf, and rub it through a wire sieve. They should be made from day to day.

Bread Sauce.—(*a*) Take 3-4 tablespoonfuls sifted breadcrumbs, pour over sufficient boiling new milk to cover, put a plate over the basin to keep in the steam; when cold put them into a saucepan with 2 tablespoonfuls good white stock, a small slice of onion, 3 or 4 peppercorns, a small blade of mace, and a little salt; when boiling, stir in a piece of butter the size of a pigeon's egg in which a little flour has been rubbed, let the bread sauce thicken, take out the peppercorns and mace, serve very hot. Good white gravy can generally be made for this from the head and neck of the fowl, &c., for which the bread sauce is required. Some add a small piece of lemon peel.

(*b*) The great secret of the uneatable bread sauce one so often tastes is that the breadcrumbs are not grated finely enough. Grate the breadcrumbs, and then pass them through a colander into a basin, and pour over them some boiling milk (say ½ pint to a teacupful of crumbs), in which onion and spice to taste have been previously boiled, and strained off. This stands till the bread is thoroughly soaked, when it is put into a saucepan with more milk if necessary, salt, and pepper, and boiled to the proper consistency.

Brown Sauce (Espagnole).—Butter slightly a gallon saucepan, put a layer of slices of onion at the bottom, over this 2 lb. lean veal, 1 lb. beef, and ½ lb. ham, all cut in small pieces; add ½ pint gravy stock. Put the saucepan on the fire, stirring the contents frequently. When the meat is well coloured add 1

carrot cut in small pieces, 1 bay leaf, some parsley, thyme, and marjoram, 1 or 2 cloves, a little whole pepper and salt to taste, then put in as much more stock as will well cover the contents of the saucepan. Let the whole boil gently for about 3 hours, and strain the liquor through a tammy. Put into a saucepan ¼ lb. butter and 2 oz. flour, stir on the fire till the two are well mixed, and are of a light brown colour; then gradually add the strained liquor boiling hot. Set the saucepan at the side of the fire, and let it simmer for 1½ hour, carefully skimming the contents from time to time. Lastly, turn out the sauce into a basin, and if not wanted immediately let it be stirred every 5-10 minutes till quite cold. In a good larder it will keep several days, but it should be warmed every day in hot weather.

Brown Butter Sauce.—Put 4 oz. fresh butter in a stewpan on the fire, and keep stirring it until it becomes brown by frying; then add a small wineglass of tarragon vinegar, ditto of Harvey's sauce, a tablespoonful of chopped capers, a little anchovy, and either a gill of brown sauce or gravy. Boil this together for 5 minutes, and serve.

Caper Sauce (aux Capres).—(*a*) Put 2 oz. butter in a saucepan with a tablespoonful of flour, and stir well on the fire until the mixture assumes a brown colour; add rather less than 1 pint stock, free from fat, season with pepper, salt, and a little Worcester sauce. When the sauce boils, throw in plenty of capers, let it boil once more, and it is ready.

(*b*) 4 oz. butter melted, to which add 2 oz. flour and ½ pint milk; when it thickens, 2 tablespoonfuls cream, 1 teaspoonful finely chopped parsley, 1 of fennel, and 1 of capers, 2 of tarragon vinegar, salt and cayenne to taste. A little chopped tarragon is an improvement, and that and the parsley and fennel ought to be previously boiled.

Celery Sauce (au Céleri).—Boil 2 or 3 heads of celery in salted water, with a bunch of sweet herbs and some whole pepper and salt to taste; when thoroughly done, pass them through a hair sieve. Melt a piece of butter in a saucepan, mix a tablespoonful of flour with it, then add the celery pulp, stir, and dilute to the proper consistency with milk or cream.

Chaudeau Sauce.-½ pint foreign wine, ½ pint water, the yolks of 8 eggs, the peel of a lemon rasped off in sugar, the juice of a lemon and 4 oz. sugar, including that on which the lemon was rasped, must be well whisked in a stewpan; then set over the fire, and the whisking continued until the sauce thickens and is about to boil.

Chaudfroid Sauce.—Remove the legs, breast, and wings from 2 uncooked birds, pound the carcases in a mortar, put them into a saucepan, with a piece of ham or bacon chopped up, an onion, a carrot, 1 oz. butter, a bundle of sweet herbs, and spices, pepper and salt to taste. Put the saucepan on the fire, and when the contents are quite hot add a small cupful of white wine (sherry or marsala), and a few minutes after add rather more than 1 pint good ordinary stock; let the whole gently simmer over an hour, then strain, and carefully remove all fat; mix a little butter and flour in a saucepan, and stir them on the

fire till the mixture browns, then gradually add the liquor and a cupful of unclarified aspic jelly. If at hand a cupful of well-made Spanish sauce may be used instead of the thickening of butter and flour.

Cherry or Plum Sauce.—Wash and stone the fruit, put them on to stew with a glass of red wine, a little water, a little powdered cinnamon, and a slice of toasted bread. Break the stones, and boil them apart in just water enough to cover them. When the fruit is well done pass all through a coarse sieve, strain it, and add the water from the stones. Sweeten to taste, and thin it with wine or water if too thick.

Chestnut Sauce (aux Marrons).—Remove the outer skin from a number of chestnuts (carefully excluding any that may be the least tainted), put them to boil in salted water with a handful of coriander seeds, and 2 bay leaves. When thoroughly done remove the inner skin and pound the chestnuts in a mortar, adding a little stock (free from fat) now and then. When a smooth paste is obtained, fry an onion in butter to a light colour, add the chestnut paste and sufficient stock to get the sauce of the desired consistency; add salt and pepper to taste, pass through a hair sieve and serve.

Chestnut Stuffing.—Remove the outer skin from a quantity of chestnuts; set them to boil in salted water with a handful of coriander seeds and 2 bay leaves. When nearly done drain off the water, and remove the inner skin of the chestnuts. Cut up ½ lb. butter into small pieces, mix it with the chestnuts, when cold, together with an onion finely minced. Sprinkle the mixture with pepper and salt and a little powdered spice to taste, and stuff the turkey with it.

Cinnamon Sauce (Cannelle).—Boil 3 oz. sugar with

a stick of cinnamon broken up in small pieces in rather more than 1 pint water; after it has boiled a little time skim well and strain; add a small quantity of arrowroot or potato flour mixed with a little cold water, let it boil once more, and serve; or it may be served without thickening.

Clear Butter (Beurre fondu).—Melt as much fresh butter as may be wanted in a very clean stewpan, taking care that it does not get at all brown, to prevent which keep moving it about over a moderately hot fire with a wooden spoon. When it is all melted take it off the fire, and let it stand for a few minutes until the thick part settles at the bottom of the pan, then carefully pour off the clear butter, season it by stirring in a little powdered salt, and serve at once.

Cold Meat Sauce.—(*a*) Chop very finely the yolks of 4 hard-boiled eggs, 4 shallots, a little chopped parsley, chervil and tarragon. Mix the herbs and eggs with 2 tablespoonfuls best salad oil, some salt and pepper, and gradually add 4 spoonfuls vinegar. Arrange some slices of cold meat in a circle in a dish, ornamented with pieces of cucumber and slices of the hard-boiled whites of eggs. If liked, a few chopped capers can be added to the sauce, which must be poured over the meat. This is very appetising for breakfast or for luncheon.

(*b*) Chop a little onion very fine (green onion, if you have it; there should be about ½ teaspoonful, or rather less); mix this smoothly with a bit of butter the size of a small walnut on a plate till the butter becomes soft and creamy; put this into a basin, adding a teaspoonful of made mustard, a little salt and pepper, nearly a teaspoonful of powdered sugar, and a tablespoonful of milk; mix these ingredients

together, and add 2 tablespoonfuls vinegar, or rather less, if liked.

Corach.—1 oz. cayenne pepper, 8 cloves of garlic, 2 spoonfuls walnut pickle, 1 qt. vinegar, 2 spoonfuls mushroom pickle, and a small quantity of cochineal. Put the whole into a bottle, which must be shaken every day for 3 weeks; then the liquid must be strained off for use, and 1 pint fresh vinegar put on the grounds and more corach made.

Cream Sauce (à la crème).—Into 1 pint melted butter, made with very little flour, stir about 1 gill cream beaten up with the strained yolk of an egg.

Curries and Curry Powders.—(*a*) 1 oz. cardamoms freed from husk, 1 oz. cloves, 2 oz. each caraways, ginger, and black pepper, 1 oz. cayenne, 3 oz. cumin, 1½ lb. turmeric, 4 oz. fenugreek; all freshly ground; improves by keeping.

(*b*) 4 oz. turmeric, 2 oz. coriander seeds, 1 oz. each cumin, cayenne, pepper, and ginger, ½ oz. each cardamoms and caraway, 2 dr. mace; all finely powdered, well mixed, sifted, and kept corked.

(*c*) 12 oz. coriander, 6 oz. black pepper, 4 oz. turmeric, 3 oz. cumin, 1½ oz. cayenne, ½ oz. cardamoms, 2 dr. cloves, 1 oz. pimento, 3 oz. cinnamon, 2 oz. ginger, 1 oz. mace, 1 oz. mustard.

(*d*) 5 oz. coriander, 4 oz. cumin, 3 oz. each turmeric, fennel seed, and cayenne, 2 oz. black pepper, 1 oz. fenugreek.

(*e*) 12 oz. coriander, 8 oz. turmeric, 2 oz. each cumin, caraway, and long pepper, 1 oz. cayenne, ½ oz. cardamoms.

(*f*) 1 lb. turmeric, ¾ lb. coriander seed, 3 oz.

ginger, 2 oz. black pepper, 1½ oz. red pepper, ½ oz. cardamom seeds, ¼ oz. caraway seeds, 80 cloves, finely powdered. Well mix together, and put into stoppered bottles.

(*g*) 13 oz. coriander seed, 3 oz. cumin, 2 oz. black pepper, 4 oz. China tumeric, ¾ oz. cayenne pepper, ¼ oz. capsicum, ¼ oz. white ginger, ½ oz. cardamoms, ¼ oz. cloves, ¼ oz. allspice. All to be finely powdered and well mixed together.

(*h*) Cut up a fowl, rabbit, or any cold meat in small pieces about 1 in. square. Mix in a basin to a smooth paste ¼ lb. butter and 2 tablespoonfuls curry powder. Put 2 oz. butter in a frying-pan, when boiling put in 6 onions and 2 shallots, cut fine; fry a light brown, then add the curry powder which was mixed, and when all is melted put in the meat. Stir constantly till done, or it will burn. A fowl will take ¼ hour to fry, and must be well skimmed. In a moist curry add a little gravy.

(*i*) Cut some onions in thin slices, and fry them a good brown in butter, add a breakfastcupful of milk, in which a tablespoonful of curry powder has been mixed; let all boil together for 20 minutes, stirring the whole time; then add the vegetables previously parboiled, and let the whole simmer by the side of the fire for about an hour. Potatoes, peas, beans, carrots, and turnips can be used; but broad beans alone make a delicious curry.

(*j*) Put a good-sized piece of butter into a stewpan, slice into it 2 good-sized onions, and fry till they become a golden brown colour; sift over the onions about 1 tablespoonful curry powder (Crosse and Blackwell's is the best), mix and fry lightly. Take a fowl or rabbit previously cooked, and joint it neatly, cut into rather small pieces, and put it into the

stewpan; then take a good large teacupful of fresh milk, mix a small quantity of flour with it, add to the meat a pinch of salt, and, if you have it, a tablespoonful of mangoe sauce; mix all well together, and let it simmer on the fire 20 minutes, then squeeze over it the juice of ½ lemon or a small lime; if there is not sufficient gravy, a little more milk may be added, and if too rich strain off a little of the onions. The remains of a cold fowl, rabbit, or a veal cutlet are excellent for this curry; also any kind of white fish, lobster, or shrimps; if for fish only, all the onions must be strained off; the gravy should be of the consistency of good cream, and a bright yellow colour.

(*k*) Cut into small squares the meat and 2 onions, with a dessertspoonful of sugar; put these into a stewpan with 2 oz. butter to take good colour. Then add 1 teacupful good stock, some raisins, say 12, cut small; curry powder to taste, pepper and salt, and a few slices of apple. When these are all mixed together, gently cook for 3-4 hours.

(*l*) Cut 1 lb. meat in small pieces, slice an onion and fry in butter until of a light brown, then add 1 tablespoonful curry powder, 1 teacupful water, 1 breakfastcupful gravy, the juice of a lemon, and a little salt. Stew all until nearly dry, and serve quite hot. Curry should always be made of cooked meat.

(*m*) 18 oz. turmeric powder, 1 oz. cayenne, 2 oz. black pepper, 4 oz. ground ginger, 12 oz. cumin, 12 oz. coriander. Butler and M'Culloch, of Covent-garden Market, will either mix these ingredients or send them separate.

(*n*) 1 lb. 4 oz. coriander seed, 1 oz. cumin ditto, 1 oz. fenugreek ditto, 1 oz. mustard ditto, 2 oz. poppy ditto, 4 oz. tumeric, in powder, 2 oz. ginger ditto, 2

oz. black pepper ditto, 1 oz. red pepper ditto, 2 oz. garlic.

Each of the first four ingredients must be well roasted separately in a dry frying-pan (free from grease), constantly stirring all the time; they must then be pounded and sifted through muslin before being weighed, as the loss is considerable in the husking. The poppy seed must be ground, but does not need sifting. All the powders must then be carefully mixed. The garlic must then be added, picked clean from all skin, and the whole again beaten with a pestle in a mortar till the garlic is thoroughly incorporated with the other ingredients. Bottle and cork tightly. A tablespoonful is enough for a curry.

(*o*) Take 2 large onions, shred them, and put them into a stewpan with a bit of butter; brown them well, cut the meat into squares, put it into the pan, in which the fried onions are, and brown it also. Then add the curry powder, a little salt, a small piece of coconut grated, and a coffeepotful of rich milk or cream. Put the lid on the pan, and let it stew 15-20 minutes, as the meat requires.

(*p*) 2½ large spoonfuls butter, simmer, and add 2 or 3 slices onion to fry; when the onions are nicely browned take them out, and put in a tablespoonful of curry powder, with an onion chopped, and 2 or 3 cloves garlic; fry for about 10 minutes longer, then put in the meat, every now and then throwing in a little cold water to prevent burning. When the meat is tolerably well done add a cupful of water, cold or hot, and simmer gently; when all the water is evaporated and the meat thoroughly cooked, the curry is done. The mixture should be well stirred all the time, or it will stick to the bottom of the pan.

(*q*) Take 2 lb. meat of any sort; pass it through a sausage machine, or mince it. Previous to doing this braise 2 onions in a stewpan with a little butter and 2 tablespoons curry powder or paste. Then add the minced meat and stir the whole together for about 1 hour over the fire. Add a tablespoonful of vinegar and serve. The above quantity is sufficient for 12 persons.

(*r*) Cut 1½ lb. chicken, or any meat or fish, into small pieces, wash them well, and sprinkle 1 teaspoonful salt and 1 tablespoonful curry powder (mixed) over them. Fry sliced onions (number according to taste) in 3 tablespoonfuls fresh butter, put the meat in, and fry for ¼ hour, pouring in at the same time 2 cups boiled gravy. 3 tablespoonfuls coconut milk should be added, or in its stead a lump of fresh butter rolled in flour. Simmer for 10 minutes. Just before serving add a squeeze from a lime. Rice should be served on a separate dish.

(*s*) 2 large tablespoonfuls curry powder, 1 dessertspoonful salt, the same of black pepper. Fry and chop very fine 4 onions, then moisten the curry powder with water, and put it in a stewpan, with all the above ingredients, and ¼ lb. butter. Let it stew for 20 minutes, stirring all the time to prevent burning, then add 1½ lb. cold meat, or fresh meat or any fowl or rabbit, cut into short thick pieces, without fat, add ½ pint milk or good stock to make the curry thick. Boil all up at once, and then let it stew gently for 3-4 hours. When ready add lemon juice or chili vinegar.

(*t*) Make the stewpan very hot, and then put some butter into it; when melted add onions cut into small pieces. When they are browned add your raw meat, also cut small, and simmer for 3 hours. When the

meat is well cooked add 1 dessertspoonful curry powder (more if liked very hot) and ½ teaspoonful curry paste, or less, mixed with a little drop of water. Breast of mutton is best, and a little fat is an improvement.

Custard (à la crème).—Beat up the yolks of 2 eggs with powdered sugar, according to taste; stir in ½ pint milk, and 1 or 2 teaspoonfuls orange flower water. Stir in a bain-marie on the fire, and when the sauce thickens it is ready.

Devil (à la diable).—(*a*) Take 2 tablespoonfuls black pepper, and ¼ spoonful cayenne; take some thick slices of meat, beef or mutton, or some legs of chicken or other poultry; cut the meat several ways, but not through, and put the pepper in the interstices; broil on a clear fire. Sauce.—2 tablespoonfuls roast-meat gravy, 2 port wine, ½ lemon juice, ½ respectively anchovy sauce, Harvey sauce, Worcester sauce, and Reading sauce, and a little shred lemon peel and some of the stuffing of duck or goose (if the "devil" is made of either); otherwise have a little chopped onion boiled tender in gravy, and put it into the sauce, which is only to be made hot on the fire.

(*b*) Cut up cold meat or bones, lay them in a shallow dish, and pour over them a mixture made thus: Take 1 teaspoonful powdered mustard, 2 teaspoonfuls each Worcester sauce and mushroom ketchup, 1 teaspoonful chili vinegar, ¼ teaspoonful cayenne, 1 teaspoonful salad oil, 1 of lemon juice, and 1 wineglassful claret. Put the dish into the oven, stir the meat about in it for 10 minutes or a little longer. This is very nice made of cold fowl or kidneys.

(*c*) Fry the meat brown in butter. Have ready a

mixture made as follows: some good gravy or stock, a little Worcester and tomato sauce and ketchup; chop very fine some mixed pickles, add them with pepper and salt, and stir well; when you have taken up the meat out of the pan, set the mixture in it to get hot, then pour it over the meat, and serve on a hot-water dish. Cold fish cooked in this way is also very good.

(*d*) The following is a most excellent devil mixture, which may be used for every sort of wet devil; pigs' feet, chicken legs, fish, and indeed almost anything, is very good when cooked with it: 4 tablespoonfuls cold gravy, 1 of chutney paste, 1 of ketchup, 1 of vinegar, 2 teaspoonfuls made mustard, 2 of salt, and 2 tablespoonfuls butter. Mix all the above ingredients as smoothly as possible in a soup plate; put with it the cold meat, or whatever you wish to devil, and stew gently until thoroughly tender.

(*e*) Take 4 tablespoonfuls gravy, 1 of mushroom ketchup, 1 of vinegar, 1 teaspoonful chutney or chowchow, 2 of made mustard, 1 of salt, and 2 tablespoonfuls butter. Mix all smoothly in a soup plate, put it with the cold fowl or turkey, and stew gently until hot through.

(*f*) Mix in a teacup equal quantities of mustard, ground pepper, and vinegar (a little Watkin's relish is an improvement when liked); take the bones, slit the meat down to the bone, and fill the slits with this mixture, rub it well in all over the meat, then broil over a clear fire, and send to table at once.

Dutch Sauce (Hollandaise).—(a) Put 3 tablespoonfuls vinegar in a saucepan, and reduce it on the fire to one-third; add ¼ lb. butter and the yolks of 2 eggs. Place the saucepan on a slow fire, stir the contents continuously with a spoon, and as

fast as the butter melts add more, until 1 lb. is used. If the sauce becomes too thick at any time during the process, add 1 tablespoonful cold water and continue stirring. Then put in pepper and salt to taste, and take great care not to let the sauce boil. When it is made—that is, when all the butter is used and the sauce is of the proper thickness—put the saucepan containing it into another filled with warm (not boiling) water until the time of serving.

(*b*) Melt 2 oz. butter in a saucepan, mix with it the yolks of 3 eggs, a good spoonful of flour, a little salt and nutmeg, and about 3 tablespoonfuls cold water. Stir this over the fire till on the point of boiling, when the sauce should be a little thick. Draw the saucepan to the side of the stove, and stir in slowly 3 oz. more butter, add the juice of a lemon, and serve hot.

(*c*) ½ lb. butter, 3 yolks eggs, 1 lemon, 10 whole grains black pepper, pinch salt. Break yolks of eggs into a saucepan, add the pepper, crushed but not powdered, the salt, the juice of lemon; whisk it well. In another saucepan melt the butter to cream (taking care not to boil), then with a spoon drop the butter slowly on to the eggs, stirring all the time; beat it well together, strain through a tammy cloth, and place the saucepan in a bain-marie until dinner is served; add a small piece of butter the last moment.

(*d*) The yolks of 2 eggs raw, ½ teacupful cream, piece of butter size of a walnut, 1 teaspoonful tarragon vinegar. Make the cream, butter, and vinegar hot, and pour gently over the eggs, stirring one way till well mixed.

(*e*) The yolks of 2 eggs, the juice of ½ lemon, ¼ lb. butter, 1 teaspoonful salt, and a little white pepper. Stir this in a clean stewpan over the fire till the

butter is melted (it must never boil), then stir in a pint of melted butter, and strain through a silk sieve. When wanted, stir it over the fire till hot.

Egg Sauce (Béarnaise, Mousseuse).—(a) Grate 2 oz. vanilla chocolate and stir into it ½ pint cream, and ½ pint milk with sugar to taste; when it boils add the yolks of 3 or 4 eggs, whisk until it froths well, return it to the stewpan, and stir until it thickens, but do not let it boil. Whisk the whites of the eggs to a stiff froth with a little sifted sugar, stir this to the rest, and serve at once.

(*b*) Flavour 1 pint milk with vanilla or any flavouring preferred, add sugar to taste, let it nearly boil, then stir in off the fire the yolks of 2 or 3 eggs and 2 teaspoonfuls flour; stir until it thickens. Beat up the whites of the eggs to a stiff froth with a little sifted sugar; at the moment of serving add the froth to the sauce, and it is ready.

(*c*) Put 3 or 4 shallots and a little garlic, with some allspice, roughly pounded, and a little mace, into a saucepan with a tumblerful of water and half that quantity of tarragon vinegar. Let the whole boil till reduced to one tumblerful; strain this liquor, and let it get cold; strain the yolks of 3 eggs, mix gradually with them the above liquor, salt to taste, and a 2 oz. pat of fresh butter; stir the mixture over a slow fire until it thickens, then add a small quantity of tarragon, finely minced, and serve.

(*d*) Egg Foam Sauce.—Rasp off the yellow rind of ½ lemon, with 1½ oz. loaf sugar. Put this, with 3 eggs and 1 teaspoonful arrowroot, in an enamel stewpan. Stir in ¼ pint water, and a tablespoonful of either brandy, rum, or maraschino. Set it over the fire, and whisk it thoroughly till the froth fills the stewpan. This may be served with either warm or

cold dishes.

Epicurean Sauce.—8 oz. each mushroom ketchup and walnut ketchup, 3 oz. shallots, 2 oz. each port wine and Indian soy, ½ oz. each cloves and white pepper, ¼ oz. cayenne; macerate 14 days in warm place; filter; add white wine vinegar to make 1 pint.

Fairy Butter.—Take the yolks of 2 hard-boiled eggs and beat them in a mortar with 2 tablespoonfuls pounded white sugar and 1 teaspoonful orange flower water, or any flavouring that is preferred. When brought to a smooth paste add ¼ lb. fresh butter and mix all well together. Then put it into a very coarse cloth and force it through it (by squeezing and wringing it) on to a dish.

Fennel Sauce (au Fenouil).—Blanch a small quantity of fennel in boiling water and salt for a minute, take it out, dry it on a cloth, and chop it finely; melt 2 oz. butter, add 1 tablespoonful flour to it, mix well, put in pepper and salt to taste, and a little more than a tumbler of hot water; stir on the fire until the sauce thickens and begins to boil. Take the saucepan off the fire, stir into it the yolk of an egg beaten up with the juice of half a lemon, and add plenty of chopped fennel.

Fine Herbs (Provençale).—Put into a saucepan 1 gill salad oil, 1 onion, 1 tomato, 3 or 4 button mushrooms, and a small piece of garlic, all finely chopped. When the whole has been on the fire a few minutes, add 1 tablespoonful flour and stir well; then pour in 1 glass white wine and ½ pint stock, add a bunch of sweet herbs; pepper and salt to taste, 2 cloves, and a bit of nutmeg. Let the sauce boil for ¼ hour, then strain and serve.

Fish Sauce.—(*a*) 1 pint nasturtium blossoms to be

gathered, and put into a jar with 1 qt. good vinegar, 6 shallots, 3 teaspoonfuls salt, 2 of cayenne pepper; let these stand together for 7-9 days, then strain the liquid off, and to every pint of it add 2 oz. soy, and the same of essence of anchovies. Bottle this and cork it well. This sauce is also good with game.

(*b*) 2 oz. butter, 1 large dessertspoonful flour, 2 tablespoonfuls mushroom ketchup, 1 dessertspoonful anchovy essence, 1 of chili vinegar, 1 teaspoonful pounded sugar, 1 of Indian soy, 1 gill gravy, 1 wineglass sherry. Proceed thus: Put into a small copper stewpan the butter, let it dissolve and stir into it with a wooden spoon a large dessertspoonful of flour; stir this over the fire till it begins to brown. Now put in the gravy and stir over the fire till it begins to thicken; then add the other ingredients, leaving the sherry till the last; it should be smooth and rather thick. The wine should never boil long, as it loses its flavour.

(*c*) Make ½ pint white sauce, add 1 tablespoonful curry powder, and some pickles chopped up small with a little of the vinegar.

(*d*) The yolks of 2 eggs, ½ teacupful cream, a little cayenne pepper and salt. Mix them together and simmer in a pan, stirring all the time till it thickens. When cold, add 2 tablespoonfuls vinegar.

Forcemeat.—(*a*) Pound to a paste in a mortar slightly rubbed with garlic equal parts veal and fat ham or bacon, then pass them through a wire sieve, and return them to the mortar. Work into the paste thus obtained ¼ its bulk of butter, and about the same quantity of breadcrumbs, soaked in milk or in stock, with the yolks of one or more eggs according to quantity. Add some minced parsley and pepper, salt, spices, and powdered sweet herbs, to taste.

(*b*) Breadcrumbs, hare's liver scalded and then minced fine, with ½ lb. ham, 1 anchovy, some lemon peel, sweet herbs, well seasoned by salt, pepper, and nutmeg, if the flavour be liked will, when mixed with 1 glass port and 2 eggs, make a good forcemeat for hare. Add a little fresh butter to it if the ham be lean.

(*c*) ½ lb. breadcrumbs, ¼ lb. chopped suet, 1 teaspoonful white pepper, 2 of salt, 1 tablespoonful chopped parsley, one of sweet marjoram, one egg, and a little milk. Beat all together, and make into small balls.

(*d*) Take 1 part finely shredded suet and 2 of breadcrumbs, season with pepper, salt, powdered spices, sweet herbs, and finely minced parsley; mix all well together, then add as many eggs as will bind the ingredients together into a stiff paste.

Gascony Butter.—Take equal quantities parsley picked from the stalk and parboiled, anchovies washed, boned, and pounded, and fresh butter. Mix the ingredients well together, and pass them through a hair sieve; shape the butter into egg-shaped balls, ice them, and serve with a piece of toast under each ball.

Gherkin Sauce (aux Cornichons).—Put ½ pint vinegar into a saucepan, with a clove of garlic, 2 shallots finely minced, a sprig of thyme, a bay leaf, pepper and spices to taste, and, if liked, a little cayenne; let the whole boil for ½ hour, then add ½ pint stock or broth. Melt a piece of butter the size of an egg, mix a little flour with it, then the above liquor carefully strained. Stir the sauce till it boils, add salt if required, a little minced parsley, and 2 or 3 pickled gherkins finely minced.

Glaze.—(*a*) Take 4 lb. shin of beef, 4 lb. knuckle of

veal, and 1 lb. lean ham, cut them into small pieces, and put them into a stockpot with about 2 qt. cold water—enough to cover the meat—let it come gradually to the boil, skim carefully, occasionally adding a dash of cold water; when clear boil it for 8 hours more, and then strain it through a sieve into a pan. Remove the fat when quite cold. Pour it into a stewpan—be careful not to let the sediment go in—with 1 oz. whole black pepper, ½ oz. of salt, and boil it over a clear fire, leaving the pan uncovered. Skim, and when reduced to 1 qt. strain it through a tammy into another stewpan; then let it simmer till—on taking out some with a spoon and allowing it to cool—it will set into a jelly; great care is required to keep it from burning. It should be kept in earthenware pots, and when required for use melted by putting the pots into saucepans of boiling water. To glaze hams, tongues, &c., wash them over with the melted glaze, using a brush which should be kept for that purpose.

(*b*) Melt 2 oz. butter and 2 oz. lump sugar in saucepan till brown, add 2 spoonfuls jelly made from shank of mutton or gelatine; let all boil up. Put it over the tongue or ham with a feather or brush.

Governor's Sauce.—The following is a Canadian recipe: Slice 1 peck of green tomatoes, sprinkle them with a cupful of salt, and let them stand a night; in the morning pour off the liquor, and put them into a saucepan with vinegar enough to cover them. Add 6 green or red chilies, 4 large onions chopped fine, 1 teacupful brown sugar, 1 of scraped horseradish, 1 tablespoonful each cloves and allspice, and 1 teaspoonful each red and white pepper. Let it simmer till soft, put into jars, and keep air-tight. (Bessie Tremaine.)

Gravy (Jus).—(*a*) Cut up an onion, carrot, and turnip, and fry them a nice brown in oil or butter; then dust in a tablespoonful of flour, and brown that also. Add 1 pint boiling water, parsley, herbs, a bay leaf, pepper and salt, and a little vinegar, and let it simmer by the side of the fire for ½ hour or more. Just before serving add a tiny piece of sugar and a little spice, a teaspoonful of anchovy or other sauce, or a little lemon, should it be available. If it is not a good colour, it must be coloured with burnt sugar; but a few onion skins put in at first will probably make it dark enough.

(*b*) To Colour.—Burnt Spanish onions, to be obtained at any Italian warehouse. Put a small piece into a basin, pour some boiling water on it, and mash it with a spoon. Pour into and boil with the gravy.

(*c*) Ditto.—Make an iron spoon very hot, put into it some moist sugar, and drop it into the gravy.

(*d*) Ditto.—A few bakers' raspings will both thicken and brown gravies.

(*e*) Ditto.—Flour, baked in a tin dish until it is well browned, is a very good colouring to keep ready for use.

(*f*) Ditto.—Put a lump of butter and 1 tablespoonful flour into a stewpan, stir, and let it get well browned; pour to it a little water or meat broth; have ready some shallot, parsley, and onions chopped very fine, throw all in the pan, with pepper and salt, and a few drops of vinegar; put in your meat, but only let it get warmed through.

(*g*) Put 1 slice of ham, 1 lb. gravy beef, 1 lb. veal, 1 onion, 1 clove, some celery, a faggot of herbs, a little lemon peel, 1 liqueur glass sherry, and just enough water to cover them into a stewpan. Cover it close

and simmer till nearly dry, but do not let it burn, turn the meat occasionally. Then pour over it 1½ pint boiling water, and boil gently for 2 hours; skim and strain. Mix 1 oz. flour with 1 oz. butter, moisten it with a little of the gravy, then add it gradually to the rest, simmer altogether for ½ hour, remove any scum that may rise, strain again and serve.

Green Butter.—(*a*) 4 sardines or anchovies, well washed, and pounded in a mortar; 4 oz. parsley free from stalk, and boiled till tender, the water to be well squeezed out, then chopped and rubbed through a sieve with the anchovies, and 2 oz. fresh butter. Make it up into shapes.

(*b*) Pick and boil 2 oz. parsley; wash and bone 2 oz. anchovies, and pound them with the parsley; rub it all through a sieve; mix well with 4 oz. fresh butter; shape it into one large or several small pats, as you please, and serve it with a lump of ice and some hot dry toast.

Grill Sauce.—(*a*) 1 tablespoonful cream, 1 of vinegar, ketchup, 1 teaspoonful mustard, Harvey or Reading sauce, a little cayenne and salt; warm in a saucepan, and pour over the grill.

(*b*) Take 1 oz. butter, and knead into it 1 teaspoonful mustard flour, ½ saltspoonful cayenne pepper, and the same of white pepper. When mixed put it into a small enamelled saucepan; stir until it is melted, when add to it 1 wineglass port wine, 1 teaspoonful Worcester sauce, the same of Harvey sauce, ½ teaspoonful soy, the same of essence of anchovies, and 1 dessertspoonful mushroom ketchup. Stir it over the fire until at boiling point, and send it to table in a warmed butter boat. This sauce will be found good with any kind of grilled bones.

Harvey Sauce.—12 oz. quin sauce, 4 oz. soy, ¼ oz. cayenne.

Horseradish Sauce (Raifort).—Grate a quantity of horseradish, boil it in sufficient water to give it the consistency of sauce, add a pinch of salt and 2 or 3 tablespoonfuls tarragon vinegar, then stir in off the fire 1 gill cream beaten up with the yolk of an egg; or, if a cold sauce is desired, make it as follows: Grate a good-sized stick of horseradish very fine, take the yolks of 2 eggs, ½ gill cream, and mix them well together; add 2 tablespoonfuls vinegar, by degrees to prevent it curdling; pour the mixture over the horseradish, stir all well together, and serve in a small dish. If made in very hot weather, it is better for standing on the ice a little while before serving.

Jam Sauce—Mix ½ pot apricot jam with a cupful of water; warm it on the fire, add a wineglassful of sherry, pass through a fine hair sieve.

Liver Sauce.—Take the livers of any kind of poultry, rabbits, or hares; scald them and mince them finely. Melt a piece of butter in a saucepan, add a little flour to it and a small quantity of minced shallots. Let the whole fry for a minute or two, then add gravy stock in sufficient quantity to make a sauce, a small pinch of powdered sweet herbs and pepper, spices and salt to taste. Put in the minced livers and a glass of port wine. Let the sauce boil for 20 minutes, and at the time of serving add a small piece of fresh butter and the juice of half a lemon.

Lobster Sauce (Homard).—Take a hen lobster, pick out the meat, and break it into pieces, not too small; pound the shell of the lobster and the spawn with some butter till a smooth paste, pass it through a sieve; make 1 pint melted butter, put the meat from

the lobster into it, add a dust of cayenne, and when the sauce boils stir into it the lobster butter that has come through the sieve, and ½ pint cream.

Maître d'Hôtel Butter.—(*a*) Put 2 oz. fresh butter into a basin, with the juice of a lemon, pepper and salt to taste, and a small quantity of parsley freed from moisture and finely minced. Incorporate the whole well together, and keep it in a cool place till wanted.

(*b*) Melt ¼ lb. butter in a clean saucepan with some very finely minced shallot (or chives) and parsley, pepper, salt, and the juice of 1 lemon. Stir it well till done, and pour over, or round, the fish or meat with which it is to be served. This recipe is improved by the addition of a couple of spoonfuls of béchamel, or rich white sauce and the yolk of one egg.

Marmalade Sauce (Orange).—Dilute ½ or ¼ pot marmalade—according to amount of sauce required —with half the quantity of water. Boil it up, strain, and pour over the pudding. White wine may be substituted for the water, or a little brandy may be added to the water.

Melted Butter (au Beurre).—(*a*) Put a piece of butter half the size of an egg into a stewpan; when melted add ½ tablespoonful flour; and stir over the fire a few minutes; add 1 gill hot water, and stir until boiling, then add a good pinch of salt and the yolk of 1 egg previously beaten up with 1 tablespoonful milk, stir it into the butter; strain and serve. (Jane Burtenshaw.)

(*b*) Melt 1 oz. butter, and add to it 1 dessertspoonful flour, salt, and white pepper to taste; stir on the fire for a minute, then put in a little more

than a tumblerful of boiling water; keep on stirring for 5 minutes, but do not let the sauce boil.

Mint Sauce (Menthe).—Chop as finely as possible a quantity of mint leaves, previously washed. Add to them sufficient white wine vinegar and water in equal parts to float them, and a small quantity of powdered sugar. Let the sauce stand for an hour before serving.

Mustard.—(*a*) 9 oz. water, 8 oz. mustard flour, 2 oz. salt; mix smooth; add 6 oz. more water, mix.

(*b*) Take a good heaped handful of salt, put it into a jug, pour 1 pint boiling water; let this get cold, then mix it with as much mustard as it will use up, and put the mixed mustard in a jar and cover it; it will keep good, and not dry and discolour in the mustard-pot.

(*c*) Mix 1 qt. brown mustard seed with a handful each of parsley, chervil, tarragon, and burnet, a teaspoonful of celery seed, and cloves, mace, garlic, and salt according to taste. Put the whole into a basin, with enough wine vinegar to cover the mixture. Let it steep 24 hours, then pound it in a marble mortar. When thoroughly pounded pass it through a fine sieve; add enough vinegar to make the mustard of the desired consistency, and put into jars for use.

(*d*) Take mixed whole spices, and boil in vinegar with 2 lumps sugar; then mix mustard into a stiff paste with cold vinegar. With a red-hot Italian iron heater stir quickly while you mix the boiling vinegar after straining the spices. This will keep for years, well corked in a wide-necked bottle.

Olive Sauce.—Mix quite smoothly 1 spoonful flour

in 4 of good salad oil, add 6 shallots, chopped, with a very little lemon peel, mix with stock and 2 tablespoonfuls vinegar, some pepper and salt, and a bay leaf. Boil for 20 minutes, and strain. Place on the fire again, and add 6-8 stoned olives, cut up small. Serve round a mince of mutton.

Onion Sauce (pauvre homme).—(*a*) Peel and parboil some onions, drain, and cut them in quarters, put them into a stewpan with sufficient well-flavoured white stock to cover them; keep on the lid, and simmer gently until quite tender, pass them through a sieve; add to the pulp sufficient milk, cream, or béchamel sauce as will be necessary to make the sauce; stir over the fire until quite hot, add seasoning of pepper and salt if required, and it is ready.

(*b*) Parboil some onions a few minutes, mince them roughly and put them into a saucepan, with plenty of butter, a pinch of sugar and pepper and salt to taste; let them cook slowly, so that they do not take colour, and add 1 tablespoonful flour. When they are quite tender pass them through a hair sieve. Dilute the onion pulp with sufficient milk to make the sauce of the desired consistency; add a tablespoonful of Parmesan cheese, stir well, make it hot, and serve.

(*c*) Boil some onions in milk, with pepper, salt, and nutmeg. When quite done pass them through a sieve. Put some butter and flour into a saucepan; when the butter is melted and well mixed with the flour put in the pulp of the onions, and add either milk or cream, stirring the sauce on the fire until it is of the desired consistency.

Orange Sauce (Bigarade).—Pare off, as thinly as possible, the yellow rind of 2 Seville oranges; cut it

into very thin shreds, and boil them in water for 5 minutes. Melt a piece of butter in a saucepan, add to it 1 tablespoonful flour, and stir until it begins to colour; add a gill of stock, pepper and salt to taste, the juice of the oranges, and a good pinch of sugar; then put in the boiled rinds, stir the sauce until it boils, and serve.

Oyster Sauce (aux Huîtres).—(*a*) Parboil the oysters in their own liquor, beard them, and reserve all the liquor. Melt a piece of butter in a saucepan, add a little flour, the oyster liquor, and enough milk to make as much sauce as is wanted. Put in a blade of mace and a bay leaf tied together, pepper and salt to taste, and the least dust of cayenne. Let the sauce come to the boil, add the oysters, and as soon as they are quite hot remove the mace and bay leaf. Stir in a few drops of lemon juice, and serve.

(*b*) To make this in perfection is really one of the simplest operations in cookery Open 24 oysters; scald them, beard and wash them, and strain the liquor from them very carefully. Put all this into a stewpan of rich melted butter; let the oysters get thoroughly hot through; add the juice of a lemon, and serve.

(*c*) Mock.—1 teacupful good gravy, 1 of milk, 3 dessertspoons anchovy sauce, 2 of mushroom ketchup, 2 oz. butter, 1 teaspoonful pounded mace, whole black pepper. All to be boiled until thoroughly mixed.

Parsley (au Persil).—(*a*) Pick the parsley while quite green, wash it in cold water to remove all dust, &c., cut off all the stalks, and lay it on paper before the fire till quite crisp. It is never so good a colour if dried in the oven. Crumble it in your hands, then pass it through a wire sieve, which will retain all the stalks and let the parsley go through; put it into

wide-mouthed bottles, and cork tightly. When required for use, boil it with a little soda for 5 minutes.

(*b*) And Butter.—Melt 1 oz. butter, and add to it 1 dessertspoonful flour, salt, and white pepper to taste; stir on the fire for 2 minutes, add a little more than 1 tumblerful boiling water by degrees, and a small quantity of parsley, blanched and finely chopped; keep on stirring for 5 minutes, but do not let the sauce boil.

(*c*) Fried.—Pick out a number of sprigs as much of a size as possible, hold them together by the stalks, and shake them repeatedly in cold water, so as to thoroughly wash them; then shake out the water from them, and dry them thoroughly and effectually in a cloth, cut off the stalks close, put the parsley in the frying basket, and dip it for about a minute in boiling hot lard or oil, never ceasing the while to shake the basket. Turn out the parsley on a napkin in the screen in front of the fire to drain. Parsley should be fried just before it is wanted.

Pepper Pot.—(*a*) Get a buck pot (those made by the Buck Indians in Demerara are the best), and put into it 1 qt. cold water, 3 tablespoonfuls cassareep, salt to suit taste, and a handful of "bird" peppers. Your meat must be well cooked, and after cutting it into small pieces throw it into the liquor in the pot, and let it boil for ¾ hour. The pepper-pot is now fit for use, but you will find it better and more palatable when many days old. You can from day to day add any broken pieces of meat left from table, taking care to warm your pot every day, to see that the meat is always covered with gravy, and never to put fish into it. You may put hard-boiled eggs and cooked meats of all sorts, whether fresh or salted; the greater the

variety, the sweeter your pot. When fresh gravy is added (i.e. your qt. of water, and 3 tablespoonfuls cassareep, &c.) you must take care to have your pot boil for ¾ hour, as at first. Take care not to cover your pot, when put aside, till cool. Pork and ox tail are the best things to start the pot with. The "odds and ends" are scraps of any sort of flesh or fowl, drumsticks, &c. When handed round (the pot itself should come to table neatly covered with a table napkin), rice (of course boiled separately) should be handed at the same time, and on no account put into the pot. If a proper "buck" pot cannot be obtained, a round earthenware one is a fair substitute.

(*b*) Take a good-sized jar (jam-pot shape if possible), into it put any cold cooked meat you have, viz. ham, bacon, fowl, rabbit, game, beef, or mutton, &c.; mix them together, flavour with shallot, cayenne pepper, and salt; pour in some good stock, and plenty of cassareep sauce; this last ingredient is difficult to obtain out of the West Indies. It is by far the best; but if unobtainable, add soy or Harvey's sauce to taste. Make thoroughly hot in the oven; serve with a table napkin folded round the pot. The pepper-pot is kept going for weeks without cleaning, and is replenished with the various ingredients as required. The West Indians improve its flavour by adding their own native green and red pepper pods, which are very hot.

Plum Pudding Sauce.—(*a*) Fresh butter and powdered lump sugar beaten together until the mixture becomes of the consistency of cream.

(*b*) Beat up the yolks of 6 new-laid eggs with 6 tablespoonfuls powdered lump sugar; add ½ tumbler pale brandy, and rather more than ½ tumbler sherry; put the mixture in a jug, place this in a saucepan full

of boiling water, and froth up the sauce for about 10 minutes with a chocolate mill.

(*c*) The best French pale brandy.

(*d*) Foam Sauce.—1 cup white sugar, 3 of butter, 1 tablespoonful flour. Beat to a cream, put it on the stove, and add 1 wineglassful sherry or ½ wineglass brandy; stir quickly until it is all foam.

(*e*) Hard Sauce.—4 oz. butter, 5 oz. sugar, beaten to a cream; pile it on the dish. You can add a scrape of nutmeg or a little lemon juice when beating it, or brandy, as you like—not enough to thin it, only to flavour.

(*f*) Beat up together ¼ lb. butter, 4 teaspoonfuls brown sugar, 1 egg, and 1 wineglassful wine. Boil it up once, and serve immediately.

Polish Sauce.—Put a piece of butter and 1 tablespoonful sugar in a stewpan, and when melted throw in 1 tablespoonful flour and let it brown. Then stir in ¾ pint red wine; add a good handful of currants washed and picked, the same quantity of raisins stoned, a small handful of almonds blanched, powdered cinnamon and bruised cloves. Let all simmer ¼ hour or till the currants are plumped and soft.

Prune Sauce.—Boil ½ lb. prunes in a little water till soft, then take out the stones and break them in a mortar; put the fruit and crushed stones in a stewpan with a glass of wine, the juice of a lemon, and a strip of its peel; add ½ teaspoonful powdered cinnamon, some sugar, and the syrup in which the prunes were boiled; simmer a few minutes, then pass the sauce through a coarse sieve. If too thick, add a little more water or wine.

Pudding Sauce.—(*a*) Pour ½ pint fast boiling water on 1 large tablespoonful flour, mixed smoothly in 1 gill ale. Sweeten with 2 oz. raw sugar, add a large pinch of grated nutmeg, or any other spice, stir over the fire until it boils, then put in 1 oz. butter, and when it is dissolved the sauce will be ready.

(*b*) The yolks of 4 eggs, and the juice of 2 lemons, sugar to taste, and if you choose, a wineglass of hock; make these hot in a pan, and when it begins to thicken, add the whites, which have been beaten to a froth, and serve with the pudding almost directly.

(*c*) Scald 1 oz. Jordan almonds and 6 bitter almonds; bruise them in a mortar with 4 oz. sugar and 1 tablespoonful *eau de fleurs d'oranger* to a pulp. Put this in a small stewpan, with 1 gill of cream, 2 yolks raw eggs, and with a wire whisk whip the sauce (always one way) over a very slow heat till it becomes a substantial smooth froth.

(*d*) A little caramel, the yolks of 2 eggs, ¼ pint cream, ½ glass brandy or sherry, stir in a jug till it thickens; put on ice to cool.

Quin Sauce.—2 gal. each mushroom ketchup and walnut ketchup, 1 gal. soy, 1 lb. garlic, 6 lb. sprats; boil ¼ hour; strain; bottle.

Raspberry Sauce.—Put into a stewpan 4 well-beaten eggs, 2 teaspoonfuls flour, 1 pint fresh raspberry juice, and ¼ lb. sugar; whisk this over the fire till it thickens and rises well; serve while it is light and frothy. Other similar fruit may be used in the same way. If red currants be chosen more sugar will be required.

Ravigote Sauce.—(*a*) Take equal parts parsley, chervil, garden cress, and tarragon; mince them very finely. Rub a saucepan with shallot, melt a piece of

butter in it, add a little flour, mix thoroughly, then add stock *quant. suff.*, pepper, salt, a glass of white wine, and the herbs. Let the sauce come to the boil, then throw in a small pat of butter, a squeeze of lemon, and serve.

(*b*) Pound in a mortar some fine herbs, previously chopped—viz. parsley, chervil, cress, pimpernel, celery, chives, scallions—a spoonful of capers, 1 or 2 anchovies; reduce to a smooth paste, add the yolk of an egg, salt, pepper, 1 spoonful oil, and 1 of vinegar.

Rum Butter.—Grate 1 lb. coarse brown sugar as fine as possible, add ½ small nutmeg grated, melt a little over ¼ but not quite ½ lb. butter, stir in the sugar and nutmeg; add 1 wineglassful good rum, and beat it well up. Pour into a deep glass dish or basin, and when cold sprinkle powdered white sugar well over it.

Sharp Sauce.—(*a*) Robert.—Put a large piece of butter rolled in flour into a saucepan, add chopped and blanched parsley and mushrooms, a little chopped shallot, and the least bit of garlic. Moisten with a cupful of stock, add salt, a grate of nutmeg, and some English mustard; amalgamate thoroughly, and serve in a boat.

(*b*) Poivrade.—Take 3 parts olive oil, 1 of tarragon vinegar, a little mustard, plenty of pepper and salt to taste, beat them up with a fork until perfectly amalgamated.

(*c*) Piquante.—3 cloves garlic, 3 shallots, 3 anchovies, 2 tablespoonfuls mushroom, 1 oz. cayenne. Bruise all well together in a mortar, and mix with them 1½ pint boiling vinegar. Shake the bottle occasionally, and let it stand 2-3 weeks. Then strain and bottle for use.

(*d*) Brown Sharp Sauce.—Cut a small carrot and a few shallots into dice, put them into a stewpan with a small pat of butter, some parsley, and parsley roots, 2 or 3 slices lean ham, a little thyme, ½ bay leaf, a clove, a little mace, and a few grains of peppercorn and allspice. Set the stewpan on a slow fire till the contents attain a fine brown colour; keep stirring with a wooden spoon; pour into it 4 tablespoonfuls white vinegar, and add a lump of sugar. This must reduce until almost a glaze. Moisten this with some rich brown gravy, preferably with that made from veal and ham, but in any case it must have had mushrooms, parsley, and green onions boiled in it for flavouring, a little plain consommé should also be added; season with a little cayenne and salt. This should be tasted to ascertain whether it be salt enough, and also to ensure its not being too acid; should it be so, add a little more of the brown gravy; skim off the fat, strain the sauce through a tammy, and serve.

(*e*) White Sharp Sauce.—Put a small bunch of tarragon into a stewpan with 4 tablespoonfuls white vinegar (or, if there be no fresh tarragon, tarragon vinegar may be used), and about 20 peppercorns; let the vinegar reduce to a quarter of its original quantity. Have ready some good white sauce which has been flavoured with a few mushrooms, a bunch of parsley, and green onions. Pour 6 tablespoonfuls of this sauce into the stewpan with the vinegar, and 2 tablespoonfuls stock; let this reduce over a hot fire. Strain it through a tammy, and then put it again on the fire. When it has boiled, take it off the fire, thicken it with the yolks of 2 eggs and stir in a small bit of butter. Should it be rather brown, add a spoonful of cream to restore the white appearance, and add a little cayenne pepper and salt.

Shrimp Sauce (Crevette).—Take ½ pint shrimps, pick out all the meat from the tails, pound the rest in a mortar with the juice of half a lemon and a piece of butter; pass the whole through a sieve. Make 1 pint melted butter, put the meat from the tails into it, add a dust of cayenne, and when the sauce boils stir into it the shrimp butter that has come through the sieve, with or without a tablespoonful of cream.

Soubise Sauce.—Peel and blanch 6 onions, cool them in water, drain, and put them in a stewpan with sufficient water or white stock, to cover them; add some cayenne, bay leaf, a little mace, a small piece of ham or bacon; keep the lid closely shut, and simmer gently till tender, take them out, drain thoroughly, press through a sieve or tammy cloth, add ½ pint béchamel made in the following manner: Put into a stewpan a little parsley, 1 clove, ¼ bay leaf, some sweet herbs, and 1 pint white stock; when boiled long enough to extract the flavour of the herbs, &c., strain it, boil up quickly, and reduce to half the quantity, mix 1 tablespoonful arrowroot with ½ pint milk or cream, pour on the reduced stock, and simmer for 10 minutes.

Spinach Greening.—Take enough spinach for a small dish, wash, and pound it in a mortar until quite soft; then lay it in a strong, clean kitchen cloth to wring out the juice. This is best done by 2 persons, one at either end of the cloth, each twisting the extremity round a wooden spoon to form a handle. This will enable them to wring the cloth so tightly as to easily extract all moisture from the spinach. This juice must be immediately placed in a small stewpan and held over the fire until it thickens, it must be then turned out upon a hair sieve to drain away the watery part. When this has all come away, rub the

spinach green through the sieve with a wooden spoon, and it is then ready for use.

Sweet Sauce.—(*a*) Melted butter and sugar.

(*b*) Ditto, with addition of either raspberry juice or raspberry vinegar.

(*c*) Mix arrowroot with cold water, pour boiling water on it, stirring till it thickens. Add to this lumps of broken sugar which have been rubbed on lemon peel (to imbibe the flavour), and the strained juice of a lemon.

(*d*) Cut the peel of a large lemon into very narrow strips, let them remain in water by the fire for 1-2 hours, then boil them up with Demerara sugar till like syrup, squeeze the juice in, put the lemon straws on the pudding, and pour the sauce over. This sauce is very good with Sir Watkin's pudding.

(*e*) Melted currant jelly, with or without the addition of a little water. Wine or rum would be a considerable improvement to several of the above recipes (though not essential), especially to (*e*).

Tartare Sauce.—(*a*) Stir into the yolk of a new-laid egg, drop by drop, 1 tablespoonful salad oil; when well mixed, add by degrees a little chili vinegar, 1 tablespoonful of vinegar, 3 teaspoonfuls mustard, a little salt and pepper, and some finely chopped parsley; beat all until of the consistency of cream; cover closely, and set in a cool place until wanted. It should be made 4-5 hours before used.

(*b*) To the yolks of 2 hard-boiled eggs add the yolk of 1 raw egg, 1 teaspoonful mustard and a little salt. Mix the whole well together, then by degrees add ½ pint salad oil. Beat the whole well together until it becomes of the consistency of good paste, then add

tarragon vinegar to taste. When the sauce is to be sent to table add a little chopped tarragon and chervil.

(*c*) Take 2 or 3 shallots, some chervil, and tarragon. Shred them fine, then add some mustard (either dry or wet), salt, pepper, and a very little oil and vinegar, stirring constantly. If your sauce gets too thick put a little more vinegar, and if it tastes too salt add a little oil and mustard.

Tomato Sauce (Tomate).—(*a*) 10 lb. ripe tomatoes, 1 pint best brown vinegar, 2 oz. salt, ½ oz. cloves, 1 oz. allspice, ½ lb. white sugar, 1 oz. garlic, ½ oz. black pepper, ½ oz. cayenne pepper. Wipe the tomatoes clean, and boil or bake till soft; then strain and rub through a sieve that will retain the seeds and skins. Boil the juice for 1 hour, then add the above ingredients (all the spices must be ground). Boil all together for a sufficient time, which may be known by the absence of any watery particle, and by the whole becoming a smooth mass; 5 hours will generally suffice. Bottle without straining into perfectly dry bottles, and cork securely when cold. The garlic must be peeled. The proportions of spice may be varied according to taste.

(*b*) Take 1 peck tomatoes, 10 large onions, or shallots in proportion, 6 capsicums, and ½ lb. salt. Cut the tomatoes, onions, and capsicums very small, and work them well together with the salt. Let it stand 3 days in an earthen vessel, then add 1 oz. black peppercorns, 1 oz. allspice, and a few cloves, and boil it for nearly 1 hour, stirring it often to prevent it from burning. Then beat it through a colander, and when cold add ½ pint vinegar to keep it from fermenting, and bottle it up, adding 1 tablespoonful vinegar at the top of each bottle. Cork

and seal it down, and it will keep for years.

(*c*) Choose ripe tomatoes, and bake till tender, pulp through a sieve. To every lb. of pulp allow 1 pint chili vinegar, 1 oz. garlic, 1 oz. shallot, plenty of horseradish, ½ oz. ground white pepper, ½ oz. salt. Boil the whole together until every ingredient is tender. Rub the mixture through a sieve; then to every lb. add the juice of 2 lemons. Boil the whole together until it attains the consistency of good cream. When cold bottle it; keep it dry and cool.

(*d*) Break with a wooden spoon ½ sieve ripe tomatoes, and rub them through a hair sieve into a preserving pan; set the pan on the fire, and keep stirring them until they boil well and become of the consistency of very thick cream; as soon as they boil, add 2 oz. shallots and 1 oz. garlic, keep stirring, and, just before taking them off the fire, put in a few chilies or a little cayenne pepper, adding salt to taste; pour off into wide-mouthed bottles as soon as sufficiently boiled, and when cold cork the bottles, covering the corks with resin.

(*e*) Cut up the tomatoes, and put them into a saucepan containing a little water, with some parsley, basil, marjoram, thyme, and laurel leaf according to taste, a clove of garlic, a few cloves, some whole pepper, and salt. Let them boil till thoroughly done, then strain off the water, and pass them through a hair sieve. Put a piece of butter in a saucepan, add to it when melted a spoonful of flour and the tomato pulp; mix thoroughly, and when hot the sauce is ready. (The G. C.)

(*f*) To every lb. tomato (ripe) rubbed through a sieve, after being baked, add 1 pint vinegar, 1 oz. garlic, 1 oz. shallot sliced very fine, ½ oz. white pepper, ½ oz. salt. Boil these together, and strain

them through a hair sieve. To every lb. add the juice of 3 lemons, and boil the whole together till it has acquired the consistency of cream. When cold bottle it, and keep it in a dry place well corked.

(*g*) Boil in a covered jar, in a saucepan of water, ripe tomatoes, with ¼ oz. shred shallots to every lb. of the fruit. When quite tender rub the pulp through a sieve, and to every lb. add 1 pint vinegar and the juice of 2 lemons, ½ oz. salt, ¼ oz. white pepper ground, and 1 small teaspoonful cayenne pepper. Boil over a slow fire until the sauce is sufficiently thick. Keep it in ½ pint bottles, well corked and covered with bladder, in a dry place. Capsicums may be used instead of the cayenne, and if liked a very small quantity of garlic; either or both must be boiled in the jar with the tomatoes.

(*h*) Slice tomatoes, put them in a weak solution of salt and water for 2 days, then scald them well, as the salt is not to season but to toughen them a little. Put them in a kettle with water enough to just prevent them from burning, and let them slowly cook for an hour; then add 1 qt. vinegar, 1 full tablespoon each of powdered mace, allspice, and cloves, ½ spoonful mustard seed, 1 teacup brown sugar, and a few slices of onion. A little celery seed or other flavouring of celery is an improvement. Pour this on, and cook ½ hour longer.

(*i*) ¼ peck green or half-ripe tomatoes, 3 onions (or shallots, if preferred); slice them, cover with vinegar, and stew them well, with a spice bag of pepper, cloves, ginger, and chilies, until quite a pulp, when strain all the vinegar away, and press the pulp through a coarse sieve. Mix in a little cold vinegar, 1 oz. arrowroot, 1 oz. mustard, mix this with boiling vinegar, and add all to the pulp with cayenne pepper

and salt to taste. Just boil it all up again, adding as much of the vinegar the tomatoes were stewed in as will make the sauce as thick as good cream. Sugar may be added if the tomatoes are very sour.

(*j*) Gather the tomatoes quite ripe on a sunny day. Cut them into quarters, and put them into a saucepan with salt *quant. suff.*, a good handful of basil, and 3 or 4 cloves of garlic. A little water should be put into the saucepan to prevent the tomatoes catching. When they are thoroughly done turn them out upon a hair sieve, and wait till all the water has drained from them. Throw away this water, and pass the tomatoes through the sieve. The pulp thus obtained is put into a saucepan to boil for about ½ hour, and a moderate quantity of black pepper maybe added according to taste. When the sauce is quite cold, put it into wide-mouthed bottles, cork tightly, and tie up each cork with string or wire; dip the neck of each bottle into melted rosin, and you may then put them away to be used when required. The bottles should be of moderate size, for, once opened, the sauce will no longer keep good. Another way consists in letting the tomato pulp reduce in the saucepan until it assumes the appearance of a very thick paste, care being taken to stir it constantly. When cold it is put away like jam, in pots. When wanted for use, a small quantity of it is dissolved in hot water. (The G. C.)

(*k*) Bake tomatoes when quite ripe until quite tender, then rub them through a coarse sieve; weigh, and for every lb. of pulp take 1 qt. chili vinegar, 1 oz. garlic, 1 oz. shallots, both peeled and sliced, and a ¼ oz. salt. Boil the chili vinegar, garlic, shallots, and salt together until the ingredients are tender; them rub them through a sieve, and to each lb. of all

the ingredients mixed together add the juice of 3 lemons. Boil the whole again to the consistency of thick cream, bottle it when quite cold, and keep it in a cold dry place. ½ pint good ketchup should be added to the sauce when opened for use.

(*l*) Zuchillo (Tomato sauce to dress macaroni with).—Take about 1 lb. trimmings of beef, as much fat bacon, all cut into dice, and put them into a saucepan with an onion cut into dice, then thrown into cold water and squeezed dry in a cloth; add or not a clove of garlic; then put the whole into a saucepan, and let it remain on the fire, shaking it occasionally, till the onion is almost melted away; then add parsley, marjoram, thyme, pepper, and salt. Take a piece of conserva (tomato pulp dried in the sun to the consistency of damson cheese), cut it in pieces the size of a pea, put in the pieces a few at a time, always stirring the contents of the saucepan. The conserva must be fresh and soft; if it is old and tough, it must first be softened by kneading it with a little water. When sufficient conserva has been put in, moisten with water a spoonful at a time. Let the whole simmer some 10 minutes longer; then strain, remove superfluous fat, and the sauce is ready. To make zuchillo with fresh tomatoes, cut them in pieces, remove pips, water, and stalks, and then put in the pieces instead of conserva, a few at a time. In this case it is not necessary to moisten with water, but rather to let the sauce reduce, and be careful not to put in fresh tomatoes until the first lot is somewhat reduced. Another way is to use either fresh or bottled tomato sauce, and put it in a spoonful at a time. The tomato sauce must be in the French form, with no vinegar in it.

Truffle Sauce (Périgueux).—Rub a saucepan with a

shallot, melt a piece of butter in it, add a very small quantity of flour and the trimmings of the truffles chopped coarsely; moisten with some good stock free from fat, and a little white wine, season with pepper, salt, and the least bit of nutmeg. Let the sauce simmer about 10 minutes, and it is ready.

Truffle and Chestnut Stuffing.—Mince 1 lb. fat bacon and 2 shallots, give them a turn on the fire in a saucepan; then put in 1 lb. chestnuts, boiled and peeled, and ½ lb. truffles, both cut up in moderate-sized pieces; add pepper, salt, and spices to taste; also a little powdered thyme and marjoram. Give the mixture another turn or two on the fire, and it is ready.

Vanilla Sauce.—Boil 1 pint milk with a piece of vanilla and some loaf sugar, take it from the fire and stir into it the yolks of 3 eggs and 2 teaspoonfuls flour; stir it over the fire till thick. Whip the whites of the eggs to a stiff snow with a spoonful of sifted sugar, and at the moment of serving add the snow to the sauce, not broken up entirely, but just dipping partly under it. Other flavourings may be given if preferred—orange peel or lemon, cinnamon or almonds, according to taste.

Watercress Butter.—Pick the leaves of a quantity of watercress and mince them as fine as you can; then dry them in a cloth, mince them still more, and dry them again. You then knead them with as much fresh butter as they will take up, adding a very little salt and white pepper, and with a couple of butterman's striped pats shape your watercress butter in as many pats of as many shapes as you are able to work out. Do the same with some plain butter, and serve the two on a glass dish.

Whipped Cream.—Cream should be whipped in a

very cool place the afternoon before wanted; flavour delicately with lemon or vanilla, and beat in a little of the finest-sifted white sugar. When it will stand up when heaped with a spoon put on a tammy that is only used for sweet things; place that on a dish in a cool larder to drain till wanted. In London what is called double cream should be used.

White Sauce.—(*a*) Take a good-sized piece of fresh butter, put on the fire in a perfectly clean small saucepan (a brass pan is best); when the butter is melted stir in 2 or 3 tablespoonfuls flour, when thoroughly mixed with the butter add gently new milk (or cream if wanted rich), stirring all the while till of the proper thickness. Flavour with salt, pepper, a little grated nutmeg, and small piece of lemon peel; boil up together. Just before serving add lemon juice to taste, and stir in the yolk of 1 egg off the fire. Great care is required in stirring in the flour and milk over the fire to prevent lumping.

(*b*) Put 2 oz. fresh butter into a saucepan. As soon as it is melted mix with it 1 tablespoonful flour; mix the two well together. Then add about 1 tumblerful hot water, pepper and salt and nutmeg; stir till the sauce begins to thicken; then stir in, off the fire, the yolks of 2 eggs, beaten up with the juice of a lemon, and strained.

(*c*) Put ¾ pint cream into a saucepan with the rind of a lemon, ½ teaspoonful whole white pepper, and a sprig of lemon thyme, and let these infuse for ½ hour, when simmer gently for a few minutes till there is a nice flavour of lemon. Strain it, and add a thickening of 3 oz. butter and 1 dessertspoonful flour; stir this well, and put in the juice of a lemon at the moment of serving. Mix with 1 teacupful white stock, and add a little salt. This sauce should not boil

after the cream and stock are mixed together. Milk may be used instead of cream.

(*d*) 1 oz. butter, 1 oz. flour, ½ pint milk or cream. Make it quite smooth, add 2 oz. gelatine dissolved in a little water. Remove from the fire, add a little lemon juice, strain into a basin, let it cool and thicken. Dip in the pieces of chicken cut into neat joints, place on a hair sieve; when cool dip them in again, till well covered with the sauce. Arrange on a dish with slices of boiled beetroot round, alternately with the white of hard-boiled eggs. Cut into rings, and the yolk rubbed through a strainer over the chicken. A little salt might be added to the sauce.

Wild Duck Sauce.—Put in a saucepan 1 tablespoonful Harvey's sauce, 1 tablespoonful Worcester sauce, a little salt, cayenne to taste, a small glass of port wine, and the strained juice of ½ large lemon. Mix well, and make hot. Just before serving stir in—by the side of the fire, not on it—1 large teaspoonful made mustard; pour into a warm sauce tureen, and serve hot.

Wine Sauce (au Vin).—(*a*) Mix 1 tablespoonful potato flour with 1 gill sherry, beat up another gill of sherry with the yolks of 4 eggs; mix the two together, add powdered loaf sugar and powdered cinnamon to taste, and a third gill of sherry. Put the whole in a saucepan, and keep stirring on the fire until the sauce thickens, when it is ready.

(*b*) Put 2 oz. butter into a stewpan with a little parsley, a small (blanched) onion, 1 or 2 mushrooms (previously tossed in lemon juice), all finely minced, turn them well over the fire but do not let them brown; add 1 oz. flour, seasoning of salt, pepper, and mace, 1 pint Chablis (or other light wine); simmer gently for ½ hour, skim, and serve hot.

Worcester Sauce.—(*a*) 15 gal. white vinegar, 10 gal. walnut and mushroom ketchup, 5 gal. Madeira wine, 4 gal. soy, 1 gal. brandy containing ¼ lb. assafœtida, 25 lb. salt, ½ lb. each pimento, coriander, mace, and cinnamon; boil 20 lb. pigs' liver for 12 hours in 10 gal. water, frequently renewing the water; chop up the liver, work with the water, strain, and mix with the other ingredients.

(*b*) ½ oz. cayenne pepper, ½ oz. shallots, ½ oz. garlic, ¼ pint Indian soy, 1 qt. white vinegar. Put the 3 first ingredients, after being pounded, into a jar, then pour the vinegar boiling upon them, and before bottling add the soy.

Flavours.—This term is here made to embrace flavouring extracts prepared from fruits, artificial substances which have the odour and flavour of certain fruits, and compounds for flavouring liquors, cigars, &c. The artificial fruit essences are composed chiefly of compound ethers; when tartaric, oxalic, succinic, or benzoic adds enter into their composition it is to be understood that these acids are employed in the form of saturated solutions in cold alcohol.

Almonds, Bitter.—4 oz. oil of bitter almonds, 1 oz. tincture of turmeric, 1 qt. 95 per cent. alcohol.

Apple.—4 oz. glycerine, 1 oz. chloroform, 1 oz. nitric ether, 2 oz. aldehyde, 1 oz. acetate of ethyl, 10 oz. valerianate of methyl, 1 oz. saturated solution oxalic acid in alcohol.

Apricot.—4 oz. glycerine, 1 oz. chloroform, 10 oz. butyrate of ethyl, 5 oz. valerianate of ethyl, 1 oz. œnanthylate of ethyl, 2 oz. salicylate of methyl, 1 oz. butyrate of amyl, 1 oz. saturated solution of oxalic acid in alcohol.

Brandy.—(1) Mash 25 lb. raisins, 12 lb. prunes, 6 lb. figs, 1 lb. sliced pineapple; infuse 15 days in 20 gal. proof spirit, stirring every day; filter.

(2) Put 1 oz. green oil of cognac in ½ gal. 95 per cent. alcohol. Cork tightly, shake frequently for 3 days, and add 2 oz. strong ammonia. Let stand 3 days longer; place in 3 gal. stone jar, 1 lb. fine black tea, 2 lb. prunes (mashed and with the kernels broken); pour on 1 gal. spirit 20 o.p.; cover close; let stand 8 days; filter the liquor, and mix it with that containing the oil and ammonia. Bottle for use. (Monzert.)

(3) 1 pint of (2), 15 gal. fine pure spirit 20 o.p., ½ pint plain white spirit; colour with caramel.

Capsicum.—From powdered capsicums, as black pepper.

Celery.—Bruise 2 oz. celery seed and put into a percolator; pour on 1 pint deodorised alcohol, and water until 1 pint of extract has passed through; triturate with 1 dr. carbonate of magnesia, and filter.

Cherry.—(1) 3 oz. glycerine, 5 oz. ethyl acetate, 5 oz. ethyl benzoate, 1 oz. ethyl œnanthylate, 1 oz. saturated solution benzoic acid in alcohol.

(2) Black.—10 oz. ethyl acetate, 5 oz. ethyl benzoate, 2 oz. ethyl œnanthylate, 1 oz. saturated solution oxalic acid in alcohol, 2 oz. solution benzoic acid in alcohol.

Cinnamon.—Dissolve 2 dr. cinnamon oil in 1 pint deodorised alcohol; add gradually 1 pint water, and stir in by degrees 4 oz. powdered Ceylon cinnamon; shake several times, and filter through paper.

Coffee.—Infuse 1 lb. ground roasted coffee in 1 gal.

95 per cent. alcohol.

Coriander.—Mix 4 oz. powdered coriander seed with 1 dr. coriander oil; add to 1½ pint 95 per cent. alcohol and ½ pint water; macerate 24 hours, decant the liquid, put the sediment into a percolator, and pour on it the decanted liquor, adding alcohol until 1 qt. has run through.

Ginger.—Moisten 4 oz. powdered ginger with a little alcohol in a percolator; pour on alcohol till 1½ pint tincture has passed through; mix with 8 oz. syrup.

Gooseberry.—1 oz. aldehyde, 5 oz. ethyl acetate, 1 oz. ethyl benzoate, 1 oz. ethyl œnanthylate, 5 oz. saturated solution tartaric acid, 1 oz. saturated solution succinic acid, 1 oz. saturated solution benzoic acid.

Grape.—10 oz. glycerine, 2 oz. chloroform; 2 oz. aldehyde, 2 oz. ethyl formiate, 10 oz. ethyl œnanthylate, 1 oz. methyl salicylate, 5 oz. saturated solution tartaric acid, 3 oz. saturated solution succinic acid.

Hickory-nut.—Crush 1 bush. hickory nuts, and infuse 1 month in 12 gal. 95 per cent. alcohol; strain and filter.

Lemon.—(1) Partially air-dry 4 oz. outer rind of lemons; bruise in a stone mortar; add 2 qt. deodorised alcohol at 90°, and agitate until the colour is extracted; add 6 oz. recent oil of lemon; let stand till clear; filter.

(2) 5 oz. glycerine, 1 oz. chloroform, 1 oz. nitric ether; 2 oz. aldehyde, 10 oz. ethyl acetate, 10 oz. amyl valerianate, 10 oz. saturated solution tartaric acid, 1 oz. saturated solution succinic acid.

Melon.—3 oz. glycerine, 2 oz. aldehyde, 1 oz. ethyl formiate, 4 oz. ethyl butyrate, 5 oz. ethyl valerianate, 10 oz. sebacic ether.

Nutmegs.—Macerate 2 dr. nutmeg oil and 1 oz. powdered mace for 12 hours in 1 qt. deodorised alcohol; filter.

Orange.—(1) As lemon (1), using 4 oz. outer rind of orange, 1 qt. alcohol, and 2 oz. oil of orange.

(2) 10 oz. glycerine, 2 oz. chloroform, 2 oz. aldehyde, 5 oz. ethyl acetate, 1 oz. ethyl formiate, 1 oz. ethyl butyrate, 1 oz. ethyl benzoate, 1 oz. methyl salicylate, 10 oz. amyl acetate, 10 oz. essence of orange, 1 oz. saturated solution tartaric acid.

(3) Steep 1 lb. orange peel in 1 gal. 95 per cent. alcohol 15 days; filter.

Orris.—Infuse 2 oz. powdered orris root for 20 days in 1 qt. 95 per cent. alcohol; filter.

Peach.—(1) 5 oz. glycerine, 2 oz. aldehyde, 5 oz. ethyl acetate, 5 oz. ethyl formiate, 5 oz. ethyl butyrate, 5 oz. ethyl valerianate, 5 oz. ethyl œnanthylate, 1 oz. sebacic ether, 2 oz. methyl salicylate.

(2) Steep 10 gal. dried peaches, 10 gal. oak sawdust, 5 lb. black tea in 40 gal. proof spirit for 1 month; strain and filter.

Pear.—10 oz. glycerine, 5 oz. ethyl acetate, 10 oz. amyl acetate.

Pepper, Black.—From powdered pepper, as ginger, pouring on alcohol till 1 qt. has passed through, and omitting the syrup.

Pineapple.—3 oz. glycerine, 1 oz. chloroform, 1 oz. aldehyde, 5 oz. ethyl butyrate, 10 oz. amyl butyrate.

Plum.—8 oz. glycerine, 5 oz. aldehyde, 5 oz. ethyl acetate, 1 oz. ethyl formiate, 2 oz. ethyl butyrate, 4 oz. ethyl œnanthylate.

Prune.—Infuse 25 lb. mashed prunes for 15 days in 6 gal. proof spirit, stirring every day; press and filter.

Raisin.—Infuse 25 lb. mashed raisins for 15 days in 6 gal. proof spirit, stirring every day; press and filter.

Raspberry.—4 oz. glycerine, 1 oz. nitric ether, 1 oz. aldehyde, 5 oz. ethyl acetate, 1 oz. ethyl formiate, 1 oz. ethyl butyrate, 1 oz. ethyl benzoate, 1 oz. ethyl œnanthylate, 1 oz. sebacic ether, 1 oz. methyl salicylate, 1 oz. amyl acetate, 1 oz. amyl butyrate, 5 oz. saturated solution tartaric acid, 1 oz. saturated solution succinic acid.

Rose.—Bruise 2 oz. 100-leaved roses, macerate in 1 qt. deodorised alcohol, press out the alcoholic extract, add 1 dr. oil of rose, and filter through paper. May be tinted with cochineal.

St. John's Bread.—Cut up 50 lb. St. John's bread (carob beans, or locust pods) into small pieces; infuse for 15 days with 12 gal. proof spirit, stirring every day; filter.

Sassafras.—Granulate ½ lb. sassafras bark, and infuse in ½ gal. 95 per cent. alcohol for 20 days; filter.

Soup-herbs.—Put 1 oz. thyme, 1 oz. sweet marjoram, 1 oz. sweet basil, 1 oz. summer savory, 1 dr. celery seed, into a percolator; pour on sufficient alcohol to make 1 pint extract.

Strawberry.—2 oz. glycerine, 1 oz. nitric ether, 5 oz. ethyl acetate, 1 oz. ethyl formiate, 5 oz. ethyl butyrate, 1 oz. methyl salicylate, 3 oz. amyl acetate,

2 oz. amyl butyrate.

Vanilla.—(1) 1 dr. vanilla in slices, infused for 20 days in 1 pint 95 per cent. alcohol; filter.

(2) 1 oz. vanilla in fine pieces, triturated with 2 oz. sugar to coarse powder, placed in a percolator; pour on dilute alcohol till 1 pint has run through; mix with 1 pint syrup.

Coffee.—Before roasting, it is a good plan to wash the berries. They must be thrown into lukewarm water, washed rapidly between the hands, the water changed once, the berries rinsed again, then strained, rubbed between a clean cloth, and put to dry in the sun or beside the fire. This washing does no harm, and certainly cleanses the coffee from dust or colouring, and also serves to prove the quality. The berries that float on the top of the water are not good. Raw berries, when thrown into cold water, should sink at once. But, if preferred, the coffee may be cleansed by rubbing between 2 towels. The roasting of coffee requires great care and attention; its goodness greatly depends on this. If suffered to burn, its aroma is destroyed, and it is made bitter and unwholesome. If not sufficiently browned, neither the strength nor the aroma will be developed, and its taste will be most unpleasant. Examine the berries, pick out any black or discoloured ones, and see that there is no stone among them. Have a clear fire, but not too fierce. Fill the drum half full. This must be constantly turned, but not too quickly, that the berries may be roasted equally. After about 5 minutes good heat, take the drum from the fire and shake it well. Open the slide to let the steam out, return the drum to the heat, continue the turning, and after a short time again withdraw and shake it,

then open it to see if the coffee is colouring properly. Should a strong smell of roasting and an apparent smoke escape, and should a slight crackling noise begin, take the drum from the fire, shake it for a minute, open the slide, and if the coffee is too pale, return it to the fire. When it has a fine cinnamon-brown colour, turn it out on a large flat dish, spread it quite apart, and as soon as it is cold, put it in a close-shutting canister or cork it well in dry bottles. A spoonful of moist sugar thrown in with the berries is said to improve the quality in roasting. Those who have not a drum can use an iron stewpan, in which case a little piece of butter half the size of a walnut is melted in the pan, then the coffee berries put in and the lid put on. Every minute it must be shaken and tossed without removing the lid. Have ready a wooden spoon, which should be kept for the purpose, and when the coffee begins to smoke and crack, draw it quickly from the strong heat, and stir it thoroughly till it is nicely browned. It will burn in half a minute by too strong a fire. Finish as stated above. An excellent coffee-roaster is made by Sugg, Charing Cross.

If possible, use freshly roasted and freshly ground coffee; let it be of good quality, with no admixture of chicory. If the beans have not been ground just before they are required for use, put the ground coffee into a plate or dish before the fire, and heat it thoroughly. Pour boiling water through the coffee-pot, put in the coffee—about ½ teacupful for each person—pour on to it perfectly boiling water, and let the pot stand by the fire for a few minutes. These directions will answer equally well, with some slight variations, for Loysell's coffee-pot, Gen. Hutchinson's cafetière, or, with the addition of hot water in the

outer receptacle, for Ashe's kaffee-kanne. A capital, though somewhat costly, coffee-pot is sold by E. Boyes, 14 High Street, Borough. Let it be clearly understood that the pot in which coffee is made is of comparatively little consequence, provided that it is scrupulously clean, the water boiling, and not in excess, and that the coffee is pure and plenty of it. If café au lait is required, the milk should be quite hot, but not boiling, and when the coffee is really good and strong, equal quantities of coffee and milk will be found to be the right proportions.

To make café noir, use no percolating, filtering, or steaming engine of any sort. Pound the roasted berries in a mortar to a fine powder, which keep in a tightly corked glass bottle. The coffee-pot may be a tin pannikin of the simplest shape—a truncated cone, or a cylinder rather narrower at the top than at the bottom. To make a cup of coffee, first place into the pannikin 1 teaspoonful (heaped) of the coffee powder, then fill up with water, hot or cold; stir the contents with a teaspoon, and hold the pannikin over the fire or a lighted gas burner; when the contents boil, stir it once more, and again hold it over the fire; then, stirring a third time, pour the contents into a coffee-cup, and as soon as the coffee has sufficiently cooled, by which time the powder is well settled to the bottom, drink it. For those who take sugar, put a sufficient quantity of it into the pannikin before boiling the coffee. When hot water is used, it takes about 1 minute to make 1 cup of coffee.

Foreign Dishes.—The following notes comprise the chief special dishes of various foreign countries. They will afford many a useful hint to the English housewife who is not prejudiced against foreign cookery.

American.—Boston Brown Bread.—1 pint tepid water, 2 gills of wheat flour, 1 pint rye meal, 1 pint of Indian meal, ½ pint molasses, 1½ gill smart yeast, 1 teaspoonful salt, 1 small teaspoonful soda carbonate; mix well, pour it into a tall straight-sided mould with a tight cover. Let it rise 3-4 hours. Steam or boil it for 4-5 hours. Remove the cover and set it in a moderate oven to dry for ½ hour. Serve hot in slices.

Buckwheat Cakes.—Buckwheat depends entirely on its treatment; crushed and kneaded into heavy loaves, it forms the impossible pumpernickel; finely ground and deftly handled, it becomes the famous buckwheat cake. To make the latter well-known dish, 2-3 tablespoonfuls fine buckwheat flour are mixed overnight with a little yeast in order to—as the bakers say—set the sponge. In the morning the "sponge" is added to some buckwheat flour, moistened simply with warm water, when the whole mass "rises" immediately into the form of an excessively light batter. Enough of this batter to make an ordinary muffin (about 2 tablespoonfuls) is placed on the well-anointed "griddle"—a flat piece of iron, well-known in the northern counties of England—the cake is turned quickly with a flat "slice," and in about 2 minutes assumes a pale brown colour, and is done. This accomplished, the quicker the cake is transferred from the griddle to the mouth the better. Eaten hot it is delicious, but once allowed to settle, becomes heavy and "stodgy" to an inedible degree. These cakes may be eaten with butter and sugar, with molasses, honey, or maple syrup, and are in any way excellent—when hot.

Cheese Biscuits.—Take 4 oz. grated cheese, 3 oz. finely grated breadcrumbs, 2 oz. butter, 1

teaspoonful flour of mustard, 1 saltspoonful cayenne, 1 of white pepper, and 2 beaten-up eggs; melt the butter and mix all the ingredients together, and let them stand an hour. Knead and work out the paste as thin as possible, and cut it into triangles or roll it up into thin sticks about 3 in. long. Bake in a quick oven for 16-18 minutes; serve hot.

Chow-Chow.—Take 2 heads of cabbage, 2 heads of cauliflower, 2 qt. dwarf onions, 2 qt. small tomatoes, 12 cucumbers, and 6 roots of celery; cut into small pieces and boil each vegetable separately until tender, then strain and take 2 gal. vinegar, ¼ lb. mustard, ¼ lb. mustard seed, 1 pot French mustard, 1 oz. cloves, and 2 oz. turmeric; put the vinegar and spices into a pan, and let them come to the boil, then mix the vegetables, and pour the liquor over.

Chowder.—A chowder is always made in a deep iron pot. Cut 6 oz. pickled pork into dice. Put it, with 2 large onions sliced, into the pot; fry till the onion begins to brown; remove the pork and onions. Slice 5 or 6 medium-sized potatoes and 3 lb. fresh cod or other firm fish. Put into the pot a layer of potatoes, then one of fish, seasoning each layer as you proceed with a sprinkling of the fried onions and pork, also a little soup herbs, pepper, and salt. Pour on cold water enough to barely cover the whole, and boil 20 minutes; then add 3 large ship biscuits soaked in milk, also ½ pint hot milk. As soon as it boils again remove it from the fire, and serve it at once. A cup of claret is sometimes added, but in that case the milk is omitted; or clams are frequently used instead of fish, in which case a layer of sliced or canned tomatoes is added.

Clam Fritters.—Put a sufficient quantity of clams into a stewpan, straining the liquor, and pouring

about half of it over the clams, adding a little black pepper, but no salt. Let them stew slowly for ½ hour, then take them out, drain off all the liquor, and mince the clams as finely as possible, omitting the hardest parts. You should have enough clams to make a large pint when minced. Make a batter of 7 eggs, beaten till very thick and light, and then mixed gradually with 1 qt. milk and 1 pint sifted flour, stirred in by degrees, and made perfectly smooth and free from lumps. Then gradually mix the minced clams with the butter, and stir the whole very hard. Have ready, in a frying pan over the fire, a sufficiency of boiling lard. Put the batter in with a spoon, so as to form round thin cakes; fry them light brown. Drain well, and serve hot.

Cucumber Sauce.—(*a*) Peel some cucumbers, and then grate sufficient to make 4 tablespoonfuls; to this quantity add an equal quantity of the best olive oil, 1½ tablespoonfuls vinegar, salt and cayenne pepper; stir well until wanted for use. Serve with salmon, lamb, or mutton cutlets. (*b*) Peel some cucumbers, cut them up quite small and put them into a saucepan with a little vinegar, cayenne pepper, salt, a small onion, also cut up, and a few celery seeds. Stew gently for 2-3 hours, add a small pat of butter, and serve with cutlets.

Egg Pie.—Boil 1 doz. eggs hard and put them in cold water to get cold; peel and slice them; butter a pie dish, and then put in the eggs in layers, with butter, breadcrumbs, pepper, and salt between the layers until the dish is full, putting breadcrumbs and butter at the top; pour in a cupful of cream, and bake until the top is brown.

Fish Roe Sauce.—Boil 2 pickled herrings, take out the roes, and while hot mix with them ½ lb. butter, a

little parsley and onion finely minced, cayenne pepper, and lemon juice; serve poured over broiled mutton chops, or with boiled fish.

Gumbo Filet.—Cut up a chicken, wash and wipe it perfectly dry, pepper and salt it; fry the pieces until brown in hot butter or lard; sprinkle with flour. Add 2 chopped onions, a little finely minced parsley, together with pounded mace, and a clove or two, and sweet herbs—thyme and marjoram. Pour over a little white stock or broth, and then stir gently to prevent burning, until cooked. Then add sufficient stock and the liquor from 1 qt. oysters. Boil until it is wanted. Just before serving put in the oysters, and sift into it a tablespoonful of the gumbo filet. Stir well to the bottom, let it come to the boil, and serve immediately. Rice boiled as for curry, each grain distinct, should be served with it. Gumbo filet is made of the tender young leaves of the sassafras, picked in spring, and dried carefully in the shade, powdered fine, bottled, and corked.

Ham Steaks.—Cut some slices of raw ham, and put them into a frying pan, with ½ teacupful water. When the water has boiled away, and the steaks (which should be turned) have become a light brown on both sides, dredge them over with flour, and pour over them the following sauce: Take ½ teacupful cream and ½ teacupful milk, put them into a saucepan with a small piece of butter, a teaspoonful of mustard, and a dash of cayenne; let it just boil, and pour over the ham.

Lemon Sauce for Fish.—Put into a saucepan ¼ lb. butter and the juice of a good-sized lemon, with pepper and salt to taste; beat up altogether until thick and quite hot; do not allow it to boil. Remove it from the fire and add the beaten-up yolks of 2 eggs.

Serve with boiled fish.

Milk, Thickened.—This is a very popular breakfast dish in New England households. Take 1 qt. milk, 1 small teacupful flour, ½ teaspoonful salt, and 5 lumps white sugar. Take 1 teacupful of the milk to mix the flour, place the rest on the fire. When boiling add the mixed flour, salt, and sugar. Boil 5 minutes. To be eaten with cream, sugar, and spice.

Milk Toast.—Another favourite dish. Take ½ pint milk, 2 teaspoonfuls butter, and a little sauce. Put to heat over the fire; toast slices of bread; lay each slice, as soon as toasted, in a deep dish, and pour the heated milk over it, placing the next slice upon it, with more of the milk. When the dish is filled pour over the remainder of the milk, cover it, and serve hot.

Okra.—Take 2 lb. lean beef, and cut it up into small pieces. Peel ½ gal. tomatoes, remove the seeds and hard parts, and put them, with a small onion chopped up and the beef, into a stewpan (not iron). Simmer gently in some butter for a short space, stirring well, then add the okra—previously cut into slices—and stir again for about 10 minutes. Then add 1 gal. boiling water, season to taste with spices, pepper, and salt. Boil slowly, stirring frequently, and mashing up the okra. Just before serving add a small pat of butter.

Pan Dowdy.—Fill a pudding pan with apples pared, quartered, and cored. Cover the top with a crust rolled out of light bread dough, make a hole in the lid, and set the pan in a brick oven. After it has cooked, lift the crust and add molasses, or brown sugar, a little powdered cinnamon and nutmeg to taste, also 1 tablespoonful butter. Stir it well, cut the crust into square bits, mix all together, cover it with

a large plate, return it to the oven for 3-4 hours. Serve hot. A pan dowdy may be baked in a stove oven, in which case the apples had better be stewed, and the crust baked separately, then mix all together and bake 2 hours.

Pork and Beans.—1 qt. navy beans, ½ lb. pickled pork, 2 teaspoonfuls thickly mixed mustard, 1 large tablespoonful molasses. Soak the beans in tepid water all night. Next day change the water, place them on the fire, and boil them a few minutes, not long enough to crack them, drain them, place them in a "bean pot," or deep earthenware pan, nearly bury the pork in the middle of the beans, add the mustard, molasses, pepper and salt, with enough water to cover the whole. If they become too dry, add a teacupful of water when they are half done. Serve with Boston brown bread.

Pumpkin Pie.—"Punkin" (pumpkin) pie is an invariable adjunct either to dinner or to "a high tea," a species of repast much affected "down East." It is prepared in this wise. The prime ripe parts of the pumpkin are carefully separated from the seeds and rind, and gently stewed till quite tender. The pumpkin is then strained through a fine sieve, and eggs and milk are added in sufficient proportion to form a thick custard-like substance; sugar and allspice are then added, and the mixture is put into a flat dish previously lined with good paste, and a little powdered nutmeg is strewed over the top. The pies are then baked in a moderate oven. The thickness of the layer of pumpkin should be 1½-2 in. When well prepared, "punkin pie" is a delicious dish, and is never eaten in America without the accompaniment of a small fragment of cheese.

Tomatoes.—(*a*) Baked.—Take large tomatoes,

wash them, wipe and cut them in two. Put them in a baking tin with the skin downward, season well with pepper and salt, and place in a hot oven. When done put a piece of butter on each tomato, and serve on a hot dish with or without sharp sauce. (*b*) Cut a very large tomato in half and flour the cut side; heat the pan and lay the slices in, floured side down. When brown turn over, and when quite done dish up and pour over a teacupful of hot cream or milk. (*c*) Hashed.—Well butter a pie dish, put in a layer of sliced tomato, then a layer of any kind of cold meat (sliced very thin or minced), then a layer of thin bread and butter, and so on till the dish is full. Season the whole well and bake till quite brown. (*d*) Stewed.—Put ripe tomatoes into hot water, and when scalded take off the skins; throw them into an earthen pipkin, cut in slices, and stew gently till tender. Season with butter, pepper, and salt; and serve with sippets of buttered toast. In some parts of America breadcrumbs and sugar are added to the stew instead of other seasoning.

Veal Cake.—Take 3 lb. veal and chop it up very finely with ¼ lb. pork, 1 cupful breadcrumbs, 3 teaspoonfuls salt, 1 of black pepper, ½ teaspoonful cayenne, and a few cloves. Mix all well together with 2 raw eggs. Put it into a plain mould and steam for 2 hours; then put into a cool oven for a short time just to dry it. Turn it out, when cold, and cut it into thin slices. Garnished with aspic jelly, it makes a very nice luncheon dish.

White Cabbage Salad.—Set a firm white cabbage in cold water, and let it stand some hours, then dry well and shred very fine. For the dressing take a piece of butter the size of a walnut and a tablespoonful of flour, mix well, and add 2

tablespoonfuls vinegar; scald for a minute, then add the beaten yolk of 1 egg and 2 tablespoonfuls cream, with salt and pepper to taste. Pour over and serve.

Whortleberry Cakes.-¾ cupful sugar, ¼ cupful butter, 1 cupful milk, 3 cupfuls sifted flour, 1 heaping teaspoonful baking powder, 1 small teaspoonful salt, 2 eggs, 1 heaping pint whortleberries. Mix the baking powder with the flour, beat the butter and sugar to a cream, add the milk and beaten eggs, then the flour, stirring in lastly the berries over which you have previously dredged a little of the flour. Pour into 12 small tin cups buttered and heated, serve hot for breakfast or tea, with butter. They can be baked in muffin rings.

Belgian.—Asparagus.—(*a*) Boil in the usual way as much asparagus as required, and arrange it neatly on a folded napkin in a flat dish. Boil some eggs hard (allowing one egg to each person), and divide them in halves lengthwise. Border the asparagus with these halves, placing them with the yolks upwards. Serve this dish very hot, and send to table with it a sufficient quantity of butter, simply melted and made quite hot, but without any thickening.

(*b*) Having cut all the hard white part from some cold boiled asparagus, arrange it neatly on a dish, and cover it with a thick mayonnaise sauce. Place round this some slices of cold boiled ham, cut very thin and rolled. Alternate these with halves of hard-boiled eggs, as in (*a*), and garnish with small sprays of parsley. Forced eggs, flavoured with ham or tongue, may be used with this dish instead of the ham and eggs, if preferred.

(*c*) Cut the tender parts of some boiled asparagus into lengths of 2 in.; mince finely some parsley and young onions with a few leaves of lettuce; put them

in a saucepan with butter, a little water, salt, pepper, a little nutmeg, and a pinch of flour; simmer, stirring occasionally, until the onions, &c., are done. Scald the asparagus in this, and serve very hot with croutons of fried bread. Small sprigs of cauliflower, broccoli, or peas which have been previously boiled are also good served in this way. If for peas, a little sugar may be added when liked.

Flamande Sauce.—This is an excellent sauce with which to serve almost any vegetable that has been previously cooked. It is made thus: Put into a saucepan butter, a slice of lemon, salt, pepper, and a little water; scald in this the vegetable to be re-warmed, drain, and put it into a dish. Thicken the sauce with a pinch of flour and the yolks of 2 eggs, and serve with the vegetable at once. Care must be taken not to curdle this.

Greens.—(*a*) Boil some turnip or any other greens preferred; mince, drain them well, and put them into an enamelled stewpan, with enough thick cream to moisten them; add white pepper, salt, and, if liked, a soupçon of grated nutmeg. Stir well together over the fire until quite hot. Have ready as many well-flavoured sausages as you require, baked brown. Arrange the greens in a mould in the centre of an entrée dish, and garnish them with the sausages. New milk and butter may take the place of cream if preferred.

(*b*) Prepare some greens, as in (*a*), and arrange them so as to cover the centre of the dish on which they are served. Poach some eggs in shapes for the purpose; or, when poached, trim them round. Place these upon the greens, and arrange round the dish alternately thin slices of ham rolled and toasted, and sippets of dry toast.

Mackerel.—(*a*) Remove the bones and skin from some cold boiled mackerel, and arrange the flakes in a rather high mound in the centre of a flat dish. Cover these with a thick mayonnaise sauce, made green by mixing with it either finely chopped fennel, parsley, tarragon, or chives. If either of the two former, it should be just scalded first. Garnish with prawns or crawfish and sprays of paisley and fennel. Mustard and cress or Italian corn salad can take the place of the parsley and fennel for garnish.

(*b*) Having cleaned some fresh mackerel, divide each fish into 4 or 6 pieces, according to size. Stew them until tender in enough sauce to cover them. For this use white sauce, made with veal stock, flavoured delicately with essence of shrimps or anchovies, salt, cayenne, and the juice of a lemon. A strip of lemon peel should be stewed with the fish, and removed before it is served. Open 2-3 doz. mussels, remove the yellow part from them, and wash them in their liquor; blanch them in the sauce, drain, and arrange them round the fish, and pour the sauce over.

Shoulder of Mutton.—Choose a small fresh shoulder, and steep it in a marinade. To make this, simmer for 20 minutes in 1 pint water 2 or 3 bay leaves, a bunch of parsley and lemon thyme, an onion, 3 cloves, 1 teaspoonful each pimento berries and black peppercorns, and a small piece of ginger; add 1 teacupful each claret and brown sugar, and ½ teacupful vinegar. Stir until the sugar is dissolved and the marinade at boiling point. Pour it into a shallow pan that will just hold your shoulder of mutton, and, when cold, put the mutton in, and keep it turned and basted with the pickle every day from 4 days to a week, according to the weather. When ready, remove the bones from the mutton, and fill

the hollows with a forcemeat, as for veal kidney (below). Bind the shoulder into shape, and roast it until well done. It should be well floured and basted, that it may be well browned. Have ready 1 lb. French plums (not prunes) stewed in equal parts of claret and water, and a lump or two of sugar. Arrange these, with the liquid in which they were cooked, in the dish round the mutton. To make the gravy, put the bones from the mutton in a saucepan with 1 pint stock and 1 wineglassful of the marinade, and simmer until the liquid is reduced to ½ pint. Pour this to the gravy in the pan, remove as much of the fat as possible, and thicken the gravy slightly with brown roux. Send it to table with the mutton as hot as possible. A loin or fillet of mutton will answer as well as the shoulder. The same marinade can be used 2 or 3 times if it be first reboiled and skimmed. This recipe is very useful if you want to keep meat for a few days in hot weather, but it must be watched carefully and protected from flies.

Veal Kidney.—Remove the skin and fat from a veal kidney, and cut it in halves lengthwise. Mix with ½ lb. sausage meat 1 teacupful fine breadcrumbs, 1 tablespoonful truffles cut into pieces the size of very small peas, an egg slightly beaten, pepper and salt. Mix these well together with a fork. Cover each half of the kidney with this stuffing, and wrap them securely in pieces of pig's caul, large enough to allow for the forcemeat swelling a little. Put them in an enamelled baking tin with a little butter, and bake them ¾-1 hour, according to the size of the kidney, basting now and then until nicely browned. Cut them into slices about 1 in. thick, and arrange them in 2 rows in an entrée dish, with each slice overlapping the other. For the sauce, thicken slightly ⅓ pint strong stock with brown roux (flour and butter

stirred together on the fire till brown). Pour this to the gravy in the pan, and strain it into a saucepan; remove as much of the fat as possible, add 1 wineglassful sherry, and stir over the fire until the sauce is at boiling point. Serve in the dish with the kidneys. Pork kidneys not divided are good dressed in this way, as also are thick strips of calf's liver.

Canadian.—Codfish Balls.—Take equal quantities mashed potatoes and boiled codfish minced fine; to each ½ lb. allow 1 oz. butter and a well-beaten egg; mix thoroughly. Press into balls between 2 spoons; drop into hot lard, and fry till brown.

Cookies.—Mix together 1 lb. powdered loaf sugar, 1 lb. flour, and ½ teaspoonful soda carbonate; rub in ¼ lb. butter; make into a soft paste, with 3 eggs beaten, 1 dessertspoonful cream or milk, and essence of almond to taste; roll out 1 in. thick, and cut into biscuits with a wineglass. Bake 10 minutes in a moderate oven. They must be kept in a dry place, and will continue good for 3 months.

Corn Bread Loaf.—Ingredients: Yellow meal, 2 cups; flour, 1 cup; cream of tartar, 2 teaspoonfuls; soda and salt, 1 teaspoonful; eggs, 2; sugar (golden) ½ teacup: butter, 2 oz.; new milk, 2 cups. Mode: Mix salt, soda, and cream of tartar with flour and meal, cream the butter, and beat the eggs and sugar together, and add to the mixture, stirring in the milk lastly, and beating the butter well till smooth. Bake in buttered round iron cake pans, 4 in. deep. This loaf should be cut from the centre, like a tart. Sometimes honey is substituted for the sugar, or the loaf made without sugar, split and spread with honey, and then cut as above.

Corn Meal Muffins.—Warm milk, 1 pint; flour, 1 cup; sugar, 1 tablespoonful; salt, 1 teaspoonful;

compressed yeast, 1 cake. Mix well, and add enough corn meal to make a thin batter. Set to rise overnight. In the morning add 1 teaspoonful soda dissolved in warm water, and 1 oz. melted butter. Bake in muffin tins. These yeast muffins do not, like those made with soda, get heavy when cold.

Cream Toast.—Toast even slices of white bread a light golden brown. Scald the cream, and thicken with a very little cornflour, just the consistency of custard. Simmer till well done and no raw taste left. Stir in a piece of butter, and pour some of it evenly between layers of the hot toast.

Crullers.—Rub 2 oz. butter into 10 oz. flour and 1 tablespoonful white sugar. Knead into a stiff paste, with 3 eggs beaten—if the eggs are not sufficient to moisten the flour, 1 spoonful milk can be added. Flavour with lemon or almond, and leave it an hour covered with a cloth. Pinch off pieces, the size of small eggs; roll them out into an oval shape the size of your hand, and the thickness of half-a-crown. Cut 3 slits with a paste cutter or knife, in the centre of each oval; cross the 2 middle bars, and draw up the 2 sides between; put your finger through, and drop the cruller into boiling lard in a stewpan wide enough to admit of 3 at once. Turn them as they rise, and, when a light brown, take them up with a fork and lay them on a dish, with paper underneath them. They are best eaten within 2 days after they are made; but, if kept longer, it recrisps them to place them in a moderate oven for 10 minutes; 2-3 lb. lard are required, and what is left will do again with the addition of a little more.

Johnny Cake.—Mix together 2 teacups Indian meal, ½ cup flour, 2 tablespoonfuls brown sugar, 2 teaspoonfuls cream of tartar, 1 of soda carbonate,

and 1 of salt. Rub in 1 tablespoonful butter, add milk enough to make a cake batter, and bake in a greased pound cake tin. It is best eaten hot, with plenty of butter.

Waffles.—(*a*) Rice.—Boiled rice, 1 cup; eggs, 3; butter, 1 oz.; sour milk, 2 cups; salt and soda, 1 teaspoonful each. Stir the rice to separate the grains well; add the butter creamed, and the eggs frothed; dissolve the soda, stir into the milk; add to the mixture with flour enough to make a batter, rather thick; heat the waffle irons and rub well with butter; fill ¾ only, and bake carefully.

(*b*) Raised.—Sifted flour, 1 qt.; salt, 1 teaspoonful; warm milk, 1½ pint; compressed yeast, ½ cake, or 3 tablespoonfuls liquid yeast: creamed butter, 2 oz. Set the yeast, with the warm milk, butter, and salt, to rise overnight. When required in the morning, add 3 eggs, well beaten, and ½ teaspoonful soda dissolved in warm water. Heat the waffle irons, butter them well, and fill nearly ¾ full; take care not to scorch them.

(*c*) Cream.—Sifted flour, 4 cups; soda, cream of tartar, and salt, 1 teaspoonful each; eggs, 3; cream, 2 cups. Mix the soda and cream of tartar, and salt with the dry flour, mix the beaten yolks with the cream, and make a smooth batter. Add the whites of the eggs beaten to a froth. Butter the waffle irons, and fill ¾ full. Bake a light brown.

Cape.—Bobotie.—Take a small leg of mutton and mince it very fine, add to the bones and sinews 1 pint water and let it simmer slowly for ½ hour, then soak a thick slice of white bread in the hot broth and when cool mix it with the meat, to which add 6 eggs, well beaten. Take 2 large white onions, chop them very fine, with a clove of garlic and some salt, fry

them in butter until brown, then stir in 1 tablespoonful good Indian curry powder and mix the whole well together. Put into a pie dish or cups, putting a lemon leaf and a small lump of butter into each cup, then put in the meat mixture: beat up an egg with a little milk and rub over the top, cover with lemon leaves and bake for 1 hour. As lemon leaves are not always obtainable in England, a small piece of lemon peel for the flavouring, and vine leaves to keep from burning would perhaps not be a bad substitute.

Sasatijs.—Much the same as the Indian "kabobs." Take a leg of mutton and cut the best part of it—about 3 lb.—into small squares, then chop a plateful of sliced white onion fried in butter, to which add 1 tablespoonful of good curry powder and 1 cup tamarind water or vinegar; stir the meat into the sauce, and let it stand for a whole night, then thread the meat upon thin bamboo sticks, or very slender wooden skewers, lean and fat pieces alternately; grill upon the gridiron just before they are required, and serve very hot with rice. The sauce must be boiled and also served very hot. This is a favourite dish at Cape picnics, and when travelling with the bullock waggon. The sasatijs are always left on the bamboo sticks when served up. To boil rice for Sasatijs.—To 1 cup good whole rice take exactly 3 cups cold water, add a pinch of salt; boil in an enamelled saucepan, but do not stir the rice. When the water is apparently all absorbed by the rice, tilt the lid of the pot and let it steam dry.

Dutch.—Bloaters, Pickled.—Take 1 doz. bloaters, wash them thoroughly, well drain and dry them, and lay them in enough milk to completely cover them. When they have lain in this for 24 hours, drain them

thoroughly, and lay them in a pie dish with 6 slices of lemon and the same quantity of Spanish or Portugal onion, 4 bay leaves, 2 oz. capers, 12 cloves, and about 18 peppercorns, and as much oil and vinegar in equal proportions as will completely cover the herring. Lay them by in a cool place till wanted.

Eel Patties.—Skin, clean, and wash an eel, cut it up into small pieces, and cover it with vinegar. Melt in a saucepan 2 oz. butter, stir into it 1 tablespoonful flour, and 2 tablespoonfuls stock or broth, well freed from fat, add the finely minced rind of ½ lemon, some chopped capers, 1 teaspoonful minced parsley, with salt and nutmeg to taste. Take the pieces of eel out of the vinegar, put them into the sauce, and let them stew until thoroughly cooked. Have some patty-pans lined with short paste, put into each 1, 2, or 3 pieces of eel, cover over with the same paste, make a small opening in the cover, brush them over with an egg, and bake in a quick oven. The sauce should be well reduced, and served separately.

Herring Salad.—Thoroughly wash 4 soft-roed bloaters, remove the bones and skin, and put the roes aside; arrange the 4 fillets of each fish neatly round a dish. Chop finely and separately the whites and yolks of 2 hard-boiled eggs, also some parsley, some shallot or parboiled onion, and some pickled beetroot, keeping each separate. Lay these different things in some sort of pattern in the centre of the dish. Take the roes and mash them by means of a spoon with enough oil and vinegar, in the proportions of 2 to 1, to make a thickish sauce; add pepper to taste, and pour the same over the herring fillets, avoiding to disarrange the minced eggs, &c., in the centre.

Oysters.—(*a*) Open some oysters, beard them, and

loosen them carefully from their shells. Sprinkle over each oyster a small proportion of anchovies, well washed, boned, and finely minced, a little pounded mace, squeeze over a few drops of lemon juice, add a small piece of butter, and lastly sprinkle a little flour or fine breadcrumbs over. Put the shells into a slow oven to bake until the contents are of a light brown colour. Serve very hot with cut lemons.

(*b*) Remove some oysters from their shells, and put them into a stewpan with their liquor; add 4 finely minced, boned, and skinned sardines, the juice of ½ lemon, a few chopped capers, and grated nutmeg to taste; lastly, add flour and butter in due proportions, and stew gently until cooked. Have ready some shapes lined with short paste. Put 2 or 3 oysters into each, cover over with paste, make an incision in the top, and bake in a quick oven.

(*c*) When they have been well cleaned put them, with some sea-water, some lemon juice, and grated nutmeg, into a saucepan. Let them just come once to the boil, remove them from the fire, and let them stand until the next day, then put them into earthenware jars, pour melted butter over them, and keep them in a cool place. When prepared in this way they can be used for patties, sauces, and also for scalloping.

(*d*) Soak for one night 3 or 4 herring-roes, dry them on a cloth, and cut them up in 3 or 4 pieces, about the size of an oyster. Get some scallop shells, put in each a piece of fresh butter the size of a small nut, the least bit of pounded mace, a few drops of anchovy sauce, or ¼ anchovy well washed, boned, and minced. Squeeze a few drops of lemon juice and sprinkle a little flour or breadcrumbs over; then lay a piece of roe on this, with 3 or 4 capers, and again

sprinkle a little flour or breadcrumbs over, and put them into a slow oven till they begin to colour.

Parsley and Lemon Sauce.—Wash a handful of parsley and mince it up finely with the pulp and rind of a lemon; melt a pat of butter in a saucepan, mix with it 1 tablespoonful flour, add the minced parsley and lemon, sufficient broth or stock to make the sauce, a little pounded mace and a few capers; stir over the fire, and when partly cooked add, off the fire, the yolks of 2 eggs beaten up.

Pike.—(*a*) Soup.—Boil until quite soft 2 oz. well-washed rice in sufficient salt and water, with a small piece of butter. Take 1 lb. flesh of pike well freed from bones and skin, divide it into small pieces, and toss them in butter until cooked; mince it finely, together with 3 hard-boiled yolks of eggs, pound in a mortar, and stir them into the rice, with salt and pepper to taste; add sufficient water to make the soup, and pass the whole through a fine sieve. Let the soup come to the boil, and serve over small sippets of toast.

(*b*) Stewed, with Butter Sauce.—Prepare some stock. Cleanse the fish, remove the inside, cut off the fins, rub it well with salt, and pour over it a glass of vinegar. Lay the fish in the stock, and simmer gently until thoroughly cooked, strain, and serve with the following sauce: Put 3 oz. butter in a saucepan, add to it 2 spoonfuls milk and some grated nutmeg, add sufficient stock strained from the fish to make the sauce. Let the sauce boil, then add, off the fire, the yolks of 2 eggs beaten up with 1 gill cream, pour over the fish, and serve. This dish is improved by stewing the fish the previous day, then allowing it to get cold in the stock, and stewing it a second time when wanted.

Sardine Sauce.—Remove the tails, skin, and bone from 1 doz. sardines, cut them up into small pieces. Take a shallot, a small quantity of parsley, and the thin rind and pulp of ½ lemon; mince all very finely. Melt in a saucepan a pat of butter with 1 tablespoonful flour. When it has taken colour, add the above mince, with enough stock to make the sauce; let it boil, and lastly add a little grated nutmeg.

Sorrel Sauce.—Pick from the stalks and wash carefully 2 handfuls of sorrel, drain, and then chop it somewhat coarsely. Melt in a saucepan a pat of butter, mix with it 1 small tablespoonful flour, add the sorrel and ½ pint cream, a little stock, salt, and grated nutmeg; let it come to the boil, and it is ready.

Trout.—(*a*) Choose small fish, cleanse and wash them, remove the fins, and rub them well over with salt; mix a handful of flour with some salt and pepper, roll the fish over in it, and then fry them in hot fat until of a light brown colour, drain and serve.

(*b*) Take some rather small trout, remove the insides, cut off the fins, wash them carefully, and sprinkle them with vinegar. Put into a stewpan one pint of stock or broth well freed from fat, ½ pint wine, ¼ pint vinegar, a few slices of onion, some parsley, bay leaf, whole pepper and salt to taste, lay the trout in this and simmer gently, without letting them quite boil, until done. Strain off the sauce, place the fish on a hot dish, garnish with parsley, and serve either with oil and vinegar, or with the following sauce. Melt a small piece of butter in a saucepan, stir into it 1 tablespoonful flour, and add some of the strained sauce from the fish, let it boil, and pour over the trout.

German.—Beer Soup.—Bake to a good dark-brown ½ lb. bread, which has been previously soaked in oiled fresh butter, crumble it up, and add 1½ pint beer, the same quantity of red wine, some thin rind of lemon peel finely chopped, some cinnamon, cloves, and pounded white sugar. Boil the whole up lightly, and serve with some thin slices of bread fried in butter, laid on the top.

Bowle.—The drink one gets in Germany under the name of "bowle" is prepared in several ways, according to the season. In principle it is a simple mixture of wine and some aromatic herb or seasonable fruit, and sweetened to taste, which is sometimes further improved by a slice of orange. Some people add champagne, others, more economically, some effervescing water, additions which are not always improvements. It is best to dissolve the sugar in a little water, and pour it upon the herb or fruit in a suitable receptacle, and then add a light (still) Rhenish or Moselle wine; the latter is preferable. An agreeable variation may be made by using some red wine, perhaps 1 bottle in 4 or 5. This mixture should stand covered until the taste has become pleasingly noticeable, and then, in some cases, the substance used should be removed to avoid the bitter flavour which comes later. The quantities required can only be learnt by experience. The favourite German bowle is the Maibowle, made of Maikraut or Waldmeister (Asperula odorata, woodruff), which is found late in April and May. Strawberries (wild strawberries are better), apricots, peaches, pineapples, crushed or sliced, make delicious drinks. Celery is also used. There are also numerous "essences" and "extracts" in common use, which make one independent of the seasons, but they only indifferently take the place of fresh fruit,

with perhaps the exception of the essence of pineapple, which is not bad.

Bretzeln.—Mix 1 large tablespoonful yeast into a good ½ pint warm milk; stir it into 1½ lb. of flour, and beat it well. In another pan beat ½ lb. butter to cream; add to this 2 oz. sifted sugar, 3 eggs, another tablespoonful yeast, and a little salt. Put the dough into this, and beat altogether thoroughly till quite smooth; cut off pieces the size of an egg, roll them into round bars 6-8 in. long, and tapering off at the ends. Lay them on buttered tins, curving them in half circles or new-moon shapes, leaving space between each. Put them by gentle warmth to rise, and when light brush them over with egg; dust sugar over, and bake them a pale brown.

Carnival Krapfen.—Whisk 2 eggs well, add to them 1 oz. sifted sugar, 2 oz. warmed butter, 2 tablespoonfuls of yeast, 1 teacupful lukewarm milk, and a little salt. Whip all well together, then stir in by degrees 1 lb. of flour, and, if requisite, more milk, making thin dough. Beat it until it falls from the spoon, then set it to rise. When it has risen, make butter or lard hot in a frying-pan, cut from the light dough little pieces the size of a walnut, and, without moulding or kneading, fry them pale brown. As they are done, lay them on a napkin to absorb any of the fat.

Cherry Soup.—1 lb. cherries (sour cherries are best in summer, and dry ones in winter), a little spice, a little potato flour or arrowroot, a glass or so of red wine (viz. common claret). Remove the stones from 1 lb. cherries, pour water over them, and stew them with a little spice and cinnamon for about an hour; then rub them through a hair sieve, and let them boil with a little potato flour or arrowroot. Add sugar and

red wine (common claret) to taste; a wineglassful is about enough. Serve with sippets of roll or toast.

Chocolate Soup.—3 pints milk, ½ lb. chocolate, the yolks of 2 eggs, 1 teaspoonful potato flour or arrowroot, a little sugar and cinnamon. Break the chocolate into small pieces, and mix it with a little boiling water until it becomes a paste. Boil the milk, and mix it all together with the addition of 1 teaspoonful arrowroot or potato flour. Let it all boil for a minute or so, stirring it the while, and then add sugar and cinnamon to taste. Before serving beat up the yolks of 2 eggs, and put them in the tureen, pouring part of the soup in first while well stirring it, and then adding the rest. Sippets of rusk (toast is not general in Germany, but would do as well) are sometimes sent up in it.

Dicke Milch.—This is merely new milk put into a pie dish or other shallow vessel, and allowed to stand 2-3 days, according to the weather, until it is sour and thick, but not quite so stiff as blanc mange. Only experience can guide one as to the exact stage at which it is ready to use. If left too long, a watery fluid rises to the top. It is eaten with breadcrumbs and sugar.

Dingy Pudding.—Stir together the yolks of 4 eggs, 2 oz. sugar, and 1½ oz. almonds, sliced in their peel. Then stir in 2 oz. grated chocolate, 2 teaspoonfuls grated brown bread, soaked in red wine, 2 oz. currants, ½ teaspoonful allspice or 6 pounded cloves, and add the egg whites whisked to a snow. Steam the pudding in a covered mould, and serve with chocolate sauce poured over. Allow 1½ hour to steam.

Dresdener Torte.—Take ½ lb. butter, and beat it with 4 eggs and 5 yolks for ½ hour; put in after you

have beaten it 8 oz. castor sugar, 3 spoonfuls cream, ½ lb. fine flour, 1 spoonful white wine, the rind of a grated lemon; beat it well together, fill the whole in a buttered form, and bake it for ¾ hour.

Egg Dumplings.—Beat 2 oz. butter to a cream, and stir in the yolks of 3 eggs, with 1 oz. powdered sugar; mix 2 tablespoonfuls good yeast with 1 teacupful lukewarm milk; add this to the above. Having warmed 1 lb. fine flour, stir this in by degrees; the mass should be as thick as a light bread dough. Beat it well and set it to rise; then dredge a paste-board with plenty of flour. Form, with light handling, egg-sized rolls, and set them to rise a second time on the board. Put 2 oz. butter and the same of loaf sugar in a stewpan, with milk enough to cover the bottom nearly 1 in. deep; let this boil by the time the dough has risen; place carefully in the stewpan as many as it will hold without crowding. Bake them in the oven or over a clear fire, with red coals on the lid: ½ hour should bake them sufficiently.

Flummery.—Dissolve 1 oz. isinglass in 1 pint boiling water, let it stand 2 hours, pour it into a saucepan with ¼ lb. sugar, the juice and peel of a lemon, and the yolks of 4 eggs; set it on the fire, and keep stirring till it boils; strain it through a flannel bag, and when almost cold pour it into the mould, which must be dipped in cold water before you fill it.

Fricadel.—Take 1 lb. uncooked lean veal and ½ lb. lean ham, mince both finely with a small bunch of parsley, lemon thyme, and lemon peel, add a little grated nutmeg, 1 teaspoonful salt, half that quantity of white pepper, and a pinch of cayenne; mix well with the above 4 oz. good butter and 5 oz. biscuit powder, beat 4 eggs well, add to them 1 teacup cold

water, and stir these to the other ingredients; when thoroughly mixed take your baking pan, and mould your fricadel in the centre of it to a flat round or oval shape, cover it with biscuit powder, put some butter in the pan to baste it with, and cook it until of a nice golden brown, either in an oven or before the fire. When nearly done, put 2-3 tablespoonfuls thick cream in the pan and baste the fricadel with it; when done, which will be in about ¾ hour, lift it with 2 egg slices carefully on to the dish you will serve it on, and surround it with a thick rich brown gravy. Thick captain's biscuits are best for the biscuit powder.

Frothed Milk Soup.—Pound 6 bitter almonds and boil them in 2 qt. milk, or, instead of the almonds, use half a stick of vanilla; add sugar to taste, and a little salt. Beat separately 4 eggs; the whites must be whisked to a stiff froth, then mixed with the yolks. Let the milk just cease boiling, and whisk in the eggs till it froths well, but not over the fire or the eggs will curdle. Serve with small sponge biscuits.

Frothed Wine Soup.—Beat 4 eggs and the yolks of 4 others in a stewpan; add 4-6 oz. sugar, ½ pint water, the grated peel and rind of a lemon, and a bottle of white wine; place it over a slow fire, and whisk it continually till quite frothy and on the point of boiling, but no further; serve as soon as it is ready, or the froth will subside; hand sponge or other light cake with it.

Groat Pudding.—Boil raspberries or red currants, press and strain the juice. To 1 pint this add 1 pint red wine, and set it on the fire with ample sugar to sweeten. When it boils sprinkle in ¼ lb. coarsely-ground corn, barley, or groats; stir this till it thickens and is done, then put it into a wetted mould; when

quite cold, turn it out on a dish. Any fruit sauce may be poured over it. The same red pudding may be made with rice, nudels, or sago. It should turn out of the mould in a jelly, but not too stiff.

Grütze.—(*a*) As made in Hamburg and Norway, 3½ lb. red currant juice, 3 pints water, sugar *ad lib.*, flavouring of almonds or cinnamon 1 oz. Set this mixture on the fire, and when it boils add 1 lb. sago or 1¼ lb. ground rice; boil for ¼ hour, stirring frequently. Pour into moulds to cool. Should be eaten in soup plates with sifted sugar and milk. Any acid fruit-juice will do as well.

(*b*) 2 lb. red currants, ½ lb. raspberries, boiled in 1½ pint water; when quite soft pass through a sieve; make this juice quite boil; add ¾ lb. sago well soaked in water; let it boil ¼ hour, stirring it all the time. Wet a mould with cold water, pour in, and when cold turn it out. To be eaten with milk, cream, or custard. Any other fruit or preserve will do.

Gulasch.—Cut a tender piece of steak into quite small pieces, lay them in a deep frying-pan, with a little bacon, some slices of onion, a little pepper and salt, and fry them in butter till the gravy looks brown; then add a little lemon juice, a small quantity of water, and a wineglassful of wine if liked; cover the pan, and let the contents simmer till the meat is quite done.

Honigküchen.—1 lb. honey, 1 lb. flour, ¼ lb. butter, ¼ lb. almonds pounded coarsely, 1 dr. pounded cloves, the grated peel of a lemon, and ½ oz. soda carbonate dissolved in water. Let the honey and butter come to a boil over the fire, take this off, and in a few minutes stir in the flour and spice by degrees, then the almonds, and lastly the soda. Let the mass stand all night in a cool place, In the

morning roll it ½ in. thick, cut it into little square cakes, put ½ almond in each corner, and a slice of peel in the middle. Bake them in a moderate oven a pale brown.

Knödeln.—(*a*) Beat ¼ lb. butter to a cream, beat 3 eggs to a froth, and add gradually to the butter; then add about 2 breakfastcupfuls breadcrumbs; mix and make into balls the size of a walnut. Perhaps salt ought to be added. In clear soup they are excellent.

(*b*) Mash 3 or 4 large potatoes smoothly with 1 large tablespoonful flour, mix with 1 well-beaten egg; make into balls the size of a walnut, and boil. These are served with meat in the place of other vegetables, or baked.

Köche (Moulds).—We have no suitable term for this sort of dish in English. Sponge pudding is the nearest, but this does not do it justice; nor is custard right. We must therefore call it a mould.

(*a*) Bread.—Stir well together the yolks of 6 eggs and 3 oz. powdered sugar, mix in 2 oz. grated bread, any approved flavouring of spice or grated lemon peel, and the whites of 4 eggs whisked to a stiff snow, stirred lightly in at last; have a mould well buttered, sprinkle in it some finely shred blanched almonds, and lay here and there a thin slice of candied peel; put the mass into the mould and steam it with care; boil sugar to a thread height and pour it over when the köche is turned out of the mould. Serve it without delay.

(*b*) Chestnut.—Stir 2 oz. butter with 3 oz. sugar, the yolks of 6 eggs, and 4 bitter almonds pounded fine. Have chestnuts boiled and pounded smooth or grated; add ¼ lb. these, and then stir in the whites of 4 eggs whisked to a snow. Steam the mass in a well-

buttered mould; when turned out serve with any approved sauce.

Kräplen.—1 pint milk, 2 lb. flour, 2 oz. fresh butter, 5 eggs, 1 tablespoonful pounded sugar, 2 tablespoonfuls rosewater, 2 tablespoonfuls good yeast, and a good pinch of salt. These ingredients must be mixed in the following manner. Having warmed the milk just lukewarm, stir in the flour, working it as dry as possible. The butter should be placed in a cup near the fire till warm, and then pour it on to the dough, and work it well in; then beat up the eggs, and pour them little by little on to the dough, kneading it well all the time. Lastly, mix in the sugar, salt, rosewater, and yeast, and beat it well together until you see blisters coming in it. Now divide it in pieces about the size of 2 fingers and ½ in. thick. Let these stand in a warm place until they have well risen, and then bake them on buttered tins till they are of a rich golden colour, and, while warm, sprinkle well with white sugar and grated cinnamon, if the flavouring is not objected to.

Lebkuchen.—1 pint honey, ¾ lb. sugar, 1½ lb. fine flour, ¼ lb. almonds in the skins, each one sliced into 4 or 5, ½ lb. mixed candied peel sliced and cut up ½ in. long, the peel of a lemon cut very small, ½ oz. powdered cinnamon, 1 dr. powdered cloves, ½ nutmeg grated, a small glass of rum, and 1 saltspoonful carbonate soda. Put the honey and sugar in a stewpan over the fire, and when it boils up throw in the almonds; let them simmer 5 minutes, then take the pan from the fire, put in the spice and peel. Let it cool a little, then stir in the soda, next the rum, and lastly work in the flour. While this dough is still warm roll it out as thin as possible; cut oblong pieces, about 4 in. long and 2 broad; lay them nearly

close together on buttered or well-floured tins, and let them remain all night in a cool place. Bake them next day, after the bread in a baker's oven. They must not be done brown. As soon as they are taken out, draw a knife across the tins to divide them in the pieces above described, and when cold break them apart. Boil some moist sugar in a little water till it will draw into threads, glaze them on one side with this, and let them dry.

Marzipan.—Blanch, and then pound very fine 1 lb. sweet and a few bitter almonds, adding a few spoonfuls of rosewater; put the almond paste in a stewpan with 1 lb. powdered sugar, and stir over the fire till a smooth paste is obtained, which will not stick to the finger when touched. Turn it out on to a pasteboard well strewn with powdered sugar; roll out the paste, divide it into cakes of any shape you like, and put them on sheets of paper on the baking sheet well sprinkled with sugar; bake in a slow oven until of a pale yellow colour.

Marien Cakes.—To 1 lb. flour add ½ lb. butter, 10 oz. sugar, 6 eggs, the rind of a lemon finely grated, and a little nutmeg and cinnamon. These must be well worked into a rather stiff paste, and cut into round cakes after being rolled out nearly 1 in. thick. These must be placed on tins for baking after being ornamented on the top with currants and pieces of sweet almonds cut small.

Monastery Wine Soup.—Boil ¼ lb. rice in 1½ pint water until quite soft, and with it the thin yellow rind of a lemon; add by degrees a bottle of any white wine; sweeten with 3-4 oz. sugar, and whisk in the yolks of 4 eggs when ready to serve.

Neun-loth Pudding.—This favourite pudding is made as follows:—Stir ½ pint milk into 4½ oz. fine

flour and 4½ oz. powdered loaf sugar. Put into a stewpan 4½ oz. butter and ½ pint milk. When this is hot and the butter melted, stir in the other milk and flour; keep the mixture stirred over the fire till it boils and thickens, then turn it out in a pan to cool. Stir in the yolks of 9 eggs, 4½ oz. almonds blanched and pounded, and, lastly, the 9 egg-whites whisked to a stiff snow. Stir all briskly together, butter a mould or basin, fill it, and boil the pudding 1½ hour. The water must not cease boiling. Serve arrack sauce or white wine sauce with it.

Nudels.-These are home-made maccaroni, and serve all the purposes for which it is used in Italy. They may be appropriated to any sweet dishes by first boiling them soft in milk or water 10-20 minutes, and then mixing them with eggs, sugar, spice, preserves, &c. A straight rolling-pin and a smooth pasteboard are indispensable in the manufacture of nudels. For nudel paste, beat 2 eggs, work into them by degrees as much flour as they will take, and knead them into a smooth, stiff dough. Cut this into 4 or 6 parts, make a ball of each, and roll it out as thin as possible; indeed, it cannot be too thin, for perfection is only gained when it is thin enough for one to be able to read through it. Lay each cake on a napkin as it is finished. They will resemble fine chamois leather. By the time you have rolled out the last cake, the first one will be dry enough to cut as follows: Divide the cake into quarters by cutting straight across each way. Lay the pieces one on the other, with their inner edges equal, and begin cutting them with a sharp knife into strips as narrow as twine; indeed as thread-like as you can to the end. Then scatter them apart to dry, and proceed in turn with the other cakes. When you have rolled out one of the little balls to its full tension, turn in an edge,

roll it up tightly, and thus cut it into little rings, which will open when thrown into the boiling soup or water. Little stars, &c., may be stamped out with very small tin cutters. The cakes may be laid one on the other for cutting, and may be cut finer and quicker by using an ordinary ruler, as for ruling lines nearly close together. When allowed to dry well, they will keep any length of time in paper bags or tin canisters. A variety may also be made by cutting the paste into tape widths like ordinary macaroni. If preferred perfectly white, use only the whites of eggs in mixing the paste. Be careful to keep the paste-board constantly dredged with dry flour while rolling out the nudels.

Parsnip Pudding.—Wash and scrape 2 or 3 parsnips, and boil them in milk or water till tender. Mash or pound them smooth, stir in a piece of butter warmed, and sugar, lemon, or cinnamon to taste. Mix in 3 or 4 well-beaten eggs, according to the size of the pudding, and a small glass of rum or brandy. Put it in a buttered dish, strew crumbs over, put little lumps of butter on the top, and bake it in a moderate oven; or butter a mould, strew it with crumbs thickly, and boil it. Serve with pudding sauce.

Plinsen.—These are much the same as our pancakes, only there are more varieties, both in the batter used and the method of treating the pancakes after being fried. 4 tablespoonfuls flour, 4 eggs, 2 oz. warmed butter, a little salt, 1 tablespoonful sugar, and ½ pint cream or lukewarm milk enough to make a thin batter; stir this well. Fry pancakes, exceedingly thin, a pale brown on both sides. Lay one on the other, with sugar and cinnamon, or other spice, between. Strew sugar plentifully over the top one, and glaze it with a salamander or other red-hot iron.

For fruit, to the above batter add 2 oz. currants, well washed in hot water, and ½ lemon peel grated. Use very little butter or lard in frying the plinsen. Spread over each one a thin layer of preserved or stewed fruit. Roll them up. Lay them close together in a dish, sift sugar and cinnamon over, and serve with sweet sauce.

Sago Wine Soup.—First wash the sago, and then boil for an hour in plenty of water, a pinch of salt, some cinnamon and rind of lemon. By this time the water should be reduced by one half. Fill up with red wine, add some slices of lemon, and sugar to sweeten. Let it come to the boil once more, and when serving the soup sprinkle it with powdered sugar and cinnamon.

Salsenaugen.—Make a dough of 6 oz. flour, 4 oz. butter, 4 oz. sugar flavoured with vanilla or lemon, 4 hard-boiled yolks of eggs, and 2 oz. pounded almonds. Knead it out as thick as a finger, stamp it with cutters into leaves and rings, and pile them up; wash them over with the white of egg in a snow and strew them thickly with sugar. Then sprinkle with water, and bake, after which put a jelly in the centre.

Sand-torte.—Take ¼ lb. butter, ¼ lb. sugar, grate the rind of lemon, and beat it well for ½ hour. Mix in 2 eggs, and 2 yolks one after the other, with ¼ lb. fine flour; beat it well together, and fill the whole in a buttered form; strew some finely cut almonds on the top, and bake it for 1 hour.

Sauerbraten.—One of the great national dishes of Germany is sauerbraten. Lay a piece of beef in a deep dish and pour a cup of vinegar over it. Let it remain in this 2-4 days, turning and basting it every day. To prepare for cooking wipe it dry; cut strips of fat bacon the size of a little finger; roll them in a mixed

seasoning of salt, pepper, and pounded cloves. Make holes in the meat with a large skewer, and put in the pieces of bacon. Make butter hot in an iron pot or stewpan just large enough; put in the beef and set it over a brisk fire, letting the steam escape to hasten the browning; dredge it with flour, and turn it when one side is brown. When the meat is nicely coloured add about 1 pint water, 2 carrots, quartered lengthwise, a large onion or two sliced, 2 or 3 bay leaves, 1 teaspoonful whole pepper, a blade of mace, ¼ lemon peel, and a good sprinkling of salt. Cover closely, and let it steam slowly 2-3 hours, adding a little water when necessary. At serving time take up the meat, and keep it hot while you skim the fat off and strain the gravy. The unbroken carrots may be laid round the meat. Add lemon juice or vinegar if the sauce requires more acid; thicken with flour, give it a boil up, pour a little over the meat, and serve the rest in a sauceboat.

Schmarn Batter.-½ lb. flour, the yolks of 4 eggs, a little salt, sugar, either nutmeg or grated lemon, and cream or milk enough to give a rather thick batter; must be briskly and well stirred. Then add the whites of the eggs, whisked to a snow; about 2 oz. butter must be made quite hot in a stewpan, and into this pour the batter over a brisk fire. Cover, and let it remain till a nice brown crust has formed at the bottom, of not too dark a colour. As soon as this incrusting takes place, break up the schmarn with a little iron spatula or fork, and let it set and brown again; then break it up smaller by tearing it lightly apart, and serve it without delay. If salad is to be served with schmarn, leave out any flavouring of nutmeg, &c., if disapproved of, as also the sugar. To the above schmarn either cream, stewed prunes, or fruit syrup may be added at table.

Schmarollen.—Let a pint of new milk boil, stir in 1 oz. sugar with flour enough to thicken it; boil until the mixture no longer hangs to the sides of the pan, then turn it out and when cool stir in 4 well-beaten eggs. Have 1½ pint milk boiling in a stewpan, and with a spoon dipped each time in water, cut klösse out of the mass, and simmer them in the milk a few minutes. Turn all into a dish, cut 2 oz. butter over them, and bake it a pale brown in a quick oven.

Spatzen.—Stir flour into cold water or milk, with a little salt, to make a thick batter, beat it well with a wooden spoon; drop little flakes or buttons into boiling water. This is easiest done by putting some of the batter on a trencher or flat plate and flaking it quickly off into the pot with a knife, dipped constantly in the water. Boil them 5 minutes; they will swim on the top when done; strain and dish them. Have ready a piece of butter melted in a stewpan, and a handful of crumbs in it, crisped brown; pour this over the spatzen, and serve while they are light and hot. A piece of butter may be stirred in as they are dished. If preferred richer, use an egg or two and milk for the batter.

Sticklerspersgrod.—For this simple and cheap dish, well flavoured, ripe, red gooseberries are used; 4 lb. gooseberries, with ½ lb. raspberries, keep them stirred gently in a stewpan over a clear fire till the fruit is quite soft, then mash and strain the juice through a cloth; make this juice quite boil, then add ½ lb. sugar and 6 oz. cornflour or arrowroot, let it boil 10 minutes, stirring it all the time; wet a mould with cold water, pour in, and when cold turn it out. 1 pint juice to ¼ lb. cornflour are the best proportions. To be eaten in soup plates, with sifted sugar and milk.

Stölle.—Mix 2 oz. dry yeast with ½ pint warm milk and ½ lb. flour. Set this to rise. Take 1½ lb. flour, ¼ lb. sugar, 4 eggs, 1 oz. bitter almonds pounded, ½ nutmeg, the grated rind of a lemon, a little salt, and milk enough to work these into a dough. Add to this the light sponge dough, and mix both well. Add ½ lb. softened butter, ½ lb. stoned raisins, ½ lb. currants, 2 oz. sweet almonds, cut in slices, and the same of candied peel. Knead the whole, cover, and set it to rise. When light flour the paste-board, turn the cake out, and mould it into a long roll. Lay it on a flat baking tin; cut, with a knife, 2 slits all along the roll, near 1 in. deep, so that the 3 divisions on the top are equal in width. Set it to rise. Bake it in a moderate oven. When done rub it over with butter, and strew sugar over when cold.

Strudels.—This form of pastry can only be described by the English term roly-poly, in a very diminutive size. There are various ways of making the paste, but they all agree in this one particular—that it must be worked into a tough dough and very smooth. One way is to beat 2 eggs and the yolks of 2 others, warm a piece of butter the size of an egg and add it to the eggs with a little salt, work in by degrees as much fine flour as will form a dough; knead this till quite smooth. Divide the paste into small balls, roll them round in the hands, then with a smooth rolling pin roll them out as thin as possible. They should be the size of a saucer, but rather oval. Spread over them whatever they are to be called after. Roll them up, when the shape will be larger in the middle, and tapering off at both ends. Lay them 1 in. apart in a baking tin or large stewpan that has been well buttered, cover, and either bake them in the oven or over a slow fire, with red coals on the lid to draw them. When they are risen and beginning to

colour, pour some hot milk over, and finish baking a very pale brown.

Zweibach.—(*a*) Ingredients: 1 lb. flour, ¼ lb. sugar, ¼ lb. butter, ½ pint milk, and 2 tablespoonfuls good yeast. Warm the milk and stir the yeast into it. Put the flour in a pan, and throw the sugar among it. Make a hollow in the middle, and stir the yeast and milk into the hollow like a thin batter. Cut up the butter on the flour, cover, and set it to rise. Then beat it until the dough no longer hangs to the hand or spoon. Let it rise again till it cracks on the top. Cut and mould from the dough long cakes 1 in. thick, 5-6 in. long, and 2 broad. Set them on a buttered tin 2 in. apart; let them rise on this, then brush them over with milk and bake them. Next day slice them open with a sharp knife, lay them on a tin with the crust under, and put them in a cool oven till they are crisp and baked yellow. (*b*) Beat 6 eggs well, melt ¼ lb. butter in ½ pint new milk, stir into this ¼ pint fresh yeast and 3 oz. powdered sugar. Then stir in, by degrees, as much flour as will make a batter so thick that the spoon moves with difficulty. Cover and place it in warmth to rise. In about an hour sprinkle flour in, and work it well together, but not to a stiff dough. Form cakes as described in (*a*), and finish the same way in all particulars. Either caraways or anise seeds may be mixed in them. The latter are very good and wholesome for infants' food.

Indian.—Bhartas.—Bharta holds the same relative position in the cuisine of the East that salad does in that of the West. Bhartas can be made of every kind of vegetable, either singly or in combination, and many kinds of fruit; also with meat, fish, &c. From this it will be seen that it is impossible to give

recipes for every kind of bharta, nor is it really necessary, as, once the spirit of the thing in its various forms is mastered, anyone with ordinary ingenuity will be able to successfully work out the problem for themselves. The components of a bharta consist of, first, a chatni or zest, and, secondly, the substantial part being a vegetable, vegetables, fruit, meat, fish, &c. The latter constituent is in most cases cooked, but there are a few exceptions in which its nature will permit of it being used either raw or cooked—tomatoes for example. Bhartas prepared with meat and fish are eaten as dishes by themselves, while the more substantial vegetable bhartas may either form a separate dish or be used as an accompaniment to curry, &c. For the Chatni or Zest.—Ingredients: 6 spring onions, 2 green chillies, the juice of ½ lemon; salt to taste. Mode: Slice the onions as fine as possible, chop the chillies crossways in circles, mix together, add the salt, squeeze the lemon juice over all, and let the whole soak for ¼ hour at the very least. The onions must be of a fairly good size. The chillies may be increased if the palate will permit, and for appearance sake half may be green and the other half red, but fresh of course. When limes are procurable, the juice of a whole one may with advantage be substituted for that of the lemon. Cayenne pepper and ordinary onions may be used when fresh chillies and spring onions cannot be had. Mustard oil may be omitted but it is a great improvement to all bhartas.

Brianees.—Brianees are spiced dishes somewhat resembling a mixture of curry and pilau. They consist of meat, fish, or cheese, highly seasoned and partially fried, which is put in a saucepan with condiments of various kinds, carefully covered over, and then steamed or boiled. The following example

will suffice: Zarebrian Punneezee.—Ingredients: ½ lb. cheese; 2 lb. rice; a small quantity clarified butter; ½ lb. onions; 1 oz. flour; ¼ lb. dried pea flour; cinnamon, cardamoms, cloves, saffron, ½ teaspoonful of each; ½ oz. green ginger; ¾ oz. salt. Cut the cheese into small round slices, and sprinkle them with flour; then fry in clarified butter till brown. Grind the cardamoms and cloves, and add to the cheese. Spread a few clean little sticks on the bottom of a saucepan (this is the native way of preventing any substance from being burnt at the bottom of the pan), and place the cheese on them. Fry the green ginger, onions, and curry stuff, and add the mixture to the cheese. Parboil the rice, and put it over with a small quantity of the rice water. Colour a little rice with saffron, and put it into the saucepan under the rice on one side, and the dried pea flour on the other; then pour a little hot clarified butter over. Make a plain biscuit or thin cake of flour and water, and place it on the rice. Cover the saucepan, put a live coal or bit of charcoal on the top of the lid, and boil the whole until the rice is done.

Burdwan.—This is made of almost any kind of meat which has been previously roasted or boiled. Poultry, game-birds, hare, rabbit, kid, veal, or venison are all suitable for the purpose. If the material chosen happens to be raw, it can easily be made available by being semi-boiled or semi-roasted especially for the purpose. The following typical example will explain the mode of procedure. For the chicken used therein, any other kind of meat, as fancy may suggest, can be substituted.

Take a good chicken which has been left from a previous meal, or purposely prepared, as explained above; a small teacupful of good clear stock, a small

Spanish onion, a wineglassful of white wine (Chablis is the best), ½ oz. butter, 6 chillies (a little cayenne pepper will do instead), the juice of ½ lemon, a small piece of garlic. Mix the stock, onion (previously boiled or roasted), wine, butter, chillies, and garlic, and let them thoroughly amalgamate in a stewpan over a moderate fire. Then add the chicken cut up as for curry. Allow the whole to simmer till done, when squeeze in the lemon juice. It ought to be served very hot, accompanied by a dish of boiled rice or kichri.

Chachki or Vegetable Curry.—Ingredients: 1 breakfastcupful shelled peas, ½ lb. pumpkin, 1 small teacupful clear veal stock or water, 2 onions 1 in. diameter, 3 green chillies, a small clove of garlic, 1 tablespoonful curry powder, salt to taste, 1 wineglassful mustard oil, or 2 oz. butter. Mode: Chop the onions, garlic, and chillies, and then reduce them all to a pulp in a mortar. Boil the oil (or butter) in a frypan, add the curry powder, onion, garlic, and chilli pulp, and salt; let it fry for a few minutes, stirring constantly, then put in the peas and pumpkin; when of a golden colour put the whole into a saucepan. Pour the stock or water into the frypan just used; let it boil up, scraping it as you do in making gravy; when it has boiled for a few minutes, add it to the contents of the saucepan, and let it simmer till tender, when serve. All vegetable curries are made in the same manner, and any number of vegetables may be used according to taste. When potato or spinach is one of the ingredients, it will be necessary to ¾ boil them in water before frying them; this will prevent the objectionable liquor given off by them from entering into the gravy.

Chapatis.—1 lb. flour (the coarse kind preferable), 2 oz. butter, 1 teaspoonful salt, some water. Work

the butter and salt into the flour, add gradually sufficient water to form the whole into a dough. Roll some of it out on a board with a rolling pin till about $^1/_{16}$ in. thick; cut it into a circular form with an inverted saucer, and bake it on a girdle over a clear fire; when done on both sides, place it on a trivet before the fire, turning it occasionally. By the time that the second cake is baked on the girdle, the first will be toasted enough. Now butter the first chapati, and put it on a plate in the oven. Repeat the process till all are ready.

Chicken Country-Captain.—A plump chicken, 4 oz. butter, 4 onions 1 in. in diameter, ½ teaspoonful each ground green chillies, ground coriander seed, and salt, ½ teaspoonful ground turmeric. Cut up the chicken as for curry; if uncooked veal, mutton, &c., is about to be used instead of the chicken, it must be cut up after it has been semi-broiled or semi-roasted. Slice the onions as fine as possible, fry ¼ the quantity in the butter till of a golden brown colour, drain them carefully from all superfluous grease, and put aside in an oven to get crisp. Now put the ground chillies, coriander seed, tumeric, and salt into the frypan, and after the contents have fried for a minute, add the chicken and the remainder of the onions, and keep constantly stirring the whole till the chicken is quite tender. Serve garnished with the crisped onions. Boiled rice is generally an accompaniment when time is no object.

Chicken Curry.—A small fowl, 1 pint stock, 6 onions about 1 in. in diameter, 4 oz. butter, 1 small clove of garlic chopped fine, 2 green chillies (failing which, 3 dried bird's-eye chillies) chopped fine, 1½ heaped tablespoonfuls curry powder and ½ lemon. Slice the onions fine, take a third of them and fry

with half the butter till crisp and of a nice golden colour; drain them carefully from all superfluous grease and put them aside. Then fry the chicken, cut up as directed, in the surplus of the butter left from the last operation; when the meat is slightly coloured, put them also aside. Now take a saucepan, put into it the curry-powder and the remaining half of the butter; let it fry for 2-3 minutes, stirring occasionally, then throw in the uncooked onions. Amalgamate well with the contents of the saucepan, and after they have fried for a few minutes add the stock chillies, salt, and garlic; stir well, and let the liquor reduce to one-third of its original quantity, the cover of the pan being drawn slightly aside to enable the steam to escape. When it has reduced, add the chicken. Allow the whole to boil briskly for 2 minutes; then place it on the edge of the hob to simmer gently till cooked, stirring the curry frequently to enable the meat to take up the gravy. In about 20 minutes it ought to be ready, but the surest guide is to observe the appearance of the drumsticks; if the bones are found protruding by the flesh having shrunk, it is done. Finally, the piece of the lemon and the fried onions, which have been put aside from the first operation, must be added to the contents of the saucepan, and the whole quickly stirred, after which no time should be lost in serving the curry.

Coconut Pudding.—Grate fine a large coconut, fry it slightly with a little butter. Make 1 pint custard with some new milk, 4 well beaten eggs, a little nutmeg, 1 tablespoonful loaf sugar; stir in gradually a small glass of brandy, adding the coconut by degrees. When well mixed, fill a pie dish, that has been lined with puff paste with the mixture, bake in a gentle oven; about 20 minutes will suffice.

Coconut Soup.—3 pints prepared stock, the kernels of 2 large coconuts, yolks of 2 eggs, juice of a lemon, 2 blades of mace, 1 saltspoonful ground cinnamon, salt and white pepper to taste, a little corn or rice flour. Throw away the liquor inside the kernels of the coconuts, remove the brown outside rind, and rasp them as fine as possible. Mix the stock with the rasped kernel, add the mace, cinnamon, pepper and salt, and let the whole simmer for ½ hour or so, when carefully strain it through fine muslin. Make a paste with the lemon-juice, the yolks of the eggs beaten up, and sufficient cornflour till of the consistency of thin batter; add this gradually to the liquor before prepared, stirring all the while. Let it simmer till ready, when serve with a separate dish of plain boiled rice.

Curries.—Oriental dishes, with few exceptions, are prepared in sufficiently small morsels to permit of their being eaten with the hand, without the aid of knife, fork, or spoon. When, however, this cannot be avoided, as in the case of pilau of poultry, game, or joints, the meat is cooked just long enough to allow of its being separated from the bone by the fingers without being stewed to rags. Indeed, the whole art of curry and pilau making consists in correctly timing the simmering process. If it is removed off the fire too soon, the meat, though done, will be tough, and the spices will not have had time to permeate the tissues; while again, if too much cooked, the disintegration of the fibres will have caused the spices to return into the gravy. Therefore, in either case, a failure will be the inevitable result. A curry properly cooked must hit the happy mean between these extremes, yet ought to be able to be eaten with a spoon and fork only, which is the practice among Europeans in India. The next rule to be borne in

mind is the correct dressing of the meat which is to be used. Beef, mutton, pork, fish, &c., must be cut into dice not larger than 1 in. square. Poultry, partridges, &c., should be disjointed as follows: The wings and legs into 2 parts at the joints, and the backs crossways, according to size, into 3 or 4, and the merrythought separated. It may be as well stated that 2 smaller birds are preferable to one large. Hares and rabbits, according to size, ought to have the legs each cut into 3 or 4 pieces, and the backs crossways into 8 or 9; pigeon's wings and legs whole, backs in two. Small birds as quails, larks, &c., in two, lengthwise.

Dal-puri.-½ lb. lentil curry, 1 lb. ordinary light pie pastry. When the lentil curry has become quite cold, mash it thoroughly in a mortar till reduced to a fine pulp. Divide it and the pastry into pieces each of the size of a walnut. There ought to be now twice the number of the latter as of the former. Take 2 of the lumps of paste and form them into small shallow bowls, put one of the lumps of the curry-pulp into one of these bowls; carefully adjust a second bowl on the first, and roll the whole out to the size of a dessert plate on a paste board. Make similar cakes till all the materials are used up. Fry each cake separately in a frying-pan with boiling oil, lard, or butter, and serve very hot with the dam-pukht.

Dam-pukht.—Dam-pukht, like many Oriental dishes, is of Persian origin, and etymologically signifies a stew which has been very slowly simmered; in fact, the whole art of preparing it consists in carefully simmering it as gently as possible. For this reason, a gas or oil stove, in the absence of a charcoal fire, is the best means of cooking it, as, under such conditions, the heat can be

more easily adjusted for the purpose in view than in the case of the ordinary coal fire. Indeed, in England all Oriental cookery is much more easily and conveniently prepared with the aid of such stoves. Therefore, if satisfactory results are desired, the use of coal fires should, if possible, be eschewed. Dam-pukhts can be made with any kind of poultry—duck, goose, fowl, &c., or with game birds, such as pheasants, partridges, &c. As the details of preparing all dam-pukhts are practically the same, a single example, given below, in which the process is displayed, will suffice to explain every case. In the same way, by substituting a brace of pheasants or partridges for the duck, and with exactly the same quantity of ingredients, a pheasant or partridge dam-pukht can be made. A goose will require half as much again, or, in the case of a large one, twice the quantity of ingredients, otherwise the details are identical.

Dam-pukht of Duck.—A large fat duck (the fatter the better), 2 lb. beef, ½ lb. beef suet, 2 oz. butter, 1 oz. grated breadcrumbs, 1 tablespoonful sweet herbs, 1 teaspoonful each soy and apple sauce, mustard-oil, olive-oil, pepper and salt, and mixed spices and birdseye chillies to taste; also any vegetables, such as carrots, turnips, potatoes, cauliflowers, marrow, &c., which may be procurable. After the duck has been feathered, singed, and cleaned, bone it carefully, so as not to break the skin; mix the soy and apple sauce, mustard-oil and olive-oil well together, and pour it into the bird. Make a good gravy of the giblets, flavouring with pepper, salt, and sweet herbs. Mince the beef, suet, and the liver of the duck very small (if you can procure an extra liver or so by all means add them), then add the grated breadcrumbs, pepper, salt, spices, chillies, and sweet herbs, and thoroughly

amalgamate the whole well together. Stuff the duck with the mixture. Now melt the butter and pour it into the duck, and, having put it into a stewpan, pour the giblet gravy over it, and let the whole simmer as gently as possible till tender. When ready, glaze it with ordinary glaze if to be eaten cold, if hot do not; but, in either case, serve surrounded by the vegetables plainly boiled, and accompanied with some hot pickles. Oriental epicures generally accompany dam-pukhts with a very nice kind of bread, called dal-puri. Dal-puris are also often served with curries—especially dry curries—pilavs, and very frequently alone.

Dhall Curry.—(*a*) Take ½ lb. mussoor or moong dhall; clean pick, wash and roast it; mix with it 1 large tablespoonful onions, minced fine, 1 saltspoonful ground chillies, same of turmeric and ground ginger, a clove of garlic minced fine, 1 teaspoonful salt; slice 2 onions lengthways, warm a stewpan, throw in 2 oz. butter, fry the sliced onions crisp, and remove; meanwhile cover the dhall and other ingredients with about 2 in. water above the whole, let it boil smartly until the dhall is dissolved: do not stir it while boiling, but let it cake; rub the mixture through a sieve, pour the dhall into the melted butter in which the onions were fried, stir until well mixed, cover the stewpan close, and simmer for about 20 minutes; serve very hot, with onions floating on the top of the mixture. Dhall may be made from peas, Egyptian lentils, gram, or haricot beans but the moong and mussoor dhall are the best.

(*b*) Slice and fry 4 onions in 2 oz. butter. When brown take them out; put into the butter the same ingredients as in (*a*), fry until of a golden colour, then add ½ lb. dhall, which fry until well done, then

just cover the dhall with water, let it boil slowly for about 20 minutes, or until dissolved: serve with the fried onions.

(*c*) Prepare the dhall as in (*b*), work it up into a paste, then have ready some pie crust; roll it very thin, cut out about size of a saucer, place some of the dhall on each piece, turn the paste over, pinch the edges, throw into boiling butter or lard, and fry of a nice gold colour. In India rice boiled as for curry is eaten with dhall.

Fish Moolay.—Fillet a sole, or cut a grey mullet, mackerel, or haddock into nice pieces; rub with a little curry powder and salt; fry of a light brown in butter. Grate a coconut, pour over it a teacupful of boiling water, mash it well with a spoon, then strain. Cut an onion into slices, fry it in the butter the fish was fried, with a clove of garlic and 2 chillies (green are best); add the coconut water; when boiling put in the fish, a little vinegar, salt, and pepper; stew until the sauce thickens; serve very hot.

Hullvah (Indian Toffee).—Take equal weights of flour, butter, Sultanas, almonds, and sugar; melt the butter, stir in gradually the flour, let it fry until of a light brown, then add by degrees the Sultanas, then the almonds, which must be blanched and sliced; add the sugar, which should first be made into a thick syrup; keep stirring until sufficiently cooked, pour into buttered moulds or shapes.

Jal-frizi.—It is always made of meat—veal, beef, mutton, or pork—which has been previously cooked. An underdone joint comes in very handy for the purpose. Take 1 lb. any cold meat available, 6 onions 1 in. in diameter, 2 oz. butter, salt and chopped green chillies to taste. Remove all bones and gristle from the meat before weighing; cut it up as for hash.

Slice the onions fine; mix the meat, onions, chillies, and salt well together. Put the butter into the frypan, and, when it boils, add the rest of the ingredients, and fry the whole constantly stirring until the onions are tender, when serve piping hot.

Kedgeree.—(*a*) Take 1 breakfastcupful rice, boiled and strained, 4 eggs boiled hard, haddock or any other white fish; mince them all together with a knife; put a piece of fresh butter in a stewpan, make the whole very hot, and season with salt and cayenne to taste. (*b*) Steep ½ pint split peas or Indian dhall in water, add ½ lb. picked and washed rice, with a little ginger, mace, and salt; boil till the peas and rice are swollen and tender, then stir the whole till the water has evaporated; have ready some hard-boiled eggs cut in halves, and an onion or two sliced and fried to garnish with. To be well dressed neither the peas nor rice should be clammy. (*c*) 1½ teacupful of rice, 12 cloves, 6 cardamoms, 2 teaspoonfuls coriander seeds; let them boil ¼ hour, then add ½ teacupful dhall, let it boil 5 minutes, drain it quite dry. Then put it back quickly into the saucepan, with a small piece of butter and a little salt; let it stand on the hob for 20 minutes; garnish with hard-boiled eggs and fried onions.

Khabobs.—Khabobs, which form another very favourite Indian dish, are composed of fish, flesh, or fowl, with vegetables and spices. They are either cut into slices or else pounded and formed into balls, and then strung on wooden skewers and roasted or fried. They can be served dry or with gravy. As a rule fresh meat is used, but cold chicken, with a little bacon or ham to give it a flavour, and cold roast beef can be cooked in this way. Example:

Khabob Hoossainee.—Ingredients: Meat, 2 lb.;

butter, ¾ lb.; onions, 1 lb.; cinnamon, ½ teaspoonful; cloves, cardamoms, black pepper, ¼ teaspoonful; green ginger, coriander, ¼ oz.; salt, ½ oz. Cut the meat a little larger than walnuts, rub some salt and the juice of green ginger over the pieces, cut the onions into slices and fry them in butter, and put on one side. Warm up the meat in the same butter, and when it is getting dry add a little coriander and water, and let it simmer gently on a slow fire for an hour; after the meat is boiled file it on a small wire skewer, first a slice of meat then one of onion, and so continue to file the slices on as many wires as required to look nice in the dish. Sprinkle over them the spices, ground into curry stuff, and fry them in a pan with butter, adding a little water to soften the meat; when done serve up.

Malagatani Soup.—3 pints stock, 6 onions 1 in. in diameter, 3 tablespoonfuls coarse lentil flour, 2 oz. butter or lard, 1 tablespoonful coriander seed, 1 teaspoonful cumin seed, a pinch of fenugreek, a few cloves and bird's-eye chillies, and, if necessary, pepper and salt to taste; but, as the stock is already flavoured, the latter will seldom be required a second time. Slice the onions as fine as possible, and fry them with half the above quantity of butter or lard; when about half done, add the coriander seed (previously parched on a hot iron plate, the husks removed and then crushed), the cumin seed powdered, fenugreek ditto, chillies ditto, and the cloves whole. Fry the whole well, stirring constantly, until the onions have acquired a golden tint, adding more butter as required to prevent burning; parch the lentil flour by placing it on an iron plate on the fire. Mix the onions, condiments, and lentil flour well together. Put them all into a saucepan, and pour over them the prepared stock, which must be boiling hot;

simmer the whole for at least ½ hour, when serve with a separate dish of plain boiled rice.

Malay Chicken (Doopiazeh Curry).—Take 3 oz. butter, 1½ teaspoonfuls salt, and tablespoonfuls ground onions, 1 teaspoonful each ground turmeric and chillies, ½ teaspoonful ground ginger, a clove of garlic, 1 teacupful coconut milk, and 2 or 3 onions cut lengthwise. Cut up the raw chicken into small pieces, fry crisp, and set aside the onions; then fry the other condiments of a rich brown; add the chicken when fried brown, pour in the coconut milk and the fried onions, let it simmer for an hour; serve with boiled rice in a separate dish as for curry.

Pilau.—(*a*) Fish.—1½ lb. cod (almost any kind of fish is suitable for the purpose—turbot, salmon, and sole being the best), 1 lb. rice, 1½ pints white stock, ¼ lb. butter, a small cupful of salad, or, better still, mustard oil, ditto curds, 8 small onions, 1½ oz. lentil flour, 1 dessertspoonful powdered ginger, 1½ tablespoonfuls coriander seed, 6 cardamoms, 6 cloves, a small clove of garlic, pepper and salt to taste, 2 hard-boiled eggs. Skin and bone the fish, wash it well in salt and water, cut it into thick slices, arrange them in a shallow dish, pour the oil over them, and let them soak for ½ hour, turning them over occasionally. Then wipe the oil off with a clean cloth, rub the slices over with the lentil flour, which wash off in a few minutes; dry, and finally turn the slices all over with a fork. Pulp 2 onions in a mortar, together with a third part of the ginger, coriander seeds, and cardamoms. Mix these with the curds, adding pepper and salt to taste. Cover the fish with this mixture. Boil some of the butter, and semi-fry the fish in it. Slice fine a couple more of the onions, and fry them; when half done add the semi-fried fish,

and fry till a light brown colour, when put aside to keep warm in the oven. Fry separately 2 more of the onions finely sliced, and at the same time a third more of the coriander seed and half the cloves, in a few minutes add 1 small teacupful white stock, and let the whole simmer gently till it thickens into a sauce, which place on the hob to keep warm. Put the rest of the onions, coriander seed, cardamoms, and the garlic into the stock, let it simmer till reduced to a pint, when strain. Fry the remaining half of the cloves with butter in a saucepan for 2 minutes, then pour the strained stock into this saucepan and give the whole a boil up. Parboil the rice in water, strain it, and finish cooking it in the stock, being careful, when nearly done, to granulate the rice thoroughly by means of its own steam, all superfluous liquor, if there be any, being previously drained off. Serve with the fish arranged on the top of the rice, the sauce poured over all, and garnished with the hard-boiled eggs cut in circles, halves, or quarters, according to fancy.

(*b*) Fowl.—1 fowl, 1 lb. mutton, 8 oz. rice, 5 onions, 3 or 4 eggs, ½ lb. butter, 10 black peppercorns, 4 blades mace, 10 cloves, 10 cardamoms, 1 dessertspoonful salt, ¼ oz. green ginger. Put 1 lb. mutton cut into slices, and four whole onions, into 6 qts. water; boil all together until reduced to one-third, then mash the meat in the liquor, and set it aside. Wash 8 oz. rice well, and dry it by squeezing it in a cloth. Melt ½ lb. butter in a saucepan, fry in it a handful of onions (sliced lengthwise) until they have become brown, then remove, and lay them aside. In the butter that remains fry slightly a fowl that has been previously boiled; take out the fowl, and in the same butter add the rice, and fry it also a little, and, as the butter

evaporates, add the above-mentioned broth to it, and boil the rice in it; then put in the pepper, mace, cloves, cardamoms, and salt, with the green ginger cut in slices. When the rice is sufficiently boiled, remove all but a little fire from underneath the "handy," and put some live coals or charcoal on the cover. If the rice be at all hard, add a little water to it, and put the fowl in to get a flavour; finally cover it over with the rice, and serve up with a garnish of hard-boiled eggs cut in quarters. The "handy" is a sort of deep basin without handle, made of tin or tin lined copper, with close-fitting lid.

(*c*) Fruit.—1 lb. Patna rice, 8 bananas (almost every description of fruit can be substituted—quinces, pears, mangoes, &c.), 1½ lb. sugar, 2 lemons (when procurable, 3 lemons preferable), ¼ oz. crushed ginger, ¼ oz. crushed coriander seed, 1 doz. each cloves and cardamoms, and a few small sticks of cinnamon. Make a syrup with ½ lb. of the sugar, flavour it with the ginger and coriander seed, let it simmer for 10 minutes after the spices are added, then strain and put aside. Parboil the rice in water, and finish cooking it in the above syrup, granulating it. Simultaneously with these operations, make a clear syrup with the rest of the sugar, flavour it with the juice of the lemons, the cloves, and cardamoms; after it has simmered for 10 minutes put in the bananas, each cut lengthways into 2 or 4 pieces, let them stew till done. Place the rice in a dish, arrange the bananas on it, strain off the spices from the syrup in which the fruit was stewed, and pour it over all and serve.

(*d*) Nuckodee Choofta.—3 lb. mutton, 1 lb. rice, 1¼ oz. suet, 2 eggs, 1 oz. flour, 1 lb. onions, ¾ oz. green ginger, ¼ lb. almonds, 2 oz. salt, ¾ oz.

coriander seeds, 10 cloves, 8 cardamoms, 8 black peppercorns, a little cinnamon, saffron, and butter. Slice the meat and put it into a saucepan with a sufficient quantity of water, some sliced onions, green ginger, pounded salt, and coriander seeds, with a little butter. Boil all together until the meat is done, then strain the gravy into a basin, take out the meat, and warm it up in butter with half the cloves, after which add part of the other spices. Parboil the rice in plain water, then cook it in the gravy with the cinnamon, take the saffron, grind it with a little water, and colour a part of the rice, place this over the meat, or on one side of the saucepan, and the plain rice on the other. Pour some melted butter over the whole, cover the saucepan close, and set it near the fire. Mince very finely another lb. of meat, and warm it up in melted butter with some sliced onions, green ginger, salt, and coriander seeds; add a little water, and simmer gently till the meat is done, then put the meat into a mortar with the suet, some chopped onions, pepper, salt, and the white of the eggs, beat the whole together into a paste, form it into small balls, roll them in the flour, and then warm them up in melted butter with cloves; pound the almonds with a little water and the rest of the spices, and put it with the balls, which are now to be fried until properly done, and when ready placed over the pilau and served.

Pishpash.—Wash a breakfastcupful of Patna rice in 2 or 3 waters, drain; slice an onion. Get a small knuckle of veal, stew the veal slowly until half done, add then the rice and onion, a blade of mace, a few white peppercorns, and if liked 2-3 cardamoms. Cover close, and cook gently until the rice is done; season with salt to taste; serve very hot. This may be made with the scrag end of neck of mutton, fat being

carefully cut off, or with a fat young chicken. The latter is most delicate for an invalid.

Quoormah (Persian Curry).—Take 2 lb. fat mutton, cut it into small pieces as for curry, sprinkle it with 1½ teaspoonful salt. Warm a stewpan, melt 5 oz. butter, fry 3 onions, sliced thin until crisp; remove, and add to the butter 1 tablespoonful ground onions, 1 teaspoonful ground chillies, 1 of ground coriander seed, ½ of ginger, a little cinnamon, and a clove of minced garlic; fry until well brown; put in the mutton and salt. When this is browned add the crisp onions, cut small, ½ pint curd, 8 peppercorns, 4 cloves, 5 cardamoms, and 2 or 3 bay leaves; stir well together. Closely cover the stewpan, and let the quoormah simmer slowly for about 2 hours. A little water may be added if it becomes too dry. Serve as curry; pork, beef, veal, or chicken may be used.

Rice, Boiled.—Take 1 breakfastcupful Patna rice, pick it free of all foreign matter, wash it in several waters until perfectly clean. Put it, with a saltspoonful salt, into a large saucepan with sufficient water to cover it well. This water may be cold or otherwise, as it does not affect the result. When it is nearly done—which may easily be known by squeezing a grain between the fingers, for if there is just a suspicion of a core it is right—take it off, drain off the water by pushing aside the lid and tilting the pan over. Then at once put the pan under a tap, cover the rice quickly with cold water, drain it off quickly, and repeat the process. Now take the pan containing the drained rice and place it on the hob without any cover, shaking it constantly about to permit the remaining moisture to escape as steam. Care must be taken not to allow the grains adhering to the bottom and sides of the pan to become

scorched or shrivelled up. In 3-4 minutes the rice will have become thoroughly cooked by the steam, and each grain separate. There must be no hesitation when you douche the rice with cold water; its object is to wash away all the starch, which clings to the grains and causes them to cohere, and the more water you use the quicker will it be done. The grand secret of boiling rice consists in this washing process. Of course, it cannot be expected that this knack will be learned to any degree of nicety at the first essay; a few patient experiments must, however, finally lead to success, as it is the way in which the greatest rice-eaters of the world—the natives of India—cook it.

Tamarind Fish.—When used as a relish for breakfast, or to eat with a curry, it should be first cleaned of the mixture by scraping with a knife, and then fried, being served very hot.

Italian.—Bracciolette.—Take a piece of fillet of beef, remove all fat and gristle, and mince it finely, mixing with it salt, 1 or 2 cloves (powdered), and a little oil and chopped fat bacon, sweet herbs and parsley to taste. When well amalgamated roll it out, and divide it into small pieces; form each piece into an olive, roll them in liquefied butter, and then in fine breadcrumbs. Just before they are wanted, broil at a good fire, first on one side, then on the other; if done too long they will be spoilt.

Codfish.—Take 3 lb. cod, pick in pieces, remove all bones and skin; take an onion in slices, fry with 2 tablespoonfuls Lucca oil, and 1 oz. butter, add 1 tablespoonful chopped parsley, a little ground cinnamon, mace, and pepper; put in the fish, and stew ½ hour. The same can be done with salted cod after soaking for some hours, in which case do not put salt.

Croccante.-½ lb. finely chopped (and blanched) sweet almonds, ½ lb. loaf sugar, 1 tablespoonful essence of lemon, a piece of butter size of a walnut; boil in a saucepan till it sets (15-20 minutes), turn into a flat shape to set; to be eaten cold.

Galoni.-½ lb. flour, a pinch of salt, 2 eggs beaten, ¼ lb. butter; knead all very thoroughly ¾ hour, roll out very thin, cut in strips or any fancy shapes, fry in boiling lard, place on a hot dish with a napkin, sprinkle with pounded sugar, and serve.

Gniocchi of Semolina.—Take 1 lb. good semolina and 1 pint milk. Put the milk, with an equal quantity of water, on the fire, and before it reaches boiling point sprinkle in the semolina and let it boil, stirring all the time. When sufficiently cooked turn it out on the pasteboard, which has been previously sprinkled with cold water. When cold, cut the paste into pieces the size of a walnut. Put them on a dish, season them well with grated Parmesan, sugar, and cinnamon, add butter; put them in the Dutch oven, and bake 1 hour before serving.

Milanese Stew (Umido).—Take a good-sized piece of beef, and, after well beating and washing it, put it in a basin, cover it with wine, and let it remain for a night. In the morning take out the meat, lard it with strips of bacon, season it with powdered cloves, cinnamon, and salt, lay it in a stewpan with the wine, a faggot of parsley, one of sweet herbs, ½ onion, and a clove of garlic. Boil slowly, with the stewpan closely covered, till the meat is well done.

Minestra.—Cut up 3 or 4 potatoes, add a proportionate quantity of beans (dried ones best), onions, carrots, and celery, sliced, and, if in season, sliced vegetable marrow and pumpkin rind. Boil all these in ¼ saucepan of water till the potatoes are

quite soft, adding salt. Then add ¼ lb. rice or maccaroni; boil a little longer, as the rice ought not to be soft, and before taking off the fire add 1 oz. butter (orthodox, a spoonful of fine olive oil), and as much Parmesan cheese; stir a few minutes and serve. In both cases grated cheese may with advantage be added afterwards.

Pickled Fish.—Flour the fish and fry it in oil, and put it by to drain. Pound in a mortar 2 or 3 sprigs of mint, 1 capsicum (fresh, if possible), 2 cloves of garlic, and salt to taste; gradually work in some wine vinegar (say about 1 pint), put this sauce into a saucepan, let it boil for 5 minutes, pour it boiling hot on the fish, and serve when cold.

Puff Paste as used by the Nuns.—Take 1½ lb. flour, reserve a small quantity wherewith to dredge the pastry, break into it the yolks of 2 eggs and 1 white, add ½ glass of tepid water, and 1 spoonful butter. Knead the paste well, and roll it lightly out several times. Divide it into 2 or 3 parts; roll each piece out quite thin. Butter a tart mould, and put in the paste in layers, with butter between the layers. Cut off the edges all round the mould, and then with a sharp knife mark a round the size of the cover you wish to take off, leaving the bottom intact. Bake, and then remove the cover. Fill the tart with whatever you like, put on the cover again, and serve hot or cold.

Purses.—Take 1 lb. finest flour and 2 oz. butter, knead both together lightly with as many eggs as will form a smooth, stiff paste. Spread it out to the thickness of a penny piece, cut it out in round pieces 4 in. in diameter, place in the middle 1 teaspoonful any kind of well-flavoured mince, ready cooked; gather up each piece of paste, and tie it up with a

thin strip of paste. The trimming can be rolled out again and again till all the paste is used, and any manner of device can be made with the paste. To cook these things have a deep frying pan, full of very hot lard, and plunge them in for more or less time, according to the size and shape of the device.

Ricotta.—Strain 1 gal. fresh whey into a flat copper pan, put it on a gentle fire, and as soon as a kind of froth begins to rise on it, add 1 qt. milk, and stir the mixture lightly with a stick until a thick froth rises all over the surface; gather this froth with a spoon, and put it to drain in a deep grass basket, or in a very fine tin colander, and the ricotta is made. It must be carefully avoided to let the milk and whey come to the boil at any time during the process.

Risotto.-¼ lb. rice, and boil it with sufficient salt in a little more water than will cover it, until the rice begins to swell; it must not get too soft. Then add a pinch of saffron, just to colour it, or, if possible, 1 tablespoonful tomato sauce; also about 1 oz. butter, and as much grated Parmesan; stir for a few moments and serve. This is for 4 people.

Zuchillo (Tomato sauce to dress maccaroni with).—Take about 1 lb. trimmings of beef, as much fat bacon, all cut into dice, an onion cut into dice, then thrown into cold water and squeezed dry in a cloth: add or not a clove of garlic, then put the whole into a saucepan, and let it remain on the fire, shaking it occasionally, till the onion is almost melted away; then add parsley, marjoram, thyme, pepper, and salt. Take a piece of “conserva” (tomato pulp dried in the sun to the consistency of damson cheese), cut it in pieces the size of a pea, put in the pieces a few at a time, always stirring the contents of the saucepan. The “conserva” must be fresh and soft; if it is old and

tough, it must first be softened by kneading it with a little water. When sufficient “conserva” has been put in, moisten with water a spoonful at a time. Let the whole simmer some 10 minutes longer; then strain, remove superfluous fat, and the sauce is ready. To make “zuchillo” with fresh tomatoes, cut them in pieces, remove pips, water, and stalks, and then put in the pieces instead of “conserva,” a few at a time. In this case it is not necessary to moisten with water, but rather to let the sauce reduce, and to be careful not to put in fresh tomatoes until the first lot is somewhat reduced. Another way is to use either fresh or bottled tomato sauce, and put it in a spoonful at a time. The tomato sauce must be in the French form, with no vinegar in it.

Jewish.—Bola D’Amor.—Clarify 2 lb. white sugar; drop a spoonful into cold water to ascertain if it is of a proper consistency; form it into a ball, and try if it sounds when struck against a glass. When it is thus tested, take the yolks of 20 eggs, mix them up gently, and pass them through a sieve; then have ready a funnel, the hole of which must be about the size of vermicelli; hold the funnel over the sugar while it is boiling over a charcoal fire; pour the eggs through, stirring the sugar all the time, and taking care to hold the funnel at such a distance from the sugar as to admit of the egg dropping into it. When the egg has been a few minutes in the sugar, it will be hard enough to take out with a silver fork, and must then be placed on a drainer; continue adding egg to the boiling sugar till enough is obtained; place in a dish a layer of this paste, over which spread a layer of citron cut in thin slices, and then a thick layer of the eggs prepared as above. Continue working thus in alternate layers till high enough to look handsome. It should be piled in the shape of a cone, and the egg

should form the last layer. It must then be placed in a gentle oven till it becomes a little set, and the last layer slightly crisp; a few minutes will effect this. It must be served in the dish in which it is baked, and is generally ornamented with myrtle and gold and silver leaf.

Amnastich.—Stew gently 1 pint rice in 1 qt. strong gravy till it begins to swell, then add an onion stuck with cloves, a bunch of sweet herbs, and a chicken stuffed with forcemeat; let it stew with the rice till thoroughly done, then take it up and stir in the rice the yolks of 4 eggs and the juice of a lemon; serve the fowl in the same dish with the rice, which should be coloured to a fine yellow with saffron.

Fish, fried.—Frying fish Jewish fashion, simple as it is, is rarely quite successful, except in a Jewish household. Lay the fish for about 20 minutes in water, in which put a small quantity of salt. Any fish will be nice this way—soles, plaice, or a not too thick slice of salmon. Dry the fish thoroughly with a perfectly clean cloth, and flour it lightly with the flour dredger. Have ready a frying-pan with some good frying oil, beat up 2 eggs and pour them into a plate or pie-dish; pass the fish through the eggs then plunge it into the boiling oil, and fry a light brown. Care must be taken that the oil is really boiling, or the fish will be soft and flabby.

Fish stewed with egg and lemon sauce.—A salmon head, or a slice or two of salmon or halibut, or cod, are the nicest for this dish. Put a little chopped parsley, a little onion, a very small piece of ginger, and a little saffron, previously dissolved in hot water, with some pepper and salt at the bottom of a saucepan. Cut up the fish in not too small pieces, and lay it on them: then cover with water, and let it cook

slowly. When almost done, take the yolks of 7 eggs and beat them well; add to them gradually the juice of 5 lemons (strained), pour this very slowly over the boiling fish, gently shaking the saucepan to prevent curdling; directly the sauce thickens it is done.

Juditha.—Put some gooseberries into a saucepan with very little water; when they are soft pulp them through a sieve, add several well-beaten yolks of eggs, and sweeten with white sugar. Have ready a shape of biscuit ice, or any other cream ice, that may be preferred; take off a thick slice of the ice from the top carefully, and without breaking, so that it may be replaced on the ice. Scoop out a large portion of the ice, which may be mixed with the gooseberry cream, and fill the hollow with it. Cover the shape with the piece that was removed, and serve. This is an elegant dish. The ice should be prepared in a round mould; brown bread ice is particularly adapted to a Juditha.

Matso Cakes.—Make a stiff paste with biscuit powder and milk and water; add a little butter, the yolk of an egg, and a little white sugar, cut into pieces, and mould with the hand, and bake in a brisk oven. These cakes should not be too thin.

Matso Diet Bread.—Simmer 1 lb. white sugar in ¼ pint water, which pour hot upon 8 well-beaten eggs; beat till cold, when add 1 lb. matso flour, a little grated lemon peel, and bake in a papered tin or in small tins. The cake must be removed while hot.

Passover Pudding.—Mix equal quantities of biscuit powder and shred suet, half the quantity of currants and raisins, a little spice and sugar, with 1 oz. candied peels, and 5 well-beaten eggs; make these into a stiff batter, and boil well, and serve with a sweet sauce. This pudding is excellent baked in a pudding tin. It must be turned out when served.

Levantine. Bouillabaisse.—This far-famed dish of the Marseillais, is, as a rule, unapproachable to English people, owing to the quantity of garlic and oil, often of inferior quality, used in its preparation; but if the oil is really good, it is hardly tasted at all when well cooked; however, butter may be used instead. (*a*) Take some "rascasses"—or, where not obtainable, any other rock fish—lampreys, and lobsters. Slightly fry in a good quantity of butter in a stewpan some onions, shallots, and parsley; then put in the fish, and add sufficient water to cover the fish, season with pepper and salt, and put in a pinch or two of flour and saffron; boil for about 10 minutes; pour the rich gravy obtained over thick slices of bread, and serve the fish and the bread and gravy in separate dishes. (*b*) Boil about 1 lb. small fish with a quantity of water for rather over 1 hour, then pour out the whole, and press the fish through a colander. When this thick rich gravy or soup is obtained, proceed as in (*a*), only, instead of adding water, use the fish gravy. Rock fish, lampreys, and lobsters should always be employed to make a really good bouillabaisse; crabs may also be added.

Chestnut Pudding.—It is easily made. Boil about 25 large chestnuts, peel, and pound them well in a mortar. Mix the yolks of 12 and the whites of 6 eggs, well beaten with 3 pints cream and ½ lb. fresh butter; sweeten with white sugar. Then add the chestnut paste, stirring over fire till it thickens. Prepare a pie-dish with puff paste, pour in mixture, and bake. It may be eaten with wine sauce or without.

Grasse Nuts.—Take 6 eggs, 1 tablespoonful orange-flower water, and 6 oz. powdered sugar; beat it up with as much flour as it will take up. When formed

into a paste, roll it out twice, then knead. Cut off small pieces, and roll them long with the fingers and knot them; put on a tin to bake a light brown. When done, have ready 6 oz. white sugar in a preserving pan, clarify and boil the sugar, then toss in the cakes, and continue tossing until all the sugar is used and the cakes are quite dry and white; spread out to cool.

Orange-flower Cakes.—Take 1 lb. very fine white sugar, melt it with orange-flower water, and clarify it perfectly. Take a handful of orange flowers, bleach them with a little water and lemon juice, and press them very hard indeed in a white cloth. When the sugar is very much reduced, to about half, throw the flowers in. Have ready the white of an egg well whipped with a little water. When the orange flowers have burst (they pop), pour in the egg gently, stirring all the time. Directly the sugar rises, take off the fire, and pour quickly into white paper moulds of any form. These cakes should be very white and light.

Orange-flower Puffs.—Prepare a batter as though for pancakes, add 1 tablespoonful or more, according to taste, good orange-flower water; add a little powdered sugar, fry in butter or dripping, as with apple fritters, powder with white sugar, and serve hot.

Stuffed Vegetable Marrow Flowers.—Pick the flowers when full blown, wash them and stuff with half-boiled rice, minced veal, sweet herbs, onions, and an egg; stew in beef stock. This makes a very pretty and excellent *entremet*, the flowers remaining yellow, with green ribs.

Polish.—The great feature of this cuisine is the very frequent use of flour or oatmeal mixed with the meat. They also employ curdled milk, both sweet and sour, and excessive use of spices, marmalade,

and salted provisions, the Polish sour-crout, and the wild horse-radish. A Pole sneers at our homely necessary adjunct of the dinner table, the potato; he clings tenaciously to his salted cucumbers, which a Polish table is never without, and which completely usurp the place of the potato among the poor, forming in some cases their chief provision. Poland is a soup-eating nation; although to our uninitiated eyes, the different materials of which they are concocted seem inharmonious.

Barszcz.—A favourite Polish soup is Barszcz. Put 4 lb. beef, 1 lb. smoked ribs of pork, ¼ lb. ham, and 12 button mushrooms, onions and leeks into a large stewpan. Add 1 pint expressed juice of beetroot. Cook until the meat is tender, then add a hare, a fowl, and a duck, previously roasted to colour and give it a good flavour, and again some beetroot juice. Boil ¼ hour, and add some whites of eggs beaten with a little water to clear the soup. Cut up the boiled meats into convenient portions, and serve them in the bouillon, garnished with button mushrooms, tiny onions, slices of beetroot alternately with some fingers of celery and sprigs of parsley, all thoroughly well cooked beforehand; some fresh fennel, balls of force-meat and some broiled sausages, the small ones usually eaten abroad, about the length and thickness of the forefinger. This recipe is in the above quantities requisite for a large consumption. It can, however, be easily modified to suit any requirement, especially as regards the game and poultry added. Judgment must step in and regulate the due proportion of ingredients in a lesser or greater quantity as desired. The beetroot juice is quite peculiar to Poland. Without it few dishes are concocted or brought to table. Wash your beet carefully, then scrape it and cut in 4 lengthway

pieces. Put them in a saucepan, and cover well with lukewarm water; keep it a soft heat for the space of 3-4 hours, by which gentle process the juice acquires an agreeably acid flavour.

Chotodriec.—Put 1 qt. salted cucumber juice, and a small quantity of leaven into a large saucepan, and boil well. Allow it to cool gently, and then mix in 1 qt. curdled milk. Boil one young beetroot, cut up finely in strips, in a separate saucepan. When done add it also to the soup, with some of the water wherein it was boiled, to colour a good red. Have ready 4 hard-boiled eggs, cut either in thin slices or small fillets, the latter being preferable; a good tablespoonful of finely chopped fennel and chives; some slices of fresh cucumber, and the flesh of a whole cray-fish, or crab, whichever most preferred, cut up in fair sized pieces. Add all these ingredients one after another to the soup, which must be served cold without bread, accompanied by small pieces of ice to make it colder still. Some palates have a complete and unconquerable objection to beetroot; when this happens to be the case, substitute sorrel, dressed like a spinach purée, with a little butter, for the obnoxious beetroot. There is a simplified method of making chotodriec by mixing the curdled milk with the juice of crushed fresh cucumber, some chopped fennel and chives; also sorrel; the hard-boiled eggs in rounds and slices of cucumber crushed in at the last moment. Melon is often substituted in this case for the cucumber, and makes a pleasing diversity. The salted cucumber juice for making chotodriec is prepared by the Polish cooks in the following manner. Wipe some moderate sized green cucumbers carefully in a clean linen cloth, and put them to what is termed “sweat” for 24 hours in a

warm, dry place. Have a wooden cask staved in at the top well scalded; if it is a possibility, use a cask that has contained either hock or sherry previously. Place the cucumbers at the bottom, one against the other, and cover them with a bed of chopped fennel, some young leaves of the cherry-tree, and some crushed coriander seed. Pour some salted water on them, which has been already boiled, and allowed to get cold. Then cover up the cask carefully, and place in some cool place, resting on pieces of wood, to prevent the cask touching the ground. Cold water previously boiled must be added, should the moisture ooze away. The cask must be watched every day, and any mould which may by chance accumulate on the top be carefully removed. At the expiration of 2 months, the cucumbers are considered to be sufficiently salted and flavoured, and ready to be eaten. The water should not be excessively salt, as it is the usual custom for the poor to steep their bread in it, on the principle that it is sinful to waste, besides giving their bread an unwonted relish.

Zrazy.—Another famous dish. Take the undercut from a sirloin of beef, cut it through into cutlets a bare inch thick; beat them with a cutlet bat or the blade of a heavy knife till they are about half the original thickness; trim them to a nice round shape. Make a good-sized piece of butter quite hot in a stewpan, lay in the slices with salt, pepper, a pinch of pounded cloves, and an onion or some shallots that have been minced and delicately browned in butter, or (if not objected to) a small clove of garlic pounded or bruised fine. Cover close, and let the zrazy steam in their own gravy till tender. Turn them when one side is coloured, and taste them occasionally. If the gravy dries away, add a little

stock or soup. When done quite tender, take up the slices. Skim off any superfluous fat from the sauce; dust a little flour in; darken the sauce with sugar browning; let it cook for a minute; then pour it over the meat, and garnish with sliced potatoes fried in butter.

Russian.—The Russian people, during the great fasts—which last 4-7 weeks, and which recur 4 times during the year—sustain themselves entirely on the soup made with the bitter cabbages, and a handful of dry salted fish called *sniedky*. It is clean tasted, but you need be a lover of this fish to relish it. It is not unlike whitebait; it is salt and dry, and leaves a somewhat soapy taste.

Borshch.—Take 3 lb. good fat meat, wash it well in warm water, boil it 2-3 minutes, take it out and wash it in cold water; cut it in pieces, and put it in the pot, pouring some stock over it; add some vegetables and a head of cabbage cut in 8 pieces; when the cabbage is well boiled, add according to taste the juice of beetroot or kwass (weak beer made of rye, very similar to treacle beer) or vinegar, and salt; then boil it until all is ready. You may add to this borshch, 1 lb. smoked ham, previously washed in warm water, dried, and boiled twice; lift it immediately and wash it in cold water, cut it in pieces, and put it in the borshch; then boil all together. Before serving, skim off the fat, take out the cabbage and put it in another pot, to which add 1 lb. sliced beetroot and some stock; boil it, add a little of the juice of the beetroot uncooked, to give it colour, and pepper and salt to taste. Prepared in this manner, borshch is excellent. The ingredients are as follows: 2½-3 lb. beef; 1 lb. ham; 1 head celery; parsley and 2 onions; 2 or 3 leaves of laurel; 1 small head of cabbage; 10-20 gr.

pepper, salt, juice of beetroot, and some fennel.

Nalym.—Chop an onion, fry it in 2 spoonfuls fresh butter melted, add 1 spoonful flour; mix; pour in a little water, and set it to simmer on the hot plate. When it begins to boil, put in 5-6 potatoes, which you have cut in pieces, with some salt. Clean thoroughly, and salt your fish, cut it in convenient pieces, and let all simmer together, add some barley grits, a little parsley, and black pepper. The fish thus dealt with is called in Russian *nalym*, which is translated *lavaret*, a name familiar to travellers as that of a kind of trout which inhabits the lakes of Switzerland. Soup made from sea fish is not so much relished, as Russia is especially rich in fresh-water fish. They sometimes make *shchi* with sea fish.

Oucha.—Made for great occasions. Cook 2-3 lb. some small fishes, or, if you prefer just a fowl, with carrots, turnips, onions, a few herbs and some spice and salt; add a little nutmeg, clear with white of egg or with caviare, and strain through a fine cloth. When this broth is ready, place in it sterlet cut in good slices; add a glass of cold water and let it stew, removing all scum. When the sterlet is cooked pour the oucha into a tureen containing slices of lemon, without either rind or pips. Add champagne to taste, and give it all a boil up, adding parsley and fennel. When you serve it do not cover the tureen. This fish is very delicate. It is usually served in the pan in which it has been cooked; therefore in large establishments silver saucepans are used.

Shchi.—The Russians, like the Germans and other northern nations, are fond of a subacid flavour in their food: many of their soups are thus flavoured; and where they are not, a very common thing is for a dish of clotted sour cream to be placed on the table,

from which the consumer may take what is necessary to give his *plat* (whether soup, pork, or anything else) the degree of acidity which suits his palate. A very little of this sour cream goes a far way however, a spoonful or two being sufficient to convert a very excellent dish of brown soup into what, according to our lights, would be considered a sour and unpalatable mess; but the shchi has generally a sufficiently subacid flavour of its own. It is made in this way. At the beginning of winter a store of cabbages is laid in by almost every household; these are chopped up into shreds, and placed in barrels with vinegar and salt, when a certain amount of fermentation takes place, and the cabbage becomes a kind of sauerkraut. From these barrels a portion is taken as required, and that is pretty commonly daily, for the shchi is not only the most characteristic national food in Russia, but the regular daily food of the great mass of the people. The portion so taken is made with meat into a cabbage broth, which is the shchi. With the broth there is always served a number of lumps of the boiled meat that made it. To make the shchi good, the degree of fermentation that it passes through in the barrel has to be carefully watched, for, if it goes too far, putrefaction sets in, and, if not absolutely spoiled, the cabbage at least acquires a high flavour, which is not agreeable to everyone. The shchi which we have been describing is shchi pure and simple, but it can be infinitely varied; by grating and mixing with it other items, it can be made to assume the appearance of almost any vegetable soup, from green-pea soup to cock-a-leekie: but, under whatever guise it appears, its identity can always be traced by the subacid flavour which is ever present in greater or less force. Whatever form it takes, however, when well made it is excellent.

Siberian Pilemaignes.—Chop 2 onions, add slices of ham and fat bacon, and a tender piece of game. Chop all these together, adding some black pepper and a few cloves. For the paste, take 3 glasses flour, 2 eggs, 7 spoonfuls salt water, and 1 teaspoonful salt; work this into a tolerably stiff paste, and roll it out as thin as you can without breaking it. Place on it at equal distances balls of the forcemeat, cover them well with paste, and press them all round to prevent coming out. With a knife or mould divide them into little crescent-shaped tarts. Plunge them into boiling salted water, and look at them in 10 minutes and see if they are done. If so, take them out carefully with a slice, and place them in a deep dish. You can moisten them with a sauce made of stock and butter, with lemon juice or vinegar. If you have put plenty of bacon in do not make any sauce, as they will contain sufficient gravy. Do not forget that the forcemeat is put into the paste *uncooked*.

Stouffate—Salt a piece of beef, lard it with ham or smoked tongue, or else fat bacon. Put in an earthenware pot (not in a metal pan) several slices of bacon or butter, vegetables, and spice, and on this lay the meat. Pour over it some wine, and 2 spoonsful vinegar or lemon juice. Let this simmer, adding a little water sufficient to moisten the meat on all sides. When sufficiently cooked put the meat on a dish, remove all fat from the gravy, to which add a little stock; strain it if necessary, and pour it over the meat.

Scottish.—Brochan.—Brochan is excellent as a supper dish or as a hot nourishing drink in winter when coughs and colds are on the outlook for victims. This is the way it is made: A sufficiency of water is put in a pan on the fire and allowed to boil;

for every pint water in the pan, 1 small dessertspoonful of meal is put into a basin and mixed with ½ breakfastcupful sweet cream, according to the quantity of meal; this, with salt to taste, is poured into the boiling water, and the whole allowed to boil for about 1 hour. It is served in cups or small basins; into each of these is put 1 tablespoonful golden syrup, or thin slices of cheese, and the boiling gruel is poured into each. The oatmeal used is that known in Scotland as medium ground.

Skink Soup.—A much-liked and often made soup, made from the shin of beef. A well-broken shin of beef is put into 1½ gal. boiling water and boiled for 2 hours; it is then taken out, and the meat cut from the bone in small neat pieces, the liquor being skimmed at the same time. The bone is returned to the liquor and boiled 4 hours longer. This part of the process is generally done the day before the soup is wanted. The vegetables are then added in about the same proportion as for mutton broth. Add the pieces of beef at the same time, with pepper and salt to taste, and boil till the vegetables are tender.

Sowens.—The sids of oats are made into a dish called sowens, which is delicious, and, being light and wholesome, is often recommended by doctors for invalids. The sids are the inner husks of the oat grain; they retain a fine floury substance, which is what sowens are made of. To make sowens, the sids are first put into a narrow-mouthed wooden tub, like a small barrel with an open end, called a “sowen bowy,” and cold water mixed with them. The sids rise in dry bubbles to the top of the water, and must be stirred with the spurtle till all are wet; they are then covered with cold water to the depth of 6-8 in., and allowed to set for a week in summer, and a few

days longer in winter, to sour. When sour, a tin sieve, called the sowen sieve, is placed over a wide-mouthed jar or tub, and the tubful of sour sids poured through the sieve; the sids remain on the sieve, and a drab liquid runs into the tub below. The sids which remain on the sieve have some cold water poured over them to wash out any sediment, are squeezed between the hands for the same purpose, and then thrown away. The water in the wide tub is allowed to set for 2 days after the foregoing operation, and is then fit for use; a thick sediment will be at the bottom, and clear water at the top. When wanted for use, the water is poured off, and sufficient of the sediment put into a pan and boiled with a little water for ½ hour; it is then served in soup plates and eaten with new milk.

Spanish.—Ajo blanco.—This soup is extensively eaten in Andalusia. Pound 1 clove of garlic and 7 well-dried beans, or better still, almonds, in a small spice mortar to a smooth paste. Moisten this paste with olive oil, drop by drop, then water by degrees, so as to thoroughly incorporate and amalgamate the whole. Add until it is sufficiently wet to soak some bread, which must be added later on, pouring in some vinegar and a little salt. Then put in the breadcrumbs, size of half an almond, and allow it to soak. A final mixing of the bowl, and this quaint and perfectly national dish awaits consumption.

Bacalao.—*Bacalao*, or salted cod, in this land of rigid Catholicism, is almost indispensable as food on the many last days in the calendar. (*a*) Cut up the cod after it has been soaked for 24 hours, and lay the pieces so as to cover the bottom of a pipkin; pour on this a thick stratum of grated bread, garlic and parsley in profusion, then more codfish, then bread again, and so on till the pipkin is full to the top. Fill all the crevices with raw oil, garlic, pepper and salt; close the pipkin, and boil till the contents are nearly dry, when serve. (*b*) Lay onions, cut in thick circles, at the bottom of a pipkin, with tomatoes, a grain of garlic, and cinnamon; on these place a layer of codfish sliced, and so on in alternate layers. Pour in plenty of oil, cloves, peppers, whole and ground, and then set on the fire to boil, without adding any stock, till the juice of the tomatoes and onions is nearly absorbed. (*c*) Codfish with honey or sugar may be eaten by boiling the pieces, draining them dry, soaking in honey, flouring, and then frying; or the pieces may be covered with yolk of egg, floured, and powdered over with sugar. (*d*) Codfish *a la vizcaino* (in the Biscayan method) may be nice. After soaking and cutting in bits, put it on to boil; meanwhile toast a few tomatoes before the fire, skin them, and mash them well up with a wooden spoon; chop up plenty of onions very small, and put them to boil in oil. Just before they turn colour add the tomatoes. Now place the cod in a pipkin, throw in the onions and tomatoes with the oil in which they were cooked, and set on a slow fire to simmer gently till quite done. (*e*) Codfish *con ajo de arriero* (with muleteer's garlic) is prepared by boiling the fish first, then adding a sauce at the time of serving, made by frying garlic in oil, and adding peppers, green and red, with

vinegar in equal quantity with the oil.

Chorizos.—The ordinary *chorizos*, or plain sausages, are prepared thus: the lean of pork chopped very small is steeped in a small tub with salt, pepper, white and red, to give it a colour, wild marjoram, which has been well pounded and passed through a sieve, and garlic bruised. It is here beaten up well, so that the meat and condiments may become well incorporated, and it is so kept for 3-4 days, taking care to turn it over once or twice a day, and to work it with the hands. After that time fry a little to taste and try, adding such seasoning or other ingredients as may appear necessary; when ready fill the skins, having prepared them the day previous with an infusion of wild marjoram, a little salt, and water sufficient to cover them. Longaniza, which are larger, longer, and very tender, are made in the same way, but without hot pepper, and with the addition of a little aniseed boiled in white wine. The coarse longanizas is made by chopping up the liver, tongue, heart, kidney, and intestines. Some sausages are scented by drenching the mincemeat in white wine flavoured with powdered cloves, cinnamon, and nutmeg; and occasionally this sauce is further thickened with eggs beaten up with or without sugar, the meat being minced small, so as to form a thick paste, adding sometimes honey or cream.

Cocido.—First and foremost on the list of soups comes the cocido, or far-famed olla podrida, so supremely dear to the national heart. Every province has some particular method for the concoction of cocido, to which mode it faithfully adheres. The following method is that of the Spanish capital, Madrid, that being the most general. Throw 1½ lb. either mutton or veal into a vessel, with water (the

Spaniards use a pipkin, called in the vernacular a "marmite"), 1½ lb. garbanzos, or chickpeas, one good slice of lean raw ham, and any *debris* (no matter how small) of game or poultry. Cook gently with the lid on, skim, and add a little bacon cut small, and as much salt as necessary; cook for another ½ hour, then pour off the broth slowly, to be used afterwards for the soup and sauce; add as much vegetable as you please, thoroughly well washed, and cook over a clear fire until done. About 5 minutes before the olla is ready, throw in a piece of chorizo (black pudding). Serve the meat separately on one dish, the vegetables on another, and in a third the sauce for the whole.

Gaspacho.—There are 2 other soups much affected by this nation, and these are, strange as it may seem, eaten cold. The first is gaspacho. This is always regarded as the most refreshing of all the national dishes. The poor glory in it; and the rich, during that time when the beams of a too scorching sun enervate the Spanish frame, fly to gaspacho as an unfailing "pick-me-up." Put some chopped chives and cucumber cut up in the shape of dice into a large salad bowl, add a small quantity of water, a pinch of salt, lemon juice and oil. Throw in some crumbled bread, which must be able to float. Finally sprinkle some fine chopped marjoram over the whole, and your gaspacho is ready.

Morcillas, or Black Puddings.—These savoury articles are prepared as follows: Mince up the fat that has been taken from the stomach of the pig into very small pieces, and throw it into a large tub with salt, onions, pepper, cloves, and cinnamon, all chopped small; pound the whole together till the spices are well mixed, and then add the blood slowly, using a

wooden spoon. As soon as the paste is made, fry a little and taste, adding more seasoning if required. Now fill the skins, leaving them a little thin, so that they may not burst in cooking, which operation is performed by boiling in a large saucepan full of lukewarm water. Care must be taken that the puddings are placed in the saucepan slowly and without crowding, and as soon as the vessel is filled loosely, set it on a quick fire. After boiling for a moment or two, pierce each pudding with a needle threaded with a wisp of fennel to let out the air, and reduce the fire. When it is found that on pricking no blood issues from the puddings, they may be considered cooked. Remove the puddings very cautiously from the saucepan, place them on the table in a clean cloth, dry, and then hang them up. The water in which they have been boiled may be used as stock. Some insert rice with the mincemeat instead of the other ingredients, and there are many other recipes.

Turkish.—The following are mainly from the pen of Marie Kibrizli Pasha, and first appeared in the *Queen*:—

Asuree.—Take 2 lb. wheat, unground, and wash it; throw it into a large saucepan cold water and boil for 1 hour; then dry it near the stove on a cloth. When it is quite dry beat it in a mortar to get off the husks; then put the wheat into a strong muslin bag, tie it up; put it into a saucepan of cold water, and let it boil all day until the water becomes of the consistency of jelly. Then take out the bag, squeeze it until all the water is out, and throw the dregs away. Put 1 lb. white sugar in the water and boil it until it becomes like jelly; if not sweet enough, add more sugar. Put a handful of sultana raisins in a dish with

a few blanched almonds, cut small; mix these with the jelly and put it in glass dishes. It will keep many days, and is a strengthening and a very nice dish.

Cerkestal.—Remains of fowls may be stewed with an onion, pepper, salt, and a little water. Wash and bruise 6 walnuts, and mix them in some of the gravy, adding a small quantity of cayenne pepper, and serve as a sauce.

Dolma Hindi (Stuffed Turkey or Fowl).—Take 2 handfuls rice and half boil it; then cut up 1 doz. chestnuts, a handful of currants, and a handful of pistachio nuts; melt about ¼ lb. butter in a saucepan, then mix all well together, adding a little salt and a little cayenne pepper, with a very small quantity of bruised cinnamon. Then stuff the turkey or fowl with this, and sew up the breast; put it on a flat baking dish with a little butter, and baste it with butter. This stuffing is used in Turkey for all kinds of birds and sheep that are roasted whole.

Dolmas.—Chop some mutton or beef very finely, with a little of the fat; add an onion, pepper, salt, and a little boiled rice, and mix it all together. Then take some cabbage leaves and put them into boiling water for a minute or two, and roll the meat into them like small sausages; then stew them in a little broth or water with a small piece of butter in it.

Elva.—Take 1 lb. semolina and ½ lb. butter; put the butter into a saucepan, and brown it well; then sprinkle the semolina into it slowly, and keep stirring until it all becomes well mixed and browned. When sufficiently done, put ½ lb. white sugar and 1 pint milk into another saucepan, and boil it; then blanch about 30-40 almonds, cut them in halves, and throw them into the semolina; then stir in the syrup slowly,

and mix well. When it becomes like a thick paste, turn it into moulds to cool, and then turn out on the dishes.

Etena Zarvatte (Ragout).—The Arab cook (for the cooking in Turkey is always done by Arab women) takes 1 lb. meat, either beef or mutton, and cuts it into small pieces. She then fries it just sufficiently to brown it in a little butter or dripping, adding salt, pepper, and a tumblerful of water. She then cuts up 1 lb. French beans, and puts the whole into a stewpan to simmer slowly, adding water as it is required, and serves it when the whole is of a good consistency and there is a good gravy. Any kind of vegetables, carrots or potatoes, will do instead of beans.

Kabaps (Kabobs).—Take some slices of mutton or beef, with a little of the fat and an onion, chop them very fine, add pepper, salt, and a little flour; mix all well together with a little water, so as to make a thick dough; then roll it round skewers and bake it in a slow oven. As soon as the gravy forms, take it off the skewers and put it on a dish with sippets of toasted bread, and throw the gravy over it.

Kabrac Dolmassi (stuffed vegetable marrows).—Take 1 or 2 kabracs (vegetable marrows), cut them in halves across, and scoop out the seeds and a little of the pulp; then rub in a little salt. Scrape off the rinds, then chop ½ lb. mutton very finely, add 1 large onion chopped very small, and a little parsley, also chopped, then season with a little pepper, salt, and about a pennyworth of uncooked rice. Mix all together and stuff the vegetable marrow with it, then put them to boil slowly, with only a small quantity of water in the saucepan.

Kourabiedes.—Break ½ lb. fresh butter into ½ lb. finest rice flour, add ½ lb. finely-powdered sugar and

a pinch of salt, moisten into a rather firm paste with orange-flower water, knead lightly, and divide into balls the size of a mandarin orange, bake for ½ hour between buttered sheets of paper; powder with sugar when done.

Kufté.—Mince 1 lb. lean beef very small; add salt, pepper, and a chopped onion, grate the crumb of 2 French rolls, or a large piece of bread and mix it with the meat, and add 2 eggs; then mix all together into a dough. Then roll it into small sausages, first putting them into a little flour. Brown about ¼ lb. butter in a frying pan, and fry the meat in it, and when dished throw the butter over it.

Lokma.—Take 1 lb. flour, then beat up 10 eggs; mix them with the flour, and add a pinch of salt, then put in a glass of water to thin it a little. Take ½ lb. butter, brown it in a frying pan, and put the paste in small round pieces into it, let them brown slowly, taking care to turn them and keep them separate. Take 1 lb. white sugar and 1 teacupful cold water, and boil them in a clean saucepan; when the syrup is done, throw the balls in, and boil them until they are well sweetened, then serve them either hot or cold.

Ouzum Yaprac Dolmassi (dolmas with vine leaves).—During the spring in Turkey large quantities of the young vine leaves are gathered. They are then carefully placed in layers in large earthenware jars or pans that are not porous. The leaves for winter use have layers of salt placed between them, but those for summer use do not require it. Place a good handful of salt over each layer of leaves, and press them down tightly. When the jars are within 2 in. of being full fill them with water. Then place a piece of wood across the top, and put a stone on it to keep out the air. The Dolmas

are made in the following way: Take 1 lb. veal, with a little of the fat, mince the meat very finely, and add salt, pepper, and a pennyworth of raw rice, and a large onion chopped very small. Mix it all together into a dough. Put an iron saucepan full of water on the fire; when it begins to boil throw into it 30-100 leaves, as you may require, and let them boil 5 minutes, stirring them well; then turn them out on a dish to cool; when cold break off the stalks, and roll a small quantity of the meat into each, taking care to close the leaf well. Place them carefully in layers in a saucepan without water, and closely, one over the other. Then take a good-sized piece of butter, brown it in the frying pan, and pour it over the dolmas. Half fill the saucepan with hot water, cover it and put it on a stove, to boil slowly until the dolmas are done. Care must be taken not to let them mix together. To get them well out without breaking, the saucepan must be turned upside down on a dish. Beat up an egg and mix it with a little flour, then put a small quantity of the water in which the dolmas were boiled into a smaller saucepan, and stir the egg into it. Pour this sauce over the meat.

Pilau.—Take 3 or 4 large tomatoes and boil them. When they are quite soft mash them well, adding a little salt, and put them back in the same water in which they were boiled, and add ½ lb. rice. When the rice has absorbed all the water, and is well done, take the saucepan off the fire, and put it to stand near, so as not to cool; then put a good-sized piece of butter in a frying pan, and when it is well browned mix it up well with the rice, and serve it hot.

Pouf Burek.—The Arab takes ½ lb. flour and 2 eggs, and makes a paste; then rolls it out thin; then grates some new cheese, chops some parsley very

finely, mixes them, and spreads the mixture over the paste. She then doubles up the paste, or folds it once, and cuts out small round cakes with a coffee cup. She then puts a good-sized piece of butter in a frying pan, and when it is nicely browned she fries the little cakes in it, and serves them hot.

Prassas (leeks with oil).—Take 2 doz. leeks and wash them well, cut them in two, leaving only a small part of the white end, and throw away the rest; then cut them into pieces the size of dice, and throw them into water to wash them. Put a breakfastcupful of the best Lucca oil in a saucepan, and brown it slightly; then have ready 3 large onions cut up small, and throw them into the oil to brown a little. Mince a little parsley and mix it with the leeks, and then put them into the oil, adding 2 or 3 glasses hot water. Cover it well; season well; let it boil slowly until the leeks are done. Serve it cold.

Suburek.—Take 1 lb. flour and add a little water and salt, so as to make a thick paste, roll and divide it into 3 portions, then roll out 2 portions and put them aside to serve for rolling up the third portion. Then take 8 eggs, mix them with the third portion, roll it out very thin, cut it into 8 portions and throw them into boiling water on the fire, one after the other. When they are half-boiled or nearly done, spread one of the uncooked portions in a pie dish that is not very deep, and put 4 of the 8 boiled portions in it. Then take some minced beef or mutton, well seasoned and slightly browned in a frying pan with butter, mix a little minced parsley with it, and put it in the dish, then put the remaining 4 *boiled* portions over it and cover the whole with the remaining large portion, then brown a little butter in the frying pan and put it over the paste.

Bake it in the oven. A very good dish.

Tauf—Ghezon.—Draw 2 fowls, and put them to boil slowly; when they are half done take off all the white meat and put it into another saucepan to boil in milk, adding a small quantity of the water in which the fowls were first boiled. When the meat is reduced to a pulp mix it well with pounded white sugar, so as to make it quite sweet. Serve cold on a dish sprinkled with pounded cinnamon. This is a strengthening dish for an invalid.

Tauk Dolmas.—After drawing a fowl, chop the liver, gizzard, and heart very finely and add seasoning; boil some rice and mix it with a small piece of butter, then mix all together and stuff the fowl with it; make a little gravy with the neck and head, and serve with it. This dish should be stewed slowly.

Tuginar (ragoût with artichokes).—Take 1 lb. mutton or veal, and cut it in small pieces. Take 8-10 artichokes and wash them well, stripping off all the leaves, then cut the bottoms in 4 quarters; cut up 2 onions and mince a little parsley, and mix them. Then put a ¼ lb. butter into a stewpan, and put the meat in; when it is a little browned, throw in 2 or 3 tumblers of water, cover it, and let it stew gently for ¼ hour. Add a little seasoning, according to taste, with the onion and parsley; then put in the artichokes to cook until they are done, and then serve the dish. Other vegetables, such as broccoli or Brussels sprouts, may be substituted.

West Indian.—Cavershed Fish.—Cut a sole into 3 or 4 pieces, according to size; flour each piece, have ready a frying-pan with some good frying oil, put it on the fire, and when the oil boils lay the fish in it, and fry a light brown; drain each piece well, and,

when cold, lay them on a dish. Boil ½ pint vinegar, with a little allspice, ginger, and pepper, and throw it over the fish.

Coconut Cakes.—Break a coconut, remove the brown skin and cut it up into quite small pieces (somewhat larger than grains of rice). Put 1 lb. coarse brown sugar into a saucepan, with a teacupful of water; when it boils, skim off the scum, or strain through muslin, add the coconut and a little ginger, and boil (stirring constantly) till the sugar begins to thicken; then drop a little of the mixture from a spoon on to a board or dish which has been well damped with cold water; if it sets so that it can be raised with a knife without breaking, drop all the mixture in like manner in little cakes. Grated coconut can be done in the same way.

Crab Backs.—This dish is truly delicious; once eaten as prepared by a black cook, it is one never to be forgotten. The crabs must be caught and brought in alive; the cook must kill them herself, and divide the claws and bodies from the backs; when doing so she must be careful not to break the gall in the body, which would cause the whole of the meat in the crab to taste bitter. Boil these sufficiently, and, when cold, pick all the meat from the claws and bodies; the fat, which is of a very dark colouring, must be well mixed with the meat and stirred; add pepper, cayenne pepper, salt, and lime juice to taste, also bread or biscuit crumbs; have the backs nicely cleaned, fill them with the above mixture, sprinkle breadcrumbs over them, and bake for about 10 minutes. Some people prefer crab backs without the addition of the fat, when they are not nearly so rich, and are of a much lighter colour.

Eater Drink.—An Indian drink. Take 3 doz. ripe

fruit of the eater (ita) palm, place them in a jar, and pour boiling water over them. Let them stand until they are sufficiently soft to allow the rind to come off easily. Scrape the fruit, and when cool sweeten, and it is ready for use. This palm is as light as cork, and grows abundantly in the interior of Guiana.

Fly.—Grate 3 or 4 sweet potatoes (the white sort), place them in a stone jar, with 3 gal. boiling water, 1 doz. cloves, clear sugar to taste, and clarify with the white shell of an egg. Let it stand 24 hours, then strain, bottle and cork tightly; it is fit for use in a week.

Fou-fou Soup.—Peel 1 doz. plaintains, wash and boil them, place them in a dish till cooked, then pound them in a wooden mortar, occasionally moistening the pestle with cold water, to prevent it sticking, until they become one solid lump. Moisten a spoon with water, and after carefully separating the fou-fou from the mortar place it in a dish and serve with soup. The spoon should always be first moistened with soup before cutting the fou-fou, or it would be most difficult to cut it at all. The soup can be made of plantains, tannias, ochras, pigeon peas, black-eyed peas, pumpkin, or any vegetable. When made of ochras procure a good-sized dish of ochras, cut off the heads, wash and cut in slices, place them in a pot with as much water as you require soup, with ½ lb. salt beef, ½ lb. salt pork, cold, or fresh meat, 2 or 3 fresh fish, a small piece of salt fish, a few shrimps, 2 fresh peppers, one chopped onion, and seasoning. When most thoroughly boiled, or rather simmered, serve hot in a tureen, and the fou-fou served separately at the same time. When fou-fou soup is made of dry peas they must be well soaked, and then boiled for some time before the meat, &c.,

is added. When made of plaintains only these must be mashed when sufficiently cooked. A favourite way with the negroes is to cut the plaintains in slices, and boil a great many of them in soup without making them into fou-fou; when done in this way they call it "cutty-cutty."

Groundnut Cakes.—Put 2 lb. these nuts (they can be bought in any small greengrocer's shop, and are sometimes called monkey nuts) in the oven on a tin, and let them bake until you can remove the red skin of the kernel quite easily; then shell them all, take off all the skins and divide them in halves; make them into little cakes, as in recipe for coconut cakes.

Mawbery.—Get fourpennyworth mawbery bark from a chemist, boil it with a little water, and let it stand till cool. Add sufficient water to fill 12 bottles, and sweeten to taste, strain, and brew it for some time. Bottle and let it stand 24 hours, when it is fit for use, and it is a pleasant drink, slightly bitter. The bottles must never be corked and the froth which works up must be taken off. Never let it stand more than 2 days after it is fit for use.

Pepper-pot.—Pepper-pot cannot be prepared without cassaripe, and it may be interesting here to describe the mode of manufacture of that very excellent sauce, which is also used to great advantage in soups and sauces. It is made from the cassava root, bitter cassava, which is thus prepared: Peel and grate the roots on a large grater, which must be placed in a tub to receive it, put the pulp that has been grated into a mataube (a mataube is a long tube-like squeezer made of reed, by the Buck Indians, the lower end has a handle, the upper part is hung up on a tree, or some such convenient place). Hang up the mataube when quite full of cassava

pulp, and pull the lower handle until all the juice is expressed. This juice must be allowed to settle in a tub; it is then to be strained; the settlement of the cassava juice is often converted into a very inferior kind of starch. Now place the strained juice into a large pot, and reduce it by repeated boiling greatly, and keep constantly skimming while boiling it; it will be found that the colour will change from white milky-looking juice to yellow, and lastly to black. During the boiling a small quantity of sugar and a few bird peppers (from which cayenne pepper is ground) should be added; then let the juice cool, bottle and cork it, and it is ready for pepper-pot, and for colouring soups and gravies. Good cassaripe is very thick and black. The cassava pulp, which is left dry, when all the juice is expressed, makes very delicious bread; it is placed in hoops in an oven, without the addition of any liquid, merely pressed together in a thin round wafer form, baked in an oven, and then taken out while still quite pale in colour, and exposed for some time to the burning West Indian sun. This bread is very delicious when toasted and buttered, served hot.

Place a sufficient quantity of meat—whether pork, beef, or mutton—to fill the earthen pot you possess (the Demerarians usually use a black earthen open pot, made by the Buck Indians) in a pot of boiling water; let it boil a few minutes. Then take out the meat, and cut it up in pieces, as you would for a stew; place these in the buckpot, and fill to the top with boiling water; put in with the meat sufficient cassaripe to make the sauce a rich colour, 6 fresh peppers, or a spoonful of cayenne, tied up in a bit of muslin; boil this for an hour; remove it then from the fire, and boil it up every day once whether it is used or not. It should be served hot in the buckpot in

which it is cooked, which should be placed on a clean plate and so brought to table. On no account serve the pepper-pot in a dish other than it has been cooked in, and that dish should always be earthen. Cold meat without gravy or onions can be added, in fact any meat that is not seasoned or stuffed.

Pepper Punch.—Pound one pennyworth of dry ginger in a mortar, with 12 bird peppers, and boil this for a short time in a little water, place this in a stone jar, adding ¼ pint lime juice, strained, ¼ pint white rum, ¼ pint gin, ½ pint brandy, and sugar to taste, with 10 qt. cold water; stir the whole well together, cut a white lemon in two and throw in, tie the jar down, and place in the sun for 2 days, then bottle off, cork very tightly, and use when ripe; if this is to be kept any time, the corks should be tied with twine, or wired, or they will fly like champagne corks. This quantity is sufficient to fill 12 quart bottles.

Pinaree.—An Indian drink. Grate the bitter cassava and express the juice; sift the pulp and take all the coarse remains from the sifter, say 2 pints, moisten with fresh boiled cassaripe, grate 2 sweet potatoes, put all in a jar, cover with a leaf, and leave for 3 days, when a small quantity can be drunk with water. If allowed to stand many days, this becomes a most intoxicating drink, and is much used by the Buck Indians.

Pine Drink.—The rind of 1 pineapple to a quart bottle. Pare off the rind rather thickly, place it in a stone jar, with a few cloves, and 1 qt. boiling water; let it stand 24 hours, strain and sweeten to taste, bottle and cork tightly. It is ready for use in 2-3 days.

Salmagundy.—Wash a Dutch herring, remove the flesh from the bones, and lay it in a dish; put a few

slices of onion on it. Boil ½ pint vinegar, with a little allspice, ginger, and pepper; when cold, pour it over the herring.

Slip and Dip.—This is a Barbadian dish. Procure some eddoes, boil them till they will slip out of the skin readily by slightly pressing. Stew some tchad (a kind of salted herring) with butter, seasoning, &c., and eat the boiled eddoes with the stew. The two together are called "Slip and Dip," just as with us fried salt beef and fried greens and potatoes rejoice in the name of "Bubble and Squeak." Eddoes boiled, with butter sauce and lime juice poured over them, or with anchovy sauce, are used as vegetables.

Sorrel Drink.—This fruit grows almost wild at two seasons of the year in Demerara, and is of a very rich claret colour, and makes a delicious drink or preserve. The tops are useless, also the seeds. Sometimes the above is boiled into a thick syrup, and mixed with rum, when it is called sorrel bounce.

Sous.—Take the head of a young pig, tie it up in a very clean and thin cloth, and boil it in strong salt and water till sufficiently cooked. Then take it up and place it in an open vessel, cover it with slightly salted water. Let it remain in this for 2 hours, then take the head and remove the cloth, cut it up into delicate pieces, together with the tongue, ears, and trotters. Place all these on a large dish, with several rings of large onions, and some slices of fresh peppers; squeeze some limes till you have enough juice to fill ⅓ teacup, stir a little salt into this, fill up the cup with water, strain it, and pour over the pieces of pork; garnish with parsley, and serve cold either for breakfast or luncheon. Calf's head treated in the same manner is equally good.

Spacha, or Conserve of Spices.—Shell and peel 25

walnuts, 1 lb. monkey nuts, a few cobnuts, and a few sweet almonds, pound them in a mortar, but not too finely; put 1½ lb. coarse brown sugar in a saucepan with 1 breakfastcupful water, let it boil, then strain through muslin, return it to the saucepan with the nuts, and 1 teaspoonful each ground cloves, cinnamon, ginger, and black pepper, and rather less of ground allspice all mixed together; boil for ½ hour, stirring constantly, thicken it slightly with 2 luncheon biscuits finely pounded, boil for another ¼ hour, then with a spoon put the mixture into custard glasses, and sprinkle a little ground cinnamon on the top of each glass. To be eaten cold.

Swizzle.—Fill a wine glass ⅔ full with brandy, and the other third with Angostura bitters; put this into a jug, with 2 wineglasses of water, and another of finely crushed ice, with a spoonful of sugar (not lump), and swizzle with a swizzle stick until a thick froth rises; then pour into glasses, and drink immediately; the above is enough for 2 men. A well-beaten egg is often added to the above, but the swizzle is then not so refreshing.

Supplementary Literature.

'The *Queen* Recipes.' London. 6*d.*

Mary Hooper: 'Cookery for Invalids, persons of delicate digestion, and for children.' London, 1883. 3*s.* 6*d.*

Mary Hooper: 'Little Dinners; how to serve them with elegance and economy.' London, 1875. 5*s.*

Mary Hooper: 'Everyday Meals, being economic and wholesome recipes for breakfast, luncheon and supper.' London, 1883. 5*s.*

H. L. S. Lear: ‘Maigre Cookery.’ London, 1884. 2*s.*

A. G. Payne: ‘Choice Dishes at small Cost.’ London, 1883. 3*s.* 6*d.*

Susan Anna Brown: ‘Mrs. Gilpin’s Frugalities; remnants, and 200 ways of using them.’ New York, 1883. 5*s.*

‘The Vegetist’s Dietary, and Manual of Vegetable Cookery.’ London, 1877. 6*d.*

Catherine Ryan: ‘Convalescent Cookery; a family handbook.’ London, 1881. 2*s.* 6*d.*

Lady Sarah Lindsay: ‘A Few Choice Recipes.’ London, 1883. 4*s.* 6*d.*

Susan Anna Brown: ‘The Book of 40 Puddings.’ New York, 1882. 2*s.* 6*d.*

Mrs. Matthew Clark: ‘366 Menus and 1200 Recipes of the Baron Brisse, in French and English.’ London, 1882. 5*s.*

Charles Elmé Francatelli: ‘The Modern Cook; a practical guide to the culinary art in all its branches; comprising, in addition to English cookery, the most approved and recherché systems of French, Italian, and German cookery, adapted as well for the largest establishments as for the use of private families.’ London, 1881. 12*s.*

Mrs. Henry Reeve: ‘Cookery and House-keeping; a manual of domestic economy for large and small families.’ London, 1882. 7*s.* 6*d.*

Jules Gouffé: ‘The Royal Cookery Book.’ London, 1880. 10*s.* 6*d.*

The *Queen*. London, weekly. 6*d.*

THE HOUSEWIFE'S ROOM.

This apartment should represent in the household the important place occupied by the laboratory in a manufactory. In it should be found the necessary means of examining the qualities of the various articles consumed in the household, and of combating the evils which surround the inmates. This statement presupposes a wide knowledge on the part of the housewife, who, indeed, is often expected to know more than many professors—hence the value of a book like the present as a guide. For facility of reference, the main facts useful to the housewife in her daily duties, i.e. facts which she is particularly called upon to know outside the ordinary routine of cooking and housework, will be grouped together in sections.

Testing.—Chemistry is a valuable science, and more fully appreciated every day in its application to home matters; but the average housewife cannot be expected to qualify herself as an analyst. At the same time there are many simple tests for the purity of air, water, and foods that can easily be brought within the range of an ordinarily intelligent woman, and will be found of great service.

Air.—Apart from poisonous gases due to sewers, &c., there is a constituent of air, which, in excess, becomes poisonous also. This is carbonic acid. Wholesome air does not contain more than 5 volumes of carbonic acid in 10,000; as the proportion increases, the quality of the air deteriorates till it becomes actively poisonous. The simplest method of estimating approximately the proportion of carbonic acid present in the air of a room is by shaking up a small quantity of lime water

with a certain amount of the air to be tested. The lime water is prepared by shaking slaked lime with distilled water, allowing it to settle, and then carefully drawing off the clear liquid by a siphon, so as not to disturb the sediment. It can be obtained from any druggist, but should be freshly made.

When this lime water is shaken up in a bottle of air containing carbonic acid, the acid combines with the lime, forming an insoluble powder of carbonate of lime, and when this is in sufficient quantity it makes the water turbid, or milky, so that it can be recognised by the eye. By having a series of bottles of various sizes, filling them with the air to be tested, placing in each bottle a large tablespoonful of lime water, and then shaking them vigorously for 3 or 4 minutes, so that all the air in the bottle shall be brought in contact with the lime water, and all the carbonic acid be taken up by the lime, we shall find that in one bottle of the series the turbidity is just perceptible, while in bottles of less size the fluid remains clear, and in those of greater size it is dense.

The following table is given by Dr. Smart as expressing the relation between the size of the bottle in which turbidity occurs and the volume of carbonic acid in the air:—

Size of Bottle in fluid ounces.	Carbonic Acid in volumes per 10,000 air.	Size of Bottle in fluid ounces.	Carbonic Acid in volumes per 10,000 air.
20.6	3	5.5	12
15.6	4	5.1	13
12.5	5	4.8	14
10.5	6	4.5	15

9.1	7	3.5	20
8.0	8	2.9	25
7.2	9	2.5	30
6.5	10	2.0	40
6.0	11		

If an 8 oz. bottle shows turbidity, the presence of more than 8 volumes per 10,000 is indicated; how much more must be determined by a second experiment. Taking a 6½ oz. bottle, the air is known to contain less than 10 volumes if no precipitate is developed. The carbonic acid can then be stated as constituting from 8 to 10 volumes per 10,000 of the air. But a third experiment with a bottle intermediate in size will correspondingly reduce the limits of uncertainty regarding the carbonic acid figure. There is no test-paper which can be made practically useful as a quantitative test for carbonic acid. (*Sanitary Engineer.*)

Water.—The tests for water embrace impurities which affect the character of water for drinking, cooking, and washing purposes. Drinking-water should not be too soft, as it provides much of the lime required in building up the bones of the body; the chief evil in drinking-water is the presence of organic ferments. For cooking and washing purposes, water cannot be too soft, and, if used boiled, the presence of organic matters is practically neutralised.

Drinking-water.—In 1871, Dr. Hager published a valuable and simple test for the presence of fermentable poisonous matter. He proposed a tablespoonful of a clear solution of tannin to be added to a tumblerful of water. If no gelatinous turbidity occurs within 5 hours, the water may be

considered good. If turbidity occurs within the first hour, the water is unwholesome. If turbidity is displayed within the second hour, the water is not to be recommended. Previously, in 1866, Dr. Hager had recommended for travellers, as a precaution in cholera times, the addition of the following solution (20 drops to 1 pint) to any water they might be about to drink:—Tannic acid, 5 parts; syrup, 4 parts; distilled water, 6 parts; spirit of wine, 12½ parts.

A very simple test for the purity of water is given by Heisch. He observes that good water should be free from colour, and unpleasant odour and flavour, and should quickly afford a good lather with a small proportion of soap. If ½ pint of water be placed in a clean colourless glass-stoppered bottle, a few grains of the best white lump sugar added, and the bottle freely exposed to the daylight in the window of a warm room, the liquid should not become turbid, even after exposure for a week or 10 days. If, while the stopper remains secure, the water becomes turbid, it is open to grave suspicion of sewage contamination; but if it remains clear, it is almost certainly safe for drinking and all domestic purposes.

Hard or Soft Water.—Dissolve a small quantity of good soap in alcohol. Let a few drops fall into a glass of water. If it turns milky, it is hard; if not, it is soft.

Earthy Matters or Alkali.—Take litmus paper dipped in vinegar, and if, on immersion, the paper returns to its true shade, the water does not contain earthy matter or alkali. If a few drops of syrup be added to a water containing an earthy matter, it will turn green.

Carbonic Acid.—Take equal parts of water and clear lime water. If combined or free carbonic acid is present, a precipitate is seen, in which, if a few drops

of muriatic acid be added, an effervescence commences.

Magnesia.—Boil the water to $^{1}/_{20}$ part of its weight, and then drop a few grains of neutral carbonate of ammonia into a glass of it, and a few drops of phosphate of soda. If magnesia be present, it will fall to the bottom.

Iron.—(*a*) Boil a little nut-gall, and add to the water. If it turns grey or slate colour, iron is present. (*b*) Dissolve a little prussiate of potash, and if iron is present, it will turn blue.

Lime.—Into a glass of the water put 2 drops oxalic acid, and blow upon it; if it gets milky, lime is present.

Acid.—Take a piece of litmus paper. If it turns red, there must be acid. If it precipitates on adding lime water, it is carbonic acid. If a blue sugar-paper is turned red, it is a mineral acid, and there would be reason to suspect poisonous metallic salts.

Foods.—Foods are adulterated in three principal ways, viz.:—(1) By replacing a superior article or ingredient by an inferior or cheaper substitute, (2) by adding foreign matters capable of giving an appearance of superiority, (3) by adding water to increase the weight, this being often accompanied by incorporating foreign materials which absorb much water though perhaps otherwise harmless.

Bread.—Pure flour (wheaten) may be replaced by various meals of inferior nutritive value and lower price; if done on a scale to repay the baker, their presence can be at once detected under the microscope. This kind of adulteration is nearly always accompanied by the use of alum, which improves the appearance of bread made from

inferior flour, and enables it to hold much more water. The presence of alum can be ascertained easily and rapidly by the logwood test: soak some crumbs of bread for 6 or 7 minutes in an alcoholic solution of logwood containing an excess of carbonate of ammonia, and squeeze it—a more or less deep blue colour is produced. Alum is often used too to hide the employment of damaged flour, containing perhaps only 7 per cent. of gluten instead of 12. The presence of mineral adulterants, which seldom occurs, is proved by burning a sample of the bread and weighing the ash, which should not exceed 7 parts in 1000. Bread is sometimes made of the flour from wheat which has "sprouted" or germinated, and is then inferior. This can only be ascertained by examining the flour: if it has a musty odour and flavour and an acid reaction, the flour has probably been damp for some time; if there is no mustiness but only an acid reaction, sprouted wheat has been employed. The acid reaction is best discovered by stirring some of the flour in water, filtering, and testing with a solution of corallin rendered red with a trace of alkali; if the flour is acid it turns yellow.

Butter.—Cheap butters largely consist of admixtures with other animal fats, especially that known as "butterine" or "bosch." Analysis of suspected butter could hardly be undertaken by the housewife, but the presence of butterine is probable if the butter breaks in a crumbly manner and loses its colour on being kept melted for a short time at the temperature of boiling water (212° F.).

Milk.—Adulteration chiefly consists in adding water to skim milk and in mixing skim milk with that sold as new. Analysis is possible only to the

skilled chemist, but a rough test may be made. The lactoscope devised by Dr. Bond, of Gloucester, is based on the principle of that of Prof. Feser, of Munich, in which the opacity of fresh milk is taken as proportionate to the amount of butter fat. It is useful as providing a ready means of determining with approximate accuracy the richness of milk, and is therefore a rough but sufficient test where adulteration is suspected. As supplied by the Sanitary and Œconomic Association of Gloucester, it consists of a little glass dish with some black horizontal lines on the base, a small measure, and a sort of pipette. The measure is filled with water and emptied into the dish; the pipette is filled with the milk to be tested, which is then dropped into the water, the drops being counted. The mixture of water and milk is stirred, and when the horizontal lines can no longer be seen, say, from a height of 2 ft., the number of drops of milk used are compared with a table supplied, and the approximate amount of butter-fat is read off. This instrument must not be confounded with the various lactometers, which aim at estimating the quality of a milk by its density (specific gravity)—an utterly erroneous proceeding, seeing that a poor milk will often show a higher density than a rich one.

For new milk a capital test is to pour a small quantity into an ordinary glass test-tube graduated from 0 at the top to 100 at the bottom; on allowing the sample to stand, cream will form, and its proportion can be read off at a glance, always allowing 20 hours' rest. Good new milk should show an average of 11½ per cent. of cream, and will sometimes reach 80 per cent. The quality of skim milk is less easy to estimate by ready means. It should average not less than 1 part of fat in 1000.

As a precaution against possible infection by diseased milk, it is advisable to let all milk be boiled before use, as the boiling temperature is fatal to the disease germs. Such milk, however, is not so digestible or palatable to many people.

Tea.—The present low prices of tea do not afford much scope for profitable adulteration in this country. The chief falsifications to be on the look out for are the artificial colouring of green teas, which, naturally, are hardly distinguishable from black; and the substitution of re-rolled exhausted leaves for genuine fresh leaves. There is also in cheap teas often a considerable proportion of mineral matter, i.e. added dirt. This last can be readily detected by chewing a small quantity of the leaf, when dirt will be felt in the mouth. The presence of exhausted leaves will be manifested by the increased weight of solid matters left on boiling a sample repeatedly and drying the residue. With genuine teas, the average weight of leaves (dried) remaining after exhaustion is 65 per cent.; therefore 1 oz. of tea thoroughly boiled should not give more than ⅔ oz. of exhausted leaves weighed after drying. If the figure is higher, the addition of exhausted leaves to the original tea may be suspected.

Coffee.—Coffee-berries can scarcely be adulterated without easy detection, therefore the best safeguard is to buy the berries and grind them at home. Ground coffee is nearly always adulterated with chicory: in fact a certain proportion is allowed by law, and the chicory is itself often largely mixed with various rubbish which by roasting gives a brown colour to water. The simplest plan for detecting the sophistication of ground coffee is to sprinkle some in a glass of cold water: pure coffee will not colour the

water for some time, while chicory and its substitutes will do so immediately.

Cocoa.—This is never sold in the pure state, and no two preparations are alike. The only safeguard is to buy it in packets bearing the name of one of the well-known makers, whose preparations are wholesome and adapted to the demands of the palate.

Pickles.—Pickles and preserved vegetables are often coloured highly by the addition of copper or by boiling the articles in copper vessels. The presence of copper, even in very small proportion, can be easily and rapidly detected by plunging a bright knife-blade into the vessel for a few moments, when, if copper be present, it will coat the knife. Another evil in cheap pickles is the adulteration of the vinegar by means of sulphuric and other acids, generally sulphuric, that being one of the cheapest. A very small addition of sulphuric acid can be detected by pouring a few drops of the vinegar on a small piece of lump sugar and then evaporating the vinegar away on a water bath; the residue will become more or less blackened (carbonised) according to the amount of free mineral acid present. (Hassall.) A water bath can be extemporised out of a china tea-saucer placed on a small saucepan in which water is boiling. A further risk in vinegar containing sulphuric acid is that the acid has been made from pyrites and is contaminated with arsenic.

Pepper.—Pepper-corns may readily be judged by tasting; they cannot easily be replaced by other seeds, but may have been damaged by sea water and retain but little pungency. Ground pepper is often adulterated with flour or starch, whose presence is at once revealed by the microscope. The same may be

said of most spices.

Obviously the housewife cannot conduct a critical chemical analysis of any article coming into her household; the most she can do is to detect the presence of inferior or injurious goods. Where analyses are desired, the author will provide them on the terms stated below, on samples being sent to the publishers of this volume, with the necessary instructions:—

1. Chemical and microscopical examination of water, each sample	£2 2 0
2. Chemical examination of bread, flour, lard, butter, jam, marmalade, sauces, ale, wine, spirits, for adulteration only, each sample	1 1 0
3. Chemical examination of milk, coffee, tea, spices, pickles, and sweetmeats, for adulteration only, each sample	0 10 6

Cleaning and Renovating.—This is a wide and important subject, embracing not only the person and personal attire, but also the furniture and fittings of the dwelling and the various utensils of the household. Classification is adopted as far as possible.

Chip or Straw Goods.—To Clean.—Wash in warm soap liquor, well brushing them both inside and out; then rinse in cold water, and they are ready for bleaching.

To Bleach.—(*a*) Put a small quantity of salts of sorrel (oxalic acid) into a clean pan, and pour on it

sufficient scalding water to cover the bonnet or hat. Put the bonnet or hat into this liquor, and let it remain in it for about 5 minutes; to keep it covered, hold it down with a clean stick. Dry in the sun or before a clear fire. (*b*) Having first dried the bonnet or hat, put it, together with a saucer of burning sulphur, into a box with a tight-closing lid. Cover it over to keep it in the fumes, and let it remain for a few hours. The disadvantage of bleaching with sulphur is that the articles so bleached soon become yellow, which does not happen to them when they are bleached by oxalic acid.

To Finish or Stiffen.—After cleaning and bleaching, white bonnets should be stiffened with parchment size. Black or coloured bonnets are finished with a size made from the best glue.

Straw or chip plaits, or leghorn hats and bonnets, may also be cleaned, bleached, and finished as above.

Feathers.—(*a*) To clean feathers from their own animal oil, steep them in 1 gal. water mixed with 1 lb. lime, stir them well, then pour off the water, and rinse the feathers in cold spring water. To clean feathers from dirt, simply wash them in hot water with soap. Rinse them in hot water. (*b*) To clean white ostrich feathers: 4 oz. white curd soap cut small, dissolved in 4 pints water, rather hot, in a basin. Make the solution into a lather by beating it with birch rods, or wires. Introduce the feathers and rub well with the hands for 5 or 6 minutes. After the soaping, wash in clean water as hot as the hand can bear. Shake until dry. (*c*) Slightly soften the soiled feathers with warm water, using a camel's-hair brush. Next raise each feather with a flat piece of wood or paper-knife, and clean them with spirits of

wine. Dry with plaster-of-Paris, and afterwards brush them carefully with a dry camel's-hair brush. (*d*) Make a strong solution of salt in water, saturate a large and thick cloth with it. Wrap the bird up in the damp cloth in as many folds as you can, not disarranging the plumage. Look at the bird in 6 hours, and if not long dried on the blood will be soft; if not soft, keep it in the cloth longer, and re-wet it. When soft, rub out with gentle pressure, putting something hard under each feather with blood on, and rubbing with the back of a knife. Of course each feather must be done separately. (*e*) Col. Wragge treated the soiled plumage of albatrosses, Cape petrel, &c., by simply washing the feathers in rain water, after the process of skinning, and then laying a thick mixture of starch and water over the portion to be cleansed. Next he laid the birds aside, and left them till the plastering of starch had become thoroughly dry. He then removed the dry plaster by tapping it, and found that the feathers had become much cleaner. Old specimens may be cleaned in this way. Feathers may be "set" by just arranging them naturally with a needle or any pointed instrument. (*f*) White.—Dissolve 4 oz. white soap in 2 qt. boiling water; put it into a large basin or small pan, and beat to a strong lather with a wire egg-beater or a small bundle of birch twigs; use while warm. Hold the feather by the quill with the left hand, dip it into the soap liquor and squeeze it through the right hand, using a moderate degree of pressure. Continue this operation until the feather is perfectly clean and white, using a second lot of soap liquor if necessary. Rinse in clean hot water to take out the soap, and afterwards in cold water in which a small quantity of blue has been dissolved. Shake well, and dry before a moderate fire, shaking it occasionally that it may

look full and soft when dried. Before it is quite dry, curl each fibre separately with a blunt knife or ivory paper-folder.

Coloured.—These are to be cleaned, and rinsed in warm and cold water, as above, but not rinsed in blue water. Coloured feathers may also be cleaned in a mixture of 1 part fresh gall and 3 of lukewarm water, washing them in this mixture in the same manner as in the soap liquor. But they will require more rinsing when done by this method, in order to take off all smell of the gall. Dry and curl as before.

Grebe.—Carefully take out the lining, and wash with warm water and soap, as directed for white ostrich feathers, but do not shake them until they are quite dry. Before re-making, carefully repair any rents there may be in the skin.

To Purify Feathers for Beds, Pillows, &c.—Prepare a quantity of lime water in the following manner: Well mix 1 lb. quicklime in each gal. of water required, and let it stand until all the undissolved lime is precipitated, as a fine powder, to the bottom of the tub or pan, then pour off the clear liquor for use. The number of gallons to be prepared will, of course, depend on the quantity of feathers to be cleaned. Put the feathers into a clean tub, pour the lime water on them, and well stir them in it until they all sink to the bottom. There should then be sufficient of the lime water to cover them to a depth of 3 in. Let them stand in this for 3 or 4 days, then take them out, drain them in a sieve, and afterwards well wash and rinse them in clean water. Dry on nets having a mesh about the same size as a cabbage net; shake the net occasionally, and the dry feathers will fall through. When they are dried, beat them well to get rid of the dust. It will take about 3 weeks to clean

and dry a sufficient quantity for a bed. This process was awarded the prize offered by the Society of Arts.

Fenders.—(*a*) Have your bright steel fenders and fire-irons well rubbed with mercurial ointment, and leave all bright parts smeared over with it; they will not rust while left all winter. (*b*) Rub them well with sperm oil; after which some people put unslaked lime. Wrap the fenders in paper to keep off dust. (*c*) Take a piece of raw mutton fat (the loin fat is best) and melt it in front of the fire, and rub it thickly all over the bright fenders and fire-irons, and then do them up in several thicknesses of brown paper; you will find them free from rust in the spring. The fat must be raw, not cooked, and melted just enough to rub on.

Firearms.—(*a*) A good and simple way of cleaning and recolouring the barrels and other metal parts of a double-barrel shot gun which are quite rusty. Take the barrels from the stock, and put them in clean cold water free from gritty matters. Attach the brush to the washing-rod, and get out all adhering powder and residues; next take tow and wash until the barrels are quite clean. If the parts have rusted it will be necessary to use a little emery flour. Dry the barrels with clean cotton rags, rubbing until the metal feels warm. Plug the ports and muzzles securely, then cleanse the outside parts with a strong alcoholic solution of caustic potash, aided, if necessary, with a little emery flour and a soft rag. Rinse thoroughly in water, dry thoroughly, warm, and while warm rub over every part with the following preparation: pure (dry) zinc chloride, 1 oz.; antimony nitrate, ¼ oz.; olive oil, 2 oz.; well rubbed down into a smooth uniform paste. After ½ hour's exposure, rub off excess of this paste, and polish with

clean soft rags. In warming the metal, avoid overheating it so as to injure the temper.

(*b*) In the Volunteer service there are several fluids used, which are composed of either turpentine, naphtha, petroleum, benzine, or gasoline, about one-third, or according to fancy, with Rangoon oil. But the instructions to the troops are—a damp rag, flannel or tow, is all that is required to clean the barrel out; if much water is used, it is liable to run into the action. The butt should be raised when washing out. After washing out and drying, an oily rag or flannel to be used. On many occasions the oily material will be found to be efficacious, without the previous use of water.

(*c*) Easy method of cleaning guns and rifles when leaded.—If a muzzle-loader, stop up the nipple or communication hole with a little wax, or if a breech-loader insert a cork in the breech rather tightly; next pour some quicksilver into the barrel, and put another cork in the muzzle, then proceed to roll it up and down the barrel, shaking it about for a few minutes. The mercury and the lead will form an amalgam, and leave the barrel as clean and free from lead as the first day it came out of the shop. The same quicksilver can be used repeatedly by straining it through wash-leather; for the lead will be left behind in the leather, and the quicksilver will be again fit for use.

(*d*) If the barrels have become leaded, wet the tow on the rod with spirits of turpentine, as the latter enjoys the property of removing any leading almost equally with quicksilver. Newark's gun-cleaning composition also answers admirably for this purpose, and prevents rust. Paraffin will also be found useful where neither of the foregoing can be obtained.

Never touch the grooves of a rifle with emery, as it will dull their edges, and, consequently, affect the shooting power. (*Land and Water.*)

(*e*) Fill a stable-bucket one-third full of hot water. The water should not be too hot—not hotter than the finger can bear. If scalding hot, it is likely to cause the rib to start. Dismount barrels from stock, and place breeches in the bucket. Pour some of the water into the muzzles from a jug, and sponge the barrels out with a woollen rag or tow until the water comes out perfectly clear, both at the nipples and when jerked out of the muzzle by action of cleaning-rod. Wipe the water off the exterior of the barrels, then dry the interior with woollen rags; four or five changes of rag are required. When the insides of the barrels are perfectly dry, pass an oiled rag down. Remove fouling from nipples and adjacent parts by means of a stiff brush or woollen rag. Any sharp instrument should on no account be used. Oil out the barrels, being careful not to miss the parts round the nipples, between rib and barrel, and ramrod bands. Remove fouling from hammers in the same way as from the nipples. Rub the hammers, trigger, trigger-guard, &c., clean with a dry woollen rag, then rub them with an oiled one, which should be passed all over the stock. Clean and oil the ramrod. The oil used should be animal, not vegetable. Neat's-foot oil (of the consistency of grease) is excellent, never rusting the gun in the least. On returning from a day's shooting, if it is not convenient to clean the gun at once, an oiled rag should be passed outside of the barrels and stock.

Floorcloths and Carpets.—(*a*) Oilcloths.—In buying an oilcloth for a floor, endeavour to obtain one that was manufactured several years before; as the longer

it has been made previous to use, the better it will wear, from the paint becoming hard and durable. An oilcloth that has been made within the year, is scarcely worth buying, as the paint will be defaced in a very little time, it requiring a long while to season. An oilcloth should never be scrubbed with a brush; but, after being first swept, it should be cleaned by washing with a large soft cloth and lukewarm or cold water. On no account use soap, or take water that is hot; as either of them will certainly bring off the paint. When it has dried, you may sponge it over with milk, which will brighten and preserve the colours; and then wipe it with a soft dry cloth. (J. R.)

(*b*) Wash with a large, soft, woollen cloth and lukewarm or cold water, dry thoroughly with a soft cloth, and afterwards polish with milk, or a weak solution of beeswax, in spirits of turpentine.

(*c*) Oilcloth may be improved in appearance by rubbing it with a mixture of ½ oz. beeswax in a saucerful of turpentine. After being applied it must be well rubbed with a dry cloth; otherwise the floor will be quite slippery.

(*d*) Cleaning New Linoleum.—Equal parts of salad oil and vinegar is the best thing for the purpose, as it keeps it clean longer than skim milk, which is commonly used. If dirty, wash the linoleum first with soap-and-water. Soda rapidly destroys it, but soap or grease improves the wear.

(*e*) Oilcloth made from Carpet.—The following recipe is communicated to the *Cultivator and Country Gentleman* by a correspondent:—Nail the old Brussels carpet loosely to the floor, in a large attic or wood-house chamber not in use. Then paint it over with a thick coat of linseed oil and burnt umber. Let it dry in thoroughly; add a coat of good varnish. Let that

dry for a week or two, and it can be washed with milk-and-water like any oilcloth. Paint it on the wrong side, and nail it down closely, for it need not be taken up for many years. As the varnish and paint wear off, renew them, and thus it will last four times as long as common oilcloth. It may be ornamented with a border of scarlet, green, or blue lines.

(*f*) Sweeping Carpets.—Before applying the broom, scatter over the carpet the refuse tea-leaves from the teapot. These should be set apart and saved in a pot kept for the purpose, squeezing the water out thoroughly in the hand. First rub the leaves into the carpet with the broom, and then sweep as usual. This will prevent dust, and brighten the colours. Indian meal (maize flour) is recommended for this purpose by many experienced American housekeepers. A small sweeping machine, with a box to catch the dust, is now often used.

(*g*) Cleansing Carpets.—Put 4 tablespoonfuls ammonia to 1 bucketful of water, with soap, scrubbing-brush, and cloth; scrub and wash the carpet just as you would an unpainted floor, changing the water frequently. Leave the windows open, and the carpet will soon dry. In cities where bituminous coal is used, carpets are scrubbed as regularly as wooden floors, and with happy effects. Instead of taking up a carpet every 6 weeks during the winter, as some in muddy districts think necessary, a careful wiping every week of the carpet with a mop wrung from clean water will remove the dust and brighten the colours. A thorough sweeping should precede this wiping-up.

(*h*) Carpets may be washed on tables or on the floor. In either case they must be taken up and well beaten and swept. Grease is taken out by rubbing

hard soap on the spot, and scrubbing it out with a brush dipped in clean cold water. Each spot must be rubbed dry with a cloth as it is washed. Dissolve a bar of soap in 2 gal. water, by cutting it into the water and heating to a boil. Lay the carpet on the floor and tack it down, or have a heavy board, 3 ft. wide by 12 ft. long, laid on stout stands, or horses, and throw the carpet over that, keeping a clean board or sheet underneath to receive the carpet as it is cleansed. Provide brushes, and a quantity of coarse cotton cloths, flannels, and a large sponge. Take 2 pails filled with blood-warm water, put 2 qt. of the melted soap into one of them to scour the carpet with, and use the other for rinsing. Dip the brush in the soapsuds, and scour a square yard of the carpet at a time, using as little water as possible, not to soak it through. When the soap has done its work, rub it well out of the carpet with a flannel or coarse sponge, sucking up with these all the wet and dirt left by the brush, rinsing the article used in clean water repeatedly. Have ready a pail of clean cold water, with enough sulphuric acid or sharp vinegar in it to taste sour; dip a clean sponge in this, squeeze and rub it well into the spot just cleansed. Afterward wipe dry with coarse cloths, rinsing and hanging them where they will be dry when the next yard is washed. Finish yard after yard in this way, rubbing each clean and dry as you go. Keep a good fire in the room to dry the carpet thoroughly. If scoured on a frame, nail the carpet against the side of a house in the sun to dry. This is a tedious, but thorough process. Hearth rugs may be cleaned in the same way, beating and brushing them well, and tacking on a large board before washing. Scrub one-sixth of it at a time unless you are expeditious, and dry well with an old sheet. The secret of having carpets look well is

to wash and rinse them thoroughly, without soaking them through. Ingrain, tapestry, Brussels, and Turkish carpets are all cleaned in this way. Good authorities recommend a teacupful of ox-gall to a pail of soapsuds, rinsing with clean water.

(*i*) Removing Grease Stain.—To take oil out of a carpet, as soon as it is spilled put on plenty of wheat flour or whiting, to absorb the oil and keep it from spreading. If the oil is near a seam, rip it, so that the spot will not spread, and put whiting on the floor under the carpet. Next day sweep up all the flour above and under the carpet with a stiff brush, and put on plenty of fresh flour. To take out grease spots, rub them with white flannel dipped in raw spirits of turpentine. If they show after a while, rub again on both sides. If there are grease spots on the floor, remove them with potters' clay before the carpet is laid down.

(*j*) Ditto.—Upon the grease stain lay a little damp fullers' earth, and, after standing for some time, rub it gently into the carpet, and then wash off by using a little ammonia carbonate, and the colour will be restored.

(*k*) Following are systems adopted by professional carpet cleaners.

All carpets and hearth-rugs, whether intended for dry or thorough cleaning, must first be well beaten, and swept or brushed with a hard broom. A carpet, to be properly beaten, should be hung on a stout line, the wrong side outwards, and well beaten by two or more persons, according to its size, some standing on one side and some on the other. The sticks used should be pliable, and well covered at the ends with cloth in the form of a knot in order to prevent the carpet being torn or the seams split by

the sharp ends of the sticks. After being thoroughly beaten on the wrong side, the carpet should be turned and treated in the same manner on the right side.

Dry Cleaning.—Have ready a number of dry coarse cotton or linen cloths, some coarse flannels, and one or more large pieces of coarse sponge; two or more hard scrubbing or scouring brushes, some large tubs or pans, and pails, and also a plentiful supply of both hot and cold water.

First take out all grease spots; this may be effected in several ways. Well rub the spot with a piece of hard soap, and wash out with a brush and cold water, and well dry each spot before leaving it.

Or use, instead of the soap, a mixture of fullers' earth, gall, and water, well rinsing and drying each spot as before. When this has been done, the carpet may be cleaned by one of the three following methods:—

(1) With Soap Liquor.—Cut up a bar of soap and dissolve it over a fire in 2 gal. water. Put 2 qt. of this dissolved soap into a pail of warm water. Dip a scrubbing-brush into this soap liquor, and scour with it about 1 sq. yd. of the carpet; be careful not to let the liquor soak through to the back. When this piece is thoroughly cleaned, rub the soap well out of it by means of a coarse flannel or sponge, sucking up all the wet and dirt made by the brush; rinse the flannel or sponge frequently in warm water. Now take a clean sponge and dip it into a pail of common sour, squeeze it out, and then rub the sour well into the part just cleaned and rinsed. Rub as dry as possible with clean, coarse cotton or linen cloths before proceeding with the cleaning. The whole carpet is to be cleaned, spirited, and dried in the same manner, a

square yard at a time.

(2) With Gall.—Put a bag of very fresh bullocks' gall into a pail containing 2 gal. cold water, with 4 oz. pearlash dissolved in it, and well mix it either with a stick or your hands. Have ready, besides this, 2 pails cold water, a large sponge, a couple of flannels, and some dry, coarse cloths. Dip the brush into the gall and water, and scrub the carpet, a square yard at a time, as quickly and as carefully as possible. Rinse, and suck up the gall and dirt with a large flannel or sponge, which is to be frequently rinsed in the pails of cold water. Well dry with cloths before beginning a second square.

By adopting this simple process, any carpet, whatever its size, may easily be cleaned on the floor; the process is especially useful when the carpet is not very dirty, or when it contains delicate colours, as the gall cannot possibly injure them. The only objection to this method is that when cleaned with gall there is often a disagreeable smell left in the carpet; but if the gall be obtained from a fresh-killed bullock, and the carpet, after cleaning, be hung for a few hours in a current of fresh air, the whole of this smell will go off.

(3) With Ammonia.—Dissolve in a small pan 1 oz. pearlash in hot water, and mix with it 1 gal. ammonia, which must be obtained from a drysalter, not from a chemist. Dip a sponge or coarse flannel into the ammonia, take it out rather wet, and well rub it into the carpet, then dip the scouring-brush into the liquor and well scour the part already sponged as quickly as possible. The dirt and ammonia must then be sucked up in the sponge or flannel, and the part well dried with flannels and cloths before proceeding with the next. Each square

yard will take about 20 minutes to clean and dry thoroughly.

This is another very simple method, the only objection to it being that the carpet will smell of the ammonia for some time if it is kept in the room in which it has been cleaned; it should therefore be hung for 3 or 4 days in the open air or under an open shed, taking care, however, that it does not get wet.

In dry cleaning, special care must be taken not to allow the liquor to soak to the back of the carpet or rug; and also that, before commencing, the floor or board on which the operation is conducted, is perfectly dry. A good fire should also be kept in the room during the whole time, as much of the success of the operation depends on rapid drying.

Floors.—(*a*) First sweep well. Have a small tub or bucket of warm water; an old saucer to hold a piece of brown soap; a large thick tow-linen floorcloth; and a long-handled scrubbing-brush. Dip the whole of the floorcloth into the water, and with it wet a portion of the floor. Next, rub some soap on the bristles of the brush, and scrub hard all over the wet place. Then dip your cloth into the water, and with it wash the suds off the floor. Wring the cloth, wet it again, and wipe the floor with it a second time. Lastly, wash the cloth about in the water, wring it as dry as possible, and give the floor a last and hard wiping with it. Afterwards go on to the next part of the floor, wet it, scrub it, wipe it 3 times, and proceed in the same manner, a piece at a time, till you have gone over the whole; changing the dirty water for clean, whenever you find it necessary. For a large room, fresh warm water will be required 4 or 5 times in the course of the scrubbing. When the floor has been scrubbed, leave the sashes raised while it is drying. For

scouring common floors that are very dirty, have by you an old tin pan with some grey sand in it; and after soaping the brush, rub it on some sand also. Always commence operations at the corner farthest from the door and work towards the door.

(*b*) Take some clean, sifted, white or silver sand, and scatter it on the floor. Dissolve 1 lb. potash or pearlash, in 1 pint water, and sprinkle the sand with this solution. Have a pail of very hot water, and well scrub the boards lengthwise with a hard brush, and use the best mottled soap. Change the water frequently. The potash, if applied as directed, will take out all stains. Ink stains may be removed from boards by using either strong vinegar, or salts of lemon.

(*c*) The following will be found useful in cleaning and restoring colour to wooden floors:—1 part calcinated soda allowed to stand ¾ hour in 1 part slaked lime; then add 15 parts water, and boil. Spread the solution, thus obtained, upon the floor with a rag, and after drying, rub with hard brush and fine sand and water. A solution of 1 part concentrated sulphuric acid and 8 parts water will enliven the wood after above application. When dry, wash and wax the floor.

(*d*) Remove ink from floors by scouring them with sand wet with water and a little oil of vitriol, mixed. Then rinse them with strong saleratus water (potassium bicarbonate).

(*e*) Take ¼ lb. fullers' earth and ¼ lb. pearlash, and boil together in 1 qt. water, and, while hot, spread it on the greased surface, allowing it to remain 14 or 15 hours; after which it may be scoured off with sand and water.

(*f*) Procure some good light benzoline, scrub the stained portion with a hard brush dipped in this, then wipe with a dry flannel. Make a strong solution of common washing soda in hot water, place a little unslaked lime, broken into coarse powder, over the stains, and pour on sufficient solution of soda to wet the lime thoroughly. Leave this mixture on for a short time, then scrub hard with plenty of clean hot water, and wipe dry with clean flannel.

(*g*) A small quantity (say 2*d.* worth) oxalic acid (poison) dissolved in ½ pint hot water; apply on a rag tied to a stick; wash off with soda, soap, and water.

(*h*) Marks of tempera (whitewash) can be removed by a good scrubbing with soap and water; oil stains require to be softened with turpentine, and then scraped off. There is a soap called Philadelphia Kitchen Crystal Soap, which removes oil stains rapidly; it must never be put into water, but a damp flannel is rubbed on it, and the stains are scrubbed with the lather. It also removes dirty marks on paint quickly and easily.

Furniture.—(*a*) Scratches on furniture may be removed by rubbing with a woollen rag dipped in boiled linseed oil. The article must then be varnished with shellac dissolved in alcohol.

(*b*) To clean and restore the elasticity of cane chair-bottoms.—Turn the chair bottom upwards, and with hot water and a sponge wash the canework well, so that it is well soaked; should it be dirty, use soap; let it dry in the air, and it will be as tight and firm as new, provided none of the canes is broken.

(*c*) Straw Matting.—Wash it with weak salt and water and dry it well, or boil a small bag of bran in 2

gal. water, and wash the matting with the water, drying it well.

(*d*) Ink Stains out of Mahogany.—Put a few drops of spirits of nitre (nitric acid) in a teaspoonful of water, touch the spot with a feather dipped in the mixture, and on the ink disappearing, rub it over immediately with a rag wetted in cold water, or there will be a white mark, which will not be easily effaced.

(*e*) Ditto.—Apply spirits of salts (muriatic acid) with a rag until the spots disappear, and immediately afterward wash with clear water.

(*f*) Ditto.—To ½ pint soft water put 1 oz. oxalic acid, and ½ oz. butter (terchloride) of antimony; shake well; when dissolved, it will be very useful in extracting stains from mahogany, as well as ink, if not of too long standing.

(*g*) Furniture creams or French polishes.—These are better bought than home made. Nearly 100 good recipes exist, and maybe found in 'Spons' Mechanic's Own Book.'

Furs, Skins, and Rugs.—(*a*) Fur.—Soap or water will spoil it. Get some clean common whiting—powdered, and plenty of it—put it in a damp place for a day or so, but on no account let it get wet; rub it into the fur with the hand, and don't be afraid to rub it. Now let it stop till next day, give it another good rubbing, then shake out all the whiting you can, and give it a good brushing with a clothes-brush. It will now be pretty clean, except the skin at the bottom of the fur. To remove the dirt from thence get the fur over the back of a chair, and use the point of the clothes-brush very briskly, at the same time giving a short puff of wind every time you

give a stroke with the brush. With a little patience you will remove every trace of whiting, grease, or dirt. Lastly, pour a little spirits of wine on a plate, dip the point of the clothes-brush in this, and lightly pass it over the fur; move the brush the same way as the fur runs.

(*b*) Ditto.—Take equal parts of flour and powdered salt (which should be well heated in an oven), and thoroughly rub the fur. It should afterwards be well shaken, to free it from the flour and salt.

(*c*) Ditto.—Lay the fur on a table, and rub it well with bran made moist with warm water. Rub until quite dry, and afterwards with dry bran. The wet bran should be put on with flannel, and the dry with a piece of book muslin.

(*d*) Ditto.—Thoroughly sprinkle every part with hot plaster-of-Paris, and brush well with a hard brush. Then beat it with a cane, comb smooth with a wet comb, and press carefully with a warm iron; when dry, shake out all loose plaster-of-Paris.

(*e*) Hearth-rugs.—Hearth-rugs should never be cleaned on the floor, but on a large scouring board, and should only be operated upon ⅙ of their length at a time. After being cleaned, they require to be dried very quickly; as otherwise, on account of the thickness of the pile, they are apt to sadden. Hearth-rugs may be cleaned by either the first or second methods given for dry-cleaning carpets; with the following exception, that when the first method is adopted, only 1 lb. soap dissolved in 1 gal. hot water will be required. After the rug is finished, dip a clean sponge into a pail containing a little common sour, and well rub it into the face of the rug.

(*f*) Sheepskin Rugs and Mats.—Dissolve 1 bar soap

in 2 gal. boiling water. Put 2 qt. of this into a tub or pan containing about 2 gal. warm water. First rub out the dirt and grease spots with the strong soap liquor, or, if necessary, with fullers' earth. Then put the rug or mat into the tub containing the weak soap liquor, and well wash and punch it. Throw away this first liquor, and mix another lot with the same proportions of warm water and dissolved soap, and again well wash the rug; and so continue until it is perfectly clean. Then rinse well in cold water to take out all the soap, and afterwards in cold water in which a small quantity of blue has been dissolved. This blue water will only be required for white skins. After this has been done, the mat or rug should be wrung out, shaken, and hung to dry with the skin side towards the sun, but not when the heat is scorching, or the skin will become hard and brittle. It should, while drying, be frequently shaken and hung up first by one end and then by the other.

(*g*) Ditto.—Wash while fresh in strong soapsuds, first picking from the wool all the dirt that will come out. A little paraffin, 1 tablespoonful to 3 gal. water, will aid in removing the impurities. Continue to wash the skin in fresh suds till it is white and clean. Then dissolve ½ lb. each of salt and alum in 3 pints boiling water, put into it water enough to cover the skin, which should soak in the solution 12 hours, and then be hung on a line to drain. When nearly dry, nail it, wool side in, on a board, or the side of a barn, to dry. Rub into the skin 1 oz. each of pulverised alum and saltpetre, and if the skin is large double the quantity. Rub for an hour or two. Fold the skin sides together, and hang the skin away for 3 days, rubbing it every day or till perfectly dry. Then with blunt knife clear the skin of impurities, rub it with pumice or rottenstone, trim it into shape, and you have a

door-mat that will last a lifetime. If it is to be dyed, have a shallow vessel as large as the skin in which to prepare the dye, so that the skin can be laid wool-side down smoothly into the vessel that all parts may be equally immersed in the dye. This should not be more than an inch deep, otherwise the skin might be injured by the hot dye. After colouring, again stretch the skin to dry, and then comb with a wool- or cotton-card.

Glass Articles.—(*a*) Mirrors.—Wet the surface of the glass with gin, to remove the stains. Then rub with a cloth dipped in powdered blue. Polish with a silk handkerchief. Be very careful not to touch the frames.

(*b*) Ditto.—To clean glass in frames, when the latter are covered or otherwise so finished that water cannot be used, moisten tripoli with brandy, rub it on the glass while moist, and when dry rub off with a silk rag; to prevent the mixture injuring the cloth on the frame, use strips of tin bent to an angle; set these on the frame with one edge on the glass; when the frames are of a character that will not be injured by water, rub the glass with water containing a little liquid ammonia, and polish with moist paper.

(*c*) Ditto.—Take part of a newspaper, fold it small, dip it in a basin of clean cold water, and when it is thoroughly wet squeeze it out as a sponge, and then rub it hard over the face of the glass, taking care that it is not so wet as to run down in streams. After the glass has been well rubbed with the wet paper, let it rest a few minutes and then go over it with a fresh dry newspaper, till it looks clear and bright, which it will do almost immediately.

(*d*) Windows.—Procure a washleather of convenient size and some “paper-hanger’s” canvas; 2

yd. divided into 3 pieces, will be a nice size to work with. Have the cut sides hemmed, and they will last a long while. When it is desired, use one; boil or soak for an hour or so in a solution of soda and water to get out the “dress”; then wring out, and rinse in as many courses of clean water as you like; then partially dry (practice will enable you to judge), fold to a convenient size, and it will be ready for use. The soda solution will now be cool enough for the leather (if too hot it will shrivel the leather); wash in the same manner, and wring superfluous moisture out; then wash the glass thoroughly with it and plenty of elbow-grease, and polish off with the canvas.

(*e*) Ditto.—One of the best materials is a mixture of calcined magnesia with enough purified benzin to produce, when shaken up, a thick milk. It should be kept in vessels provided with well-ground glass stoppers. For use, a small quantity of the mixture is applied to a muslin rag, or better, to a wad of cotton, and the windows are rubbed with this. It may be very readily cleaned off without leaving any deposit in the corners.

(*f*) Glass Globes.—Rub inside with a little wet pumice-powder on a cloth, and in 2 minutes you would not know that they were not newly purchased. The best way to cleanse dirty glass of all kinds is to put a small quantity of spirits of salts (hydrochloric acid) into a basin of water, and to place the dirty articles in the liquid for a few minutes, when it will be found that the glass is clean, and only requires drying. If very dirty, the globes may require to stay in the liquid a little longer. This plan is very useful for cleaning the pendant drops of glass chandeliers, water bottles, &c., as no soap is required. Care must be taken not to drop the undiluted spirits of salts on

the clothes or hands.

(*g*) Photographic Glass Plates.—One of the most powerful—if not, indeed *the* most powerful—detergents for refractory plates is the mixture of sulphuric acid and bichromate of potash recommended by Carey Lea some years ago. It is especially useful with glasses which have been frequently used, or which from the nature of the treatment they have undergone resist the action of both acids and alkalies completely. Its utility is dependent upon the powerful action of chromic acid upon organic matter, and we have never yet met with a plate which did not succumb to its treatment. One precaution is necessary in using it, however; it must be carefully removed from the glass by copious washing as soon as possible after it has done its duty. If allowed to soak for some time, as is frequently the practice, the plates appear to absorb the solution (the penetrating power of which is extraordinary), or an insoluble compound becomes firmly attached to the surface and stedfastly refuses to be displaced. Though generally invisible, it results in a peculiar mottled appearance between the glass and the developed film which entirely ruins the picture. We recently treated a number of plates which had become useless from this cause with various detergents, including acids as well as alkalies, but to no purpose; friction with various abrading powers failed to remove the defect, and we were well-nigh compelled to give it up. Remembering, however, that cyanide of potassium has been utilised by carbon printers for the purpose of reducing the strength of over-printed proofs—which it does by virtue of its action upon the insoluble compounds of chromium—we resolved to try its efficacy on our refractory plates, when all the mottling disappeared as if by

magic. Those amongst our readers who dare to fly in face of all that has been lately written upon the dangers attending cyanide and bichromate of potash have here a “wrinkle.” Surely those who have dared bichromate will not fear the minor dangers of cyanide. (*Brit. Jl. Phot.*)

(*h*) Ditto.—A cream of tripoli powder and spirits of wine, with a little ammonia added, is a very good solution for cleaning glass plates. Old collodion is also very good; it should be thinned down with an equal bulk of spirits of wine; add an excess of iodide of potassium, and shake till the solution is saturated. Caustic potash is very good; so is carbonate of soda. If the plates be new, and covered with little gritty particles which do not come off on the application of potash, they may be removed with nitric acid.

(*i*) Ditto.—Take a dilute solution of potash permanganate, and pour on enough to wet the sides of the vessel to be cleaned. A film of hydrated manganic oxide is deposited, which is then rinsed with hydrochloric acid. Chlorine is formed, which acts in the nascent state on the organic matter, which becomes readily soluble. The permanganate solution can be used again and again till its oxidising power is exhausted. (Walz.)

(*j*) Ditto.—Dissolve 15 gr. potassium iodide in 5 oz. water and 5 oz. alcohol, afterwards adding 3 gr. iodine and enough whiting or rottenstone to make a creamy paste Rub a little of this on the glass with a rag until clean, then polish with a cloth. (J. Hughes.)

(*k*) Glass Slides.—“I had tried previously to remove the hardened balsam in many ways, and had succeeded fairly with a mixture of prepared chalk, methylated spirit, and liquid ammonia, but found this objectionable because it was such a dirty job. I

now simply warm the slides over a flame, and push off the covers into strong sulphuric acid (oil of vitriol), and leave them therein for a short time; when clean, drain off, and rinse with a little fresh acid, and finish off by washing well in water. As much balsam as possible is removed from the slides by scraping with a knife, and then sulphuric acid is rubbed upon them with a glass rod. They are then well washed. If necessary, a finishing touch may be given with a warm solution of washing soda or methylated spirit and ammonia, to remove all trace of grease. Sulphuric acid should be added to water, or water to sulphuric acid, very gradually." (Thos. H. Powell.)

(*l*) Removing Grease.—Dissolve soda carbonate in water, in the proportion of 1 of the former to 10 of the latter, and let the liquid boil in a clean untinned iron pot. Slake 8 parts quicklime in a covered vessel and add the hydrate thus formed to the boiling liquid, stirring it meanwhile. Great care must be exercised in using this caustic solution, which must not be allowed to touch the hands; the glass must therefore be dipped in it by the aid of tongs or pliers. When the grease is dissolved, the glass is to be well brushed and subsequently rinsed in water.

(*m*) Removing Paint Stains.—3 parts potash, 1 oz. caustic lime; lay on with a padded stick and let remain some hours.

(*n*) Ditto.—Moisten with washing soda dissolved in warm water; renew for ½ hour; wash off with clean water.

(*o*) Bottles.—If oily or otherwise greasy, they should not be washed with water, but wiped with dry tow, or a dry dirty cloth, so as to remove as much grease as possible. By changing the cloth for

one that is clean, the vessel can be wiped until all traces of grease disappear.

(*p*) Ditto.—A strong solution of an alkali, such as pearlash, may be used, whereby the removal of the grease is materially facilitated.

(*q*) Ditto.—If soiled by resin, turpentine, resinous varnishes, &c., wash with a strong alkaline solution, and rub by means of the wire and tow.

(*r*) Ditto.—If the alkali fail to act, a little sulphuric acid may be employed with advantage. The latter acid will also be found advantageous in removing pitch and tar from glass vessels. Nitric or sulphuric acid may be employed to clean flasks which have contained oil.

(*s*) Ditto.—"To clean a silver-bottle, pour in a strong solution of potassium cyanide; shake a few times, pour out, and rinse with water 2 or 3 times, and your bottle is perfectly clean. Keep the solution, and filter and strengthen when required. By doing this you can sun your bath better in 2 hours than in a week's exposure in the dirty black bottles photographers appear to delight in." (*Phil. Phot.*)

(*t*) Ditto.—Alexander Müller, of Berlin, after speaking of the various methods in vogue for cleaning glass vessels, as, for example, sand (which is objectionable, as it scratches glass), shot (good, but should be followed by a wash of dilute nitric acid, to get rid of lead), brushes, copper scale (also good, but requires subsequent rinsing with some dilute acid), bits of paper or linen, wood ashes, salt (especially rock-salt), gypsum and marble-dust (very good), ground bones (likewise excellent), he concludes as follows:—Chisel or tongue-shaped pieces are cut from thick pieces of indiarubber, and a sharp brass

or platinum wire is fixed into the thick end to serve as a handle. With this washer and its flexible handle, we are able to "lick" out, to a certain extent, any kind of a bottle. For beakers and capsules, we greatly prefer it to the hair pencil and feather commonly used; for, owing to their fibrous structure, the precipitate gets entangled in them, while they also lose some of their nitrogenous particles, which would affect the accuracy of careful nitrogen determinations, as, for example, in water analyses. Finally, to clean glass or porcelain vessels from the greatest variety of adherent organic substances, he recommends a mixture of bichromate of potassium and sulphuric acid as superior to ether, alcohol, benzine, &c.

(*u*) Bottles which have contained petroleum, wash with thin milk of lime, which forms an emulsion with the petroleum, and removes every trace of it; by washing a second time with milk of lime and a small quantity of lime chloride, even the smell may be so completely removed as to render the vessel, thus cleansed, fit for keeping beer in. If the milk of lime be used warm, instead of cold, the operation is rendered much shorter. (*Ding. Pol. Jl.*)

(*v*) Decanters.—There is often much difficulty experienced in cleaning decanters, especially after port wine has stood in them for some time. The best way is to wash them out with a little pearlash and warm water, adding a spoonful or two of fresh slaked lime if necessary. To facilitate the action of the fluid against the sides of the glass, a few small cinders may be used.

(*w*) Ditto.—Soak the decanters for some hours in warm soda and water; if there is much cutting on the outside, a brush will be necessary to remove the dirt

and stains from the crevices. Cut a potato into small dice, put a good handful of these into the decanter with some warm water, shake the decanter briskly until the stains disappear; rinse in clean cold water, and let them drain until dry. Vinegar and sauce cruets can be cleaned in the same way.

Gloves.—Kid. (*a*) Make a strong lather with curd soap and warm water; lay the glove flat on a board, the bottom of a dish, or other unyielding surface; dip a piece of flannel in the lather and well rub the glove with it till all the dirt is out, turning it about so as to clean it all over. Dry in the sun or before a moderate fire. When dry they will look like old parchment, and should be gradually pulled out and stretched. (*b*) Have a small quantity of milk in a cup or saucer, and a piece of brown Windsor or glycerine soap in another saucer. Fold a clean towel or other cloth 3 or 4 times thick, and spread the glove smoothly on the cloth. Dip a piece of flannel in the milk, and rub it well on the soap. Hold the glove firmly with the left hand, and rub it with the flannel towards the fingers. Continue this operation until the glove, if white, appears of a dirty yellow; or, if coloured, until it looks dirty and spoiled, and then lay it to dry. Gloves cleaned by this method will be soft, glossy, and elastic. (*c*) French method: Put the gloves on your hands and wash them in spirits of turpentine until they are quite clean, rubbing them exactly as if washing your hands; when finished, hang them in a current of air to dry and to take off the smell of the turpentine. (*d*) Eau de Javelle, 135 parts; ammonia, 8; powdered soap, 200; water, 150. Make a soft paste, and use with a flannel.

Washleather. (*e*) Take out the grease spots by rubbing with magnesia or with cream of tartar. Then

wash with soap dissolved in water as directed for kid gloves, and afterwards rinse, first in warm water and then in cold. Dry in the sun, or before the fire.

Buckskin.—(*f*) To ¼ lb. Paris white add the same quantity of scraped pipeclay and 3 oz. best isinglass; boil all well down, stirring the while. Put the compound on thick, and, when dry, beat it well out by clapping your hands together, &c.; then carefully iron the gloves with a hot smoothing-iron. (*g*) When dirty, wash 3 times in clean warm (not hot) "soap lather." Put a little blue in, wring them well, then put them in as good a form as you can—as nearly what they should be when dry as practicable. When nearly dry, but sufficiently damp to form to the hand, put them on; if difficult to get on, damp a little; then press or push them off, and when dry (from the fire) they will be as good as new, and white and clean, and not mark anything. (*h*) 1 oz. gum arabic to 1 lb. white lead (powder), free from lumps, to be well dissolved and strained through muslin; afterwards mix your lead stiff and put it by until perfectly hard. Be very careful not to leave water in the box or sponge after using. (*i*) Take ½ lb. prepared chalk, ½ lb. prepared alum, 3 cakes pipeclay, ½ oz. oxalic acid, ½ oz. isinglass, 1 oz. powdered pumice, 1 tablespoonful starch, 6 tablespoonfuls sweet oil, 2 oz. white soap. To be mixed in boiling water; the oxalic acid and prepared alum to be added last.

All gloves are better and more shapely if dried on glove trees or wooden hands.

Hands.—The hands are apt to be stained or tainted by contact with many substances in everyday use. The following are most common.

Tar. (*a*) Rub with fresh orange or lemon peel.

(*b*) Mix together pulverised extract of liquorice and oil of aniseed to the consistency of thick cream; rub on thoroughly with the hand, then wash off with soap and warm soft water.

Disagreeable Odours. (*c*) Ground mustard, mixed with a little water, is an excellent agent for cleansing the hands after handling disagreeably or strongly odorous substances, such as cod-liver oil, musk, valerianic acid and its salts. Scale-pans and vessels may also be readily freed from odour by the same method. (Schneider.)

(*d*) All oily seeds, when powdered, answer for this purpose. Flax-seed meal, for instance, removes odours as well as mustard. The use of ground almond-cake as a detergent is well known. The explanation of this action is somewhat doubtful, but it is not improbable that the odorous bodies are dissolved by the fatty oil of the seed, and emulsionised by the contact with water. In the case of bitter almonds and mustard, the development of ethereal oil, under the influence of water, may perhaps be an additional help to destroy foreign odours. The author also mentions that the smell of carbolic acid may be removed by rubbing the hands with damp flax-seed meal, and that cod-liver-oil bottles may be cleansed with a little hot sesamé or olive oil. (Huber.)

Silver Nitrate. (*e*) Wash in solution of 10 parts potassium iodide, 1 iodine, 1 ammonia, in 100 water. (Liesegang.)

(*f*) Wash in strong solution of cupric chloride, and, about a minute later, in soda hyposulphite. (Underwood.)

Nitric Acid. (*g*) Wash immediately and put on

some lime chloride.

(*h*) On the stain or stains place sufficient caustic soda (the usual reagent strength) with the end of the stopper (if the stain is all covered it will do); gently rub it with any solid for a few seconds, then wash it off; then gently rub the spot with a finger nail, when it will come off almost completely; put on a little dilute hydrochloric acid, when the spot will disappear entirely. If not, repeat the whole process, which will be sure to remove it without the least injury to the hand.

(*i*) Wash the hands in a solution of soda-ash and bleaching powder, add the solution of soda-ash to the bleaching liquor as long as a precipitate forms, then wash; the remaining stains will wear off in time. Wash in this daily till the stains are completely removed.

Potassium Bichromate. (*k*) Rub the stains with a solution of sulphurous acid, and subsequently wash with distilled or soft water. (*l*) To a warm, strong solution of soda hyposulphite add a small quantity of sulphuric acid; this may then be used on the stains with similar effect. (*Photo. News.*)

Ivory and Bone Articles.—(*a*) Spirit of turpentine is very efficacious in removing the disagreeable odour and fatty emanations of bones or ivory, while it leaves them beautifully bleached. The articles should be exposed in the fluid for 3 or 4 days in the sun, or a little longer if in the shade. They should rest upon strips of zinc, so as to be a trifle above the bottom of the glass vessel employed. The turpentine acts as an oxidising agent, and the product of the combustion is an acid liquor which sinks to the bottom, and strongly attacks the ivory if allowed to touch it.

(*b*) Make a thick puddle of common whiting in a saucer. Brush well with a tooth-brush into the curved work. Brush well out with plenty of clean water. Dry gently near the fire. Finish with a clean dry hard brush, adding one or two drops (not more) of sweet oil.

(*c*) Mix about a tablespoonful of oxalic acid in ½ pint boiling water. Wet the ivory over first with water, then with a tooth-brush apply the acid, doing one side at a time, and rinsing; finally dry in a cloth before the fire, but not too close.

(*d*) Take a piece of fresh lime, slake it by sprinkling it with water, then mix into a paste, which apply by means of a soft brush, brushing well into the interstices of the carving; next set by in a warm place till perfectly dry, after which take another soft brush and remove the lime. Should it still remain discoloured, repeat the process, but be careful neither to make it too wet nor too hot in drying off, or probably the article might come to pieces, being most likely glued or cemented together. If it would stand steeping in lime water for 24 hours, and afterwards boiling in strong alum water for about an hour and then dried, it would turn out white and clean. Rubbing with oxide of tin (putty powder) and a chamois leather, will restore a fine gloss afterwards.

(*e*) Well clean with spirits of wine, then mix some whiting with a little of the spirits, to form a paste, and well brush with it. It is best to use a rubber of soft leather where there are no delicate points; put a little soap on the leather, and dip into the paste and rub the ivory until you get a brilliant polish, finish off with a little dry whiting; the leather should be attached to flat wood surface, and rub briskly.

(*f*) When ivory ornaments get yellow or dusky-looking, wash them well in soap and water, with a small brush to clean the carvings, and place them while wet in full sunshine; wet them 2 or 3 times a day for several days, with soapy water, still keeping them in the sun; then wash them again, and they will be beautifully white.

(*g*) Rub with soda bicarbonate applied on a tooth-brush dipped in warm water.

Leather Goods.—(*a*) Carriage tops that have faded and become grey can be restored by washing with a solution composed of 4 oz. nut-galls, 1 oz. each of logwood, copperas, clean iron filings, and sumach berries; put all but the iron filings and copperas in 1 qt. best white wine vinegar, and heat nearly to boiling point; then add the copperas and iron filings; let stand for 24 hours, and strain off the liquid; apply with a sponge. This is equally good for restoring black cloths.

(*b*) Enamelled leather tops that have been soiled by dust and rain should be washed with soft water and Castile or crown soap. Apply the water with a sponge and then scrub with moderately stiff brush; cleanse with clean water and dry with a "shammy." Never apply any kind of oil or top dressing without first cleaning the leather.

(*c*) Mouldy Leather.—Remove the surface mould with a dry cloth, and with another cloth apply pyroligneous acid.

(*d*) Russet Leather-covered Mountings.—Remove all stains and dirt by rubbing the leather with a cloth and a little oxalic acid, and restore the colour and finish by the use of salts of lemon (tartaric acid) applied with a woollen cloth. Rub the leather until a

good polish is produced.

(*e*) Rubber-covered Mountings.—Rub the covered as well as the metallic parts with a "shammy" and a little tripoli, and finish with a clean woollen cloth.

(*f*) Chamois-leather.—Make a solution of weak soda and warm water, rub plenty of soft-soap into the leather, and allow it to remain in soak for 2 hours, then rub it well until it is quite clean. Afterwards rinse it well in a weak solution composed of warm water, soda, and yellow soap. If rinsed in water only, it becomes hard when dry, and unfit for use. The small quantity of soap left in the leather allows the finer particles of the leather to separate and become soft like silk. After rinsing, wring it well in a rough towel, and dry quickly; then pull it about and brush it well, and it will become softer and better than most new leathers.

(*g*) Morocco Leather.—Strain well over a board, and scour with stiff brush, using tepid water and soft-soap, made slightly acid with oxalic acid; when done, unstrain the leather, and dry in a cool place; do not saturate the leather, but keep the board inclined; when dry, rub a little oil lightly over the surface with a rag.

(*h*) Saddles.—If much soiled, wash the leather with a weak solution of oxalic acid and water, and, when dry, with the watery portion of beef blood. The latter can be preserved by adding a little carbolic acid, and keeping it in a bottle tightly corked.

(*i*) Brown saddles may be cleaned to look as well as new by the use of tepid water and crown soap; if the latter cannot be had, use pure Castile soap.

Marble, *Stone*, *Plaster*, *&c.*—Marble.—(*a*) Take finely powdered pumice and vinegar; wash the

surface with the mixture, and leave it for several hours, then brush hard and wash clean. When dry, rub with whiting and washleather. (*b*) Equal parts caustic potash, quicklime, and soft-soap; make into a thick paste with water, and apply with a brush; leave for about a week, and apply again and again until the stain has disappeared. (*c*) 2 parts soda (carbonate), 1 of pumice, and 1 of finely powdered chalk. Mix into a fine paste with water. Rub this over the marble, and the stains will be removed; then wash with soap and water. (*d*) Wash thoroughly with soda and warm water to remove any grease, and apply oxalic acid by laying a piece of white cotton cloth saturated upon the spots for a short time. If it destroys the polish, repolish with oxide of tin and water applied with a cloth. If the stains are not deep, rub the surface only with the oxalic acid and water upon a small piece of cloth quickly, and wash, to free the marble of acid. Then, to give it a gloss, rub with chalk wet with water. (*e*) Marble figures may be washed clean by putting them out in a heavy shower. (*f*) Spots from sulphur and phosphorus, caused by lucifer-matches, can be extracted from marble by carbon bisulphide. (*g*) Removing rust from marble depends upon the solubility of iron sulphide in a solution of potassium cyanide. Clay is made into a thin paste with ammonium sulphide, and the rust-spot is smeared with the mixture, care being taken that the spot is only just covered. After a lapse of 10 minutes, this paste is washed off, and replaced by one consisting of white bole mixed with a solution of potassium cyanide (1:4), which is in its turn, washed off after a lapse of about 2½ hours. Should a reddish spot remain after washing off the first paste, a second layer may be applied for about 5 minutes. (*h*) Brush the dust off with a piece of chamois, then apply with

a brush a good coat of gum arabic about the consistency of thick mucilage, expose it to the sun or wind to dry. In a short time it will peel off. If all the gum should not peel off, wash it with clean water and a clean cloth. If the first application does not have the desired effect, it should be tried again. (*i*) Rub with the following solution: ¼ lb. soft-soap, ¼ lb. whiting, 1 oz. soda, and a piece of blue the size of a walnut; rub it over the marble with a piece of flannel, and leave on for 24 hours, then wash off with clean water, and polish the marble with a piece of flannel or an old piece of felt. (*j*) Take 2 parts common soda, 1 of pumice, and 1 of finely powdered chalk; sift through a fine sieve, and mix with water; rub it well over the marble; then wash the marble over with soap and water. (*k*) To take stains out of white marble, take 1 oz. ox-gall, 1 gill lye, 1½ tablespoonfuls turpentine; mix, and make into a paste with pipeclay; put on the paste over the stain, and let it remain for several days. (*l*) To remove oil-stains, apply common clay saturated with benzine. If the grease has remained on long, the polish will be injured; but the stain will be removed. (*m*) Ironmould or ink-spots may be taken out in the following manner: Take ½ oz. butter of antimony and 1 oz. oxalic acid; dissolve in 1 pint rain-water; add enough flour to bring the mixture to a proper consistency. Lay it evenly on the stained part with a brush, and, after it has remained for a few days, wash off, and repeat the process if the stain be not wholly removed.

Stone.—(*n*) To remove grease from stone steps or passages, pour strong soda and water boiling hot over the spot, lay on a little fullers' earth made into a thin paste with boiling water, let remain all night, and if the grease be not removed, repeat the process.

Grease may sometimes be taken out by rubbing the spot with a hard stone—not hearth-stone—using sand and very hot water, with soap and soda.

Plaster.—(*o*) By means of Dutch rush or shave-grass (*Equisetum hyemale*), or exceedingly fine sandpaper, the plaster must be rubbed over in an equal manner, and in every part. The rubbing, being done in a skilful manner, opens the pores of the plaster; then brush it over with the thick oil used for moulding, which will give it a very pleasing yellow tint, and at the same time great solidity. If, however, a white colour is preferred, soak the cast, after the first operation has been performed, in a stearine bath. If placed in a bath of hot stearine, and allowed to remain 4 hours, it will acquire almost the solidity and the polish of marble.

Alabaster.—(*p*) Make a paste with quicklime and water; spread this well over the discoloured article, and leave on for about 24 hours; then remove with soap and water, applying some friction on parts which are worse than others. (*q*) If not too much discoloured, clean with a strong lye of soap and water. (*r*) The superficial dirt and grease having been removed, wash with diluted muriatic acid.

Metal Goods.—Brass.—(*a*) Wash with rock alum, boiled in a strong lye in the proportion of 1 oz. to a pint; polish with dry tripoli. (*b*) The government method prescribed for cleaning brass, and in use at all the United States arsenals, is claimed to be the best in the world. The plan is to make a mixture of 1 part common nitric acid and ½ part sulphuric acid, in a stone jar, having also ready a pail of fresh water and a box of sawdust. The articles to be treated are dipped into the acid, then removed into the water, and finally rubbed with sawdust. This immediately

changes them to a brilliant colour. If the brass has become greasy, it is first dipped in a strong solution of potash and soda in warm water; this cuts the grease, so that the acid has free power to act. (*c*) Rub the surface of the metal with rottenstone and sweet oil, then rub off with a piece of cotton flannel, and polish with soft leather. (*d*) A solution of oxalic acid rubbed over tarnished brass soon removes the tarnish, rendering the metal bright. The acid must be washed off with water, and the brass rubbed with whiting and soft leather. (*e*) A mixture of muriatic acid and alum dissolved in water imparts a golden colour to brass articles that are steeped in it for a few seconds. (*f*) First boil your articles in a pan with ordinary washing soda, to remove the old lacquer; then let them stand for a short time in dead aquafortis; then run them through bright dipping ditto. Swill all acid off in clean water, and brighten the relieved parts with a steel burnisher; replace in clean water, and dry out in beech sawdust. Next place your work on stove till heated, so that you can with difficulty bear your hand on articles, and apply pale lacquer with brush: the work will burn if heated too much or too rapidly. (*g*) Put a coat of nitric acid over the part you want cleaned, with a piece of rag; as soon as it turns a light yellow, rub it dry, and the brass will present a very clean appearance; if not, repeat. (*h*) Oxalic acid and whiting mixed and applied wet, with brush, and brushed again when dry with soft plate-brush to polish with dry whiting. (*i*) The general idea is to use strong oil of vitriol or a strong solution of oxalic acid. Now, these two substances are very corrosive, and, although they undoubtedly clean the brasswork most effectually, they do mischief in literally eating it away, so that delicate engraving and fine edges soon disappear. In

cases of brass name-plates, these acids gradually insinuate themselves underneath the black filling of the letters, generating gas, and forcing it up bit by bit. The best thing to use is lemon pulp: the waste lemon from grog or lemonade does excellently. It should be tied up in a piece of rag, plum-pudding fashion, and when it becomes dry it should be dipped in water. After the brasswork has been rubbed with the lemon it should be well washed with water, and then finished off with rottenstone and oil. One word about brass plates. There is no greater eyesore to those who worship neatness than to see a rim of worn-away paint round the brass plate on the hall door of an otherwise well-appointed house. Such a defect may be easily avoided by cutting out a piece of thick cardboard to the shape of the plate, and covering over with it the paint surrounding the metal during the process of cleaning. Another fatal mistake is to suppose that the black letters require cleaning; they do not, and any efforts in this direction only result in their being gradually worn away. (*j*) Embossed Surfaces.—Make a mixture of 1 part nitric acid, 2 water, and 6 hydrochloric acid. Boil the articles to be cleaned in a strong soda-lye, and then leave them in the above solution, until they become covered with a black layer. Remove from the mixed acids, rinse in plenty of water, and use a fine scratch-brush to remove the black mud. When clean, rinse in hot water, and dry in hot sawdust. Articles thus treated acquire a brilliant lustre. To give a very rich orange-yellow tone to the brass, the nitric acid may be replaced by an equivalent weight of powdered alum. (*k*) Brass Instruments.—If the instruments are very much oxidised or covered with green rust, first wash them with strong soda and water. If not so very bad, this first process may be dispensed with. Then

apply a mixture of 1 part common sulphuric acid and 12 of water, mixed in an earthen vessel, and afterwards polish with oil and rottenstone, well scouring with oil and rottenstone, and using a piece of soft leather and a little dry rottenstone to give a brilliant polish. In future cleaning, oil and rottenstone will be found sufficient. (*l*) Take a strip of coarse linen, saturate with oil and powdered rottenstone, put round the tubing of instrument, and work backwards and forwards; polish with dry rottenstone. Do not use acid of any kind, as it is injurious to the joints. To hold the instrument, get a piece of wood turned to insert in the bells; fix in a bench vice. The piece of wood will also serve for taking out any dents you may get in the bells. (*m*) Oil and rottenstone for this purpose are, though very efficacious, objectionable on account of dirt, on account of the oil finding its way to the pistons, and because the instrument cleaned in this manner so soon tarnishes. Dissolve some common soda in warm water, shred into it some scraps of yellow soap, and boil it till the soap is all melted. Then take it from the fire, and when it is cool add a little turpentine, and sufficient rottenstone to make a stiff paste. Keep it in a tin box covered from the air, and if it gets hard, moisten a small quantity with water for use.

Scale-pans.—(*n*) Pour sufficient ammonia in the pan to cover the bottom, and rub briskly till dry with a handful of dry pine sawdust. For very dirty pans, take about 1 dr. potash bichromate, powder it in a mortar, mix it with 2 or 3 times its bulk of concentrated sulphuric acid, and add twice as much water. With this rub the pans (having a care for the fingers), rinse well, and finish with rottenstone.

Brass or Copper.—(*o*) Mix together 1 oz. oxalic

acid, 6 oz. rottenstone, and ½ oz. gum arabic; all these are to be finely powdered. Then add 1 oz. sweet-oil and sufficient water to form the mixture into a paste. Apply a small portion to the article to be cleaned, and rub dry with a flannel or washleather.

Bronze.—(*a*) For cleaning bronze statues, when blackened by smoke and soot, wash with plenty of clean water, accompanied with mechanical friction. Even this simple treatment is undesirable; because the friction, however slight, accompanying the washing, destroys, or tends to destroy, the sharpness of the outlines; and the sulphurous and sulphuric acids of the prevailing smoke rapidly corrode the surface of any bronze statue which is constantly being washed. For these reasons, the Nelson monument at Liverpool, was left untouched when it was re-erected, after the building of the new Exchange surrounding it. It has been a matter of much debate whether the soot-blackened surface of a bronze statue is not more pleasing to the eye, than the metallic lustre of a new, or newly-cleaned statue. (*b*) Weber finds that a dilute solution of caustic alkalies removes overlying dirt, and allows the green patina to become visible. Where the metal was not originally oxidised, the alkali simply cleanses it, and does not promote any formation of green rust. (*c*) By dipping fustian in soluble glass, and washing it with soap directly afterwards, we get a fabric largely impregnated with silica, which will be found very well adapted for cleaning bronzes, &c. Samples of the material were in the Vienna Exhibition, and attracted some notice. (*d*) The method of restoring a bronze tea-urn turned black in parts will depend, to a great extent, on the metal and the colour. Clean the surface, first of all, with whiting and water, or crocus

powder, until it is polished; then cover with a paste of graphite and crocus, mixed in the proportions that will produce the desired colour. Heat the paste over a small charcoal fire. If the bronzing has been produced by a corrosive process, try painting a solution of potassium sulphide over the cleaned metal. There are many recipes for bronzing, and it is impossible to say which is suitable. The bronzed surface may be polished; but it cannot be bright unless the surface of the metal itself is polished, and then covered with transparent lacquer to preserve the brightness.

Coins.—Coins can be quickly cleansed by immersion in strong nitric acid, and immediate washing in water. If very dirty, or corroded with verdigris, it is better to give them a rubbing with ½ oz. pure potash bichromate, 1 oz. sulphuric acid, 1 oz. nitric acid; rub over, wash with water, wipe dry, and polish with rottenstone or chalk. (Lyle.)

Copper Electros.—Copper electros should be well cleaned after working, as the ink between the fine lines in time generates acids, which destroy the electro. For this purpose turpentine and the brush are employed; others also recommend the electros to be afterwards well rubbed with an oil as free from acid as possible. Should the ink be so dried up as to resist it, creosote should be applied, and the electros treated with the brush.

Copper Vessels.—Use soft-soap and rottenstone, made into a stiff paste with water, and dissolved by gently simmering in a water-bath. Rub on with a woollen rag, and polish with dry whiting and rottenstone. Finish with a leather and dry whiting. See also *Brass*.

Gas Chandeliers.—Very few chandeliers are gilt;

they are burnished and lacquered with yellow lacquer. Proceed as follows, whether gilt or lacquered: Take the chandelier to pieces, and boil in strong soda lye for a few minutes; brush over with a soft brush, pass through a strong solution of potassium cyanide (deadly poison), wash through a tubful of boiling water, dry in clean sawdust, wipe up bright with a washleather, and relacquer.

Gilt Mountings.—Gilt mountings, unless carefully cleaned, soon lose their lustre. They should not be rubbed; if slightly tarnished, wipe them off with a piece of Canton flannel, or what is better, remove them if possible, and wash in a solution of ½ oz. borax dissolved in 1 lb. water, and dry them with a soft linen rag; their lustre may be improved by heating them a little, and rubbing with a piece of Canton flannel.

Gold.—(*a*) To remove the brown tarnish from coloured gold, take a piece of tissue-paper damped in liq. ammoniæ, gently rub the gold till the tarnish disappears, then wash off carefully with soft brush, soap, and water, dry in sawdust or before the fire; if this is not sufficient, entrust the article to a jeweller. (*b*) Mix a little rouge and spirits of wine together, and apply to the jewellery with a rather stiff brush, and turn the brush round and round—not to brush as if to polish, but rather tickle it and pat it with the hair of the brush; but be sure to keep the brush wet with the mixture. After you have got the tarnish off, wash it out with soap and boiling water, and dry in box-dust. Take care of any stones with foil behind. (*c*) Rub with a piece of tissue-paper, screwed up and wet with the tongue. This will often do it; if not, re-colour it. (*d*) A weak solution of potassium cyanide will clean gold braid. Use with small sponge, and

wash off with clean water. Strength, say 10 or 15 gr. to the oz. of water. Care should be taken that the solution does not get into any cuts or wounds, as it is very poisonous. The strength of the solution would greatly depend on the condition of the lace. It can be made stronger if necessary. (*e*) A solution of 20 dr. lime chloride, 20 dr. soda bicarbonate, and 5 dr. common salt, in 5¼ pints distilled water, is prepared and kept in well-closed bottles. The article to be cleaned is allowed to remain a short time in this solution (which is to be heated only in the case of very obstinate dirt), then taken out, washed with spirit, and dried in sawdust. (*Chem. Cent. Blatt.*)

Iron and steel.—(*a*) Take a spongy piece of fig-tree wood and well saturate it with a mixture of sweet-oil and finely powdered emery, and with this well rub all the rusty parts. This will not only clean the article, but will at the same time polish it, and so render the use of whiting unnecessary. (*b*) Bright iron or steel goods (as polished grates and fire-irons) may be preserved from rust in the following manner. Having first been thoroughly cleaned, they should be dusted over with powdered quicklime, and thus left until wanted for use. Coils of piano-wire are covered in this manner, and will keep free from rust for many years. (*c*) Dissolve ½ oz. camphor in 1 lb. hogs' lard, and take off the scum; then mix with the lard as much black-lead as will give the mixture an iron colour. Rub the articles all over with this mixture, and let them lie for 24 hours; then dry with a linen cloth, and they will keep clean for months. (*d*) Table knives which are not in constant use should be put in a case containing a depth of about 8 in. quicklime. They are to be plunged into this to the top of the blades, but the lime must not touch the handles. (*e*) Steel bits that are tarnished, but not rusty, can be

cleaned with rottenstone, common hard soap, and a woollen cloth. (*f*) Removing paint from iron.—After a number of experiments, it has been found that a paint-softener made of 1 lb. lime to 4 lb. potash and 6 qt. water works better than any other proportions.

Plate Powders.—(*a*) Equal parts precipitated iron subcarbonate, and prepared chalk. (*b*) An impalpable rouge may be prepared by calcining iron oxalate. (*c*) Take quicksilver with chalk, ½ oz., and prepared chalk 2 oz., mix them. When used, add a small quantity of spirits of wine, and rub with chamois leather. (*d*) Put iron sulphate into a large tobacco pipe, and place it in a fire for ¼ hour, mix with a small quantity of powdered chalk. This powder should be used dry. (*e*) The following makes a liquid polish for silver plate—3 to 4 dr. potassium cyanide, 8 to 10 gr. silver nitrate, and 4 oz. water; apply with a soft brush, wash the object thoroughly with water, dry with a soft linen cloth, and polish with a chamois skin. (*f*) Take 2 oz. hartshorn powder and boil it in 1 pint water; soak small squares of damask cloth in the liquid, hang them up to dry, and they will be ready for use, and better than any powders. (*g*) Add by degrees 8 oz. prepared chalk in fine powder to a mixture of 2 oz. spirits of turpentine, 1 oz. alcohol, ½ oz. spirits of camphor, and 2 dr. aqua ammonia; apply with a sponge, and allow it to dry before polishing. (*h*) Mix together 1 oz. fine chalk, 2 oz. cream of tartar, 1 oz. rottenstone, 1 oz. red-lead, and ¾ oz. alum; pulverise thoroughly in a mortar. Wet the mixture, rub it on the silver, and, when dry, rub off with a dry flannel, or clean with a small brush. (*i*) An excellent preparation for polishing plate may be made in the following manner:—Mix together 4 oz. spirits of turpentine, 2 oz. spirits of wine, 1 oz. spirits of camphor, and ½ oz. spirits of ammonia. To this

add 1 lb. whiting, finely powdered, and stir till the whole is of the consistency of thick cream. Use this preparation with a clean sponge, cover the silver with it, so as to give it a coat like whitewash. Set the silver aside till the paste has dried into a powder; then brush off, and polish with a chamois leather. A cheaper kind may be made by merely mixing spirits of wine and whiting together.

Silver and Plated Goods.—(*a*) East Indian jewellers never touch silver ware with any abrasive substance, but use, instead of polishing paste, &c., slices of lemons; the goods to be cleaned are well rubbed with these, and then left in a pan for a few hours, covered with slices. For delicate jewellery, a large lime is cut in half, the article inserted, the two halves applied together and tied up for some hours; the article is then washed in several waters, placed in a pan of nearly boiling soapsuds, stirred about, rinsed, and dried on a metal plate, the smooth parts being gently rubbed with wash-leather, if required. (*b*) Potassium cyanide solution (rather weak) dissolves off the dirty surface gradually, but great care is required. (*c*) Green tamarind pods (potash oxalic) are greater detergents for gold and silver than lemons, and are often employed for the purpose of removing stains, firemarks, &c. (*Boston Journal of Chemistry.*) (*d*) Eisner states that a polish equal to that obtained by the use of the finest plate powder, can be produced by simply cleaning the silver in water in which potatoes have been boiled. (*e*) Dead or engraved silver goods should never be cleaned with plate powder, but be washed out with a soft brush and some strong alkali, and well rinsed afterwards. When the dead or frosted parts are quite dry, the polished parts are carefully cleaned with powder. (*f*) The following directions are given by a silversmith in

Christiania:—Silver filagree work is best cleaned by the application of spirit of ammonia by means of a soft brush, and afterwards thoroughly washing in soft-soap and warm water, and rinsing in clean warm water, and quick drying by linen rags, blotting-paper, or some similar clean absorbent. Should this method, after several repetitions, cease to have the required effect, the article will have to be sent to a silversmith to be heated and boiled in acid. The best mode of preservation is to wrap the article in tissue paper before placing it in the case. (*g*) The simplest and cleanest substance for cleaning silver articles is, according to Professor Davenport, soda hyposulphite. It acts quickly, and is inexpensive. A rag or a brush, moistened with a saturated solution of the salt, cleanses even strongly oxidised silver surfaces in a few seconds, without the application of any polishing powder. (*h*) Mix 8 oz. prepared chalk, 2 oz. turpentine, 1 oz. alcohol, 4 dr. spirits of camphor, and 2 dr. liquor of ammonia. Apply this mixture to the article with a sponge, and allow to dry before polishing. (*i*) Dissolve 12 oz. potassium cyanide in 1 qt. water; dip in this solution, and brush it with a stiff brush until clean; then wash and dry. (*j*) A paste composed of washed whiting, precipitated magnesia carbonate, and precipitated iron peroxide. (*k*) Gin. (*l*) Apply whiting mixed with sweet oil on a shammy. (*m*) Take 2 qt. water, ½ oz. hartshorn, and 1 oz. whiting, and boil the whole together. While boiling, put as many of the silver or plated articles into the vessel as it will conveniently hold, and let remain for 5 minutes; withdraw, and leave to dry. Polish with clean linen or woollen rags, which, after being soaked in the above-named liquor, have been well wrung. Finally rub with a clean soft leather. (*n*) The ink eraser sold by stationers has the property of

cleaning and brightening silver and gold mountings, such as meerschaum pipe fittings, pencil-cases, watch-cases, &c. (*o*) Cut some flakes of white curd soap, and put them into a saucepan of water to simmer; sew the ornaments up in a muslin bag, and place in the liquid for about 10 minutes whilst on the fire.

Tarnished Silver Lace.—(*p*) Sponge over with a weak solution of potassium cyanide. (*q*) Dab over with a cream of heavy magnesia and water, allowing this to dry, and then brushing it off with a soft-haired brush.

Zinc Vessels.—Zinc articles, if small, can be cleaned by being pickled in spirits of salt (hydrochloric acid) with water added, till the articles are nicely cleaned, in about 3 minutes, without being too strongly attacked, then washed and dried. Large articles like refrigerators are cleaned by being rubbed with a swab, dipped in raw spirits, then washed with water, and finished with whiting.

Paint.—(*a*) Paint should be more often swept than scrubbed, for too frequent scrubbing causes it to decay. Use as little soap as possible, and wash it off with plenty of clean water to prevent discoloration. To clean paint that has not been varnished, put upon a plate some of the best whiting; have ready some clean warm water, and a piece of flannel, which dip into the water and squeeze nearly dry; then take as much whiting as will adhere to it, apply it to the paint, when a little rubbing will instantly remove any dirt or grease; wash well off with water, and rub dry with a soft cloth. Paint thus cleaned looks equal to new, and, without doing the least injury to the most delicate colour, it will preserve the paint much longer than if cleaned with soap, and it does not

require more than half the time usually occupied in cleaning.

(*b*) When painted work is badly discoloured, put 1 tablespoonful ammonia water into 1 qt. moderately hot water, and with the aid of flannel, wipe off the surface. Rubbing is not necessary.

(*c*) Take 1 oz. pulverised borax, 1 lb. shavings of best brown soap, and 3 qt. water. Put the soap and borax into the water, allow it to simmer until all the soap has been dissolved, stir it frequently, but do not allow it to boil. Apply it to the paint on a piece of old flannel, and rinse with clean water.

(*d*) Dissolve ½ oz. glue, and a bit of soft-soap the size of a walnut, in about 3 pints warm water, and with a well-worn whitewash brush well scrub the work, but not sufficient to get off the paint; rinse with plenty of cold clean water, using a washleather; let it dry itself. Work done in this manner will often look equal to new.

(*e*) First take off all the dust with a soft brush and pair of bellows. Scour with a mixture of soft-soap and fullers' earth, and use lukewarm water. If there are any spots which are extra dirty, first remove these by rubbing with a sponge dipped in soap and water. Commence the scouring at the top of the door or wainscot, and proceed downwards; dry with a soft linen cloth. When cleaning paint, it is always better to employ two persons, one to scour and the other to rub dry.

Paint-brushes.—(*a*) To soften brushes that have become hard, soak them 24 hours in raw linseed oil, and rinse them out in hot turpentine, repeating the process till clean. (*b*) Wash in hot soda and water and soft-soap.

Paper and Books.—(*a*) The amateur book-cleaner had better begin to practise on some worthless volume, until he acquires the necessary skill. All traces of lime, &c., used in the cleaning process must be removed from the book, else in time it may be completely destroyed. The first thing to be done in a book that wants washing, is to cut the stitches and separate the work into sheets. Then a glance may be taken for the separation of those leaves or sheets which are dirty from those which have stains of ink or oil. The dirty leaves are now placed in a bath composed of ¼ lb. lime chloride and the same quantity of soda to about 1 qt. water. These are left to soak until the paper has regained its proper tint. The pages are now lifted out tenderly into a second bath of cold, and if possible running, water, where they are left at least 6 hours. This removes all traces of lime. The paper, when thoroughly dried by exposure, must be dipped into a third bath of size and water, and again laid out to dry. This restores the consistency of the paper. Pressure between printers' glazed boards will then restore smoothness to the leaves. The toning of the washed leaves in accordance with the rest of the book is a delicate process, which requires some experience. Some shag tobacco steeped in hot water will usually give the necessary colouring-matter, and a bath in this liquid the necessary tone.

The process described above may do for water-stains; but if the pages are dirted by grease, oil, coffee, candle-droppings, or ink, different treatment will be required. Dilute muriatic acid with 5 times its bulk of water, and let the oil-stained pages lie in the liquid for 4 minutes—not longer. Then remove, and wash, as before, in cold water. If the grease is a spot in the middle of a page, place between 2 sheets of

blotting-paper, or cover with powdered French chalk (the blotting-paper is preferable), and pass a hot iron over the place. This will melt the grease, which is immediately soaked up by the chalk or paper.

For dirty finger-marks, the following is recommended: Cover the mark with a piece of clean yellow soap for 2 or 3 hours, then wash with a sponge and hot water, and dip the page in weak acid and water. Give another bath of hot water, and then thoroughly cleanse with cold water. To remove ink-stains, dip the page in a strong solution of oxalic acid, then in a solution of 1 part muriatic acid and 6 water, after which bathe in cold water, and allow to dry slowly. Vellum covers which need cleaning may be made almost equal to new by washing with a weak solution of potash binoxalate, or, if not much soiled, warm soap and water. Grease may be removed from the covers of bound books by scraping a little pipe-clay, French chalk, or magnesia over the place, and then ironing with an iron not too hot, else it will discolour the leather. (*Publishers' Circular.*)

(*b*) Press powdered fullers' earth lightly upon the greasy spot, and allow it to soak out the grease.

(*c*) Hannett says the spots may be removed by washing the part with ether, chloroform, or benzine, and placing between white blotting-paper, then passing a hot iron over.

(*d*) A more expeditious, and thought by some, the best way, is to scrape fine pipe-clay, magnesia, or French chalk on both sides of the stain, and apply a hot iron above, taking great care that it is not too hot.

(*e*) After gently warming the paper, take out all the grease you can with blotting-paper, and a hot iron,

then dip a brush into essential oil of turpentine, heated almost to ebullition, and draw it gently over both sides of the paper, which must be kept warm. Repeat the operation until all is removed, or as often as the thickness of the paper may render necessary. When all the grease is removed, to restore the paper to its former whiteness, dip another brush in ether, chloroform, or benzine, and apply over the stain, especially the edges of it. This will not affect printers' or common writing ink.

(*f*) Lay on a coat of indiarubber solution over the spot, and leave it to dry. Afterwards remove with a piece of ordinary indiarubber. Any operation with ether, chloroform, or benzine, should never be conducted by candle-light, as their vapour is apt to kindle even at several feet from the liquid. (*d*) will remove grease from coloured calf, even if the spot be on the under side of the leather; it may thus be clearly drawn right through.

(*g*) Apply a solution of pearlash (in the proportion of 1 oz. pearlash to 1 pint water) to oil-stained drawing-paper.

Parchment and Vellum.—(*a*) Immerse in a solution of acetic acid, and gently rub the stained parts while wet on a flat board with lump pumice, then bleach with lime chloride. This process was recommended in the *English Mechanic*. It is not very successful, but it makes it white enough for bookbinding. It has, however, the objectionable qualities of not making the parchment flexible, and when dried it is as hard as a board, and it has no gloss like the virgin parchment. On no account must the parchment be washed in very hot water, or held before a fire, as it will shrivel up in a most provoking manner.

(*b*) Benzine applied with a sponge. It will remove

almost every stain, and does not destroy the texture in the least.

Pictures, Prints, and Frames.—Pictures.—(*a*) Remove the works from their frames, and first of all examine the surface of each separately and with care. Then, if there are no cobweb cracks, no cockled-up edges of bits of paint likely to peel off, and no unburst bubbles of colour, take an old soft cloth, and some white of egg, and wash the surface, a square inch at a time, with a spiral motion of the hand, not pressing too heavily. If there is much dirt, make a basin of bread, treacle, and new milk with a trifle of turpentine in it, and wash with soft flannel and sponge; after, use white of egg. If mildew from damp walls has attacked the canvas, and even the surface, let a committee of artists be called; there are so many varieties of this form of injury, it is well to understand the particular case. If coal gas, foul air, or other pollution is suspected of having injured the varnish, an artist chemist, learned in varnishes of the different schools, must prescribe; but if the surface is injured, or the colour scales off, no amateur can repair the crack; and in every case, before returning the well-cleaned and well-rubbed surfaces to their frames, let good plate glass be securely fastened over each to prevent future injury.

(*b*) Pictures may be cleaned by rubbing the thumb over the painting moistened with saliva, or by a raw potato cut in half and rubbed evenly over the picture.

(*c*) Dissolve a little common soda in urine, then add a grated potato and a little salt; well rub this over the paintings till clean. Wash off in spring water, and dry with a clean cloth.

(*d*) First rub the picture well with good whisky,

which will make the varnish come off in froth, then wash well with cold water, and when dry varnish again; this will restore the picture to its original colour unless very old. Keep the picture covered from dust till the varnish is dry.

(*e*) The painting is first removed from the frame, and the dust and smoke brushed off with a pencil or feather. After this it is washed with a sponge dipped in well water. It is next covered with a thick layer of soap; shaving soap is the best for the purpose, because it remains moist and does not dry on. After the soap has been on 8 or 10 minutes it is all washed off with a strong brush or pencil, adding a little water if necessary. The soap that still adheres is rinsed off sufficiently with water, and the picture left to dry. When completely dry, it is further cleansed with nitro-benzol—also known as nitro-benzine, artificial oil of bitter almonds, or essence of mirbane. It is a yellowish oily, poisonous liquid, with a powerful smell of bitter almonds. It is formed when coal-tar benzol is mixed with fuming or concentrated nitric acid under suitable precautions. The nitro-benzol is poured into a dish, and a clean linen rag is dipped in it, and passed over the painting. This quickly removes all the adherent dirt. This linen rag must be frequently exchanged for a clean one. When the rag remains clean after going over it repeatedly, the cleansing is finished. If the colours look dull after going over it the last time and letting it dry, it is given a thin coat of the finest olive oil, and after a while must be varnished with a good, quickly-drying varnish. (Von Bibra.)

(*f*) The picture had better first be sponged with cold water and allowed to dry, then apply solution of hydrogen peroxide with a clean sponge in successive

lines, not going over the same surface twice; again allow to dry. If the solution is sufficiently strong, the painting is now tolerably clean; if not, a second or third application is necessary. Peroxide of hydrogen, hydroxyl, or hydrogen di-oxide (H_2O_2), owing to the readiness to part with half its combining weight of oxygen, is a powerful bleaching agent; but the way in which it serves to clean oil paintings is accounted for thus:—Sulphuretted hydrogen, which is present in the atmosphere, especially in the neighbourhood of towns, attacks the lead in the paint and forms lead sulphide, which is readily soluble in peroxide of hydrogen, water and lead sulphate being the result; thus

$$PbS + 4H_2O_2 = PbSO_4 + 4H_2O$$ (J. T. C. Williams.)

Prints.—(*a*) Presuming these to be mounted, proceed in the following manner. Cut a stale loaf in half, with a perfectly clean knife; pare the crust away from the edges. Place them on a flat table, and rubbing the surface with the fresh-cut bread, in circular sweeps, lightly but firmly performed, will remove all superficial markings. Soak the prints for a short time in a dilute solution of hydrochloric acid, say 1 part acid to 100 of water, and then remove them into a vessel containing a sufficient quantity of clear chloride of lime water to cover them. Leave them here until bleached to the desired point. Remove, rinse well by allowing to stand an hour in a pan in which a constant stream of water is allowed to flow, and finally dry off by spreading on clean cloths. Perhaps may require ironing between two sheets of clean paper.

(*b*) Put on a smooth board, cover it thinly with common salt finely pounded; squeeze lemon juice upon the salt so as to dissolve a considerable

proportion of it; elevate one end of the board, so that it may form an angle of about 45° or 50° with the horizon. Pour on boiling water from a tea-kettle until the salt and lemon-juice be all washed off; the engraving will then be perfectly clean, and free from stains. It must be dried on the board, or on some smooth surface, gradually. If dried by the fire or the sun it will be tinged with a yellow colour.

(*c*) Hydrochloric acid, oxalic acid, or eau de Javelle may be employed, weakened by water. After the leaves (if it be a book) have by this means been whitened, they must be bathed again in a solution of soda sulphate, which will remove all the chlorine, and leave the pages white and clean. They will, however, have lost all firmness of texture, owing to the removal of the size from the paper. It will, therefore, be advisable to give a bath of gelatine and alum made with boiling water, to which may be added a little tobacco, or any other simple substance to restore the tint of the now too white paper.

(*d*) Immerse each mildewed sheet separately in a solution made in the proportions of ½ lb. lime chloride to 1 pint water. Let it stand, with frequent stirring, for 24 hours, and then strain through muslin, and finally add 1 qt. water. Mildew and other stains will be found to disappear very quickly, and the sheets must then be passed separately through clear water, or the lime chloride, if left in the paper, will cause it to rot. Old prints, engravings, and every description of printed matter may be successfully treated in the same manner.

(*e*) “I have in my time cleaned many hundreds. The plan which I adopt is as follows:—I place them, one or two at a time, in a shallow dish, and pour water over them until they are completely soaked or

saturated with it. I then carefully pour off the water, and pour on to the prints a solution of lime chloride (1 part liquor calcis chloratæ, to 39 of water). As a general rule, the stains disappear as if by magic, but occasionally they are obstinate. When that is the case, I pour on the spot pure liquor calcis chloratæ, and if that does not succeed, I add a little dilute nitro-muriatic acid. I have never had a print which has not succumbed to this treatment—in fact, as a rule they become too white. As soon as they are clean they must be carefully washed with successive portions of water until the whole of the chlorine is got rid of. They should then be placed in a very weak solution of isinglass or glue, and many collectors colour this solution with coffee-grounds, &c., to give a yellow tint to the print. They should be dried between folds of blotting-paper, either in a press or under a heavy book, and finally ironed with an ordinary flat-iron to restore the gloss; placing clean paper between the iron and the print. Grease stains are much more difficult. I find benzine best. Small grease spots may be removed by powdered French chalk being placed over them, a piece of clean blotting-paper over the chalk, and a hot iron over that." (F. Andrews.)

(*f*) Mildew often arises from the paste used to attach the print. Take a solution of alum of medium strength and brush on back and face of the engraving 2 or 3 coats, then make the frame air-tight by pasting a strip of paper all round the inside of glass, leaving about ½ in. overlapping (taking care not to paste the paper on the glass, so as to be seen from the front), then place your glass in frame, take the overlapping piece and paste to side of rebate; place your picture in position, spring backboard in, and then place a sheet of strong paper (brown) on the table, damp it,

and paste round back of frame, lay it on to the paper, leave to dry, cut level. If this does not answer there will be no help for it, but dust off as the mould accumulates. Do not brush on surface with the alum if the engraving is coloured, but several coats on the back.

(*g*) A plan recommended by Wm. Brooks is to get a dish or china tray a little larger than the engraving to be operated upon; if, smaller, there is a great risk of tearing and damaging the engraving. The bleaching agent used is Holmes' ozone bleach. The strength preferred is 1 part bleach to 10 of water, well shaken up before pouring into the dish. A much stronger solution can be used (say 1 in 5), but the weaker it is the easier is its removal from the paper afterwards. The engraving is immersed in the solution face upwards, avoiding bubbles. The only caution to be observed is that the sodden engraving is somewhat rotten, and needs careful handling. If the engraving be only slightly stained, ½ hour will suffice to clean it, but if quite brown it may require 4 hours. After all the stains are removed, and the paper has regained its whiteness, pour the solution back into the bottle, as it can be re-used till it becomes discoloured; fill up the dish with water, changing frequently for about 3 hours, or place it in running water. When the engraving is sufficiently washed, it can be taken out, blotted off, and hung up to dry. When quite dry, it may be ironed on the back with a warm flat-iron, which must not be too hot. (*Brit. Jl. Photog.*)

(*h*) If the engravings are very dirty, take 2 parts salt and 1 soda, and pound them together until very fine. Lay the engraving on a board, and fasten it with drawing-pins, and then spread the mixture dry equally over the surface to be cleaned. Moisten the

whole with warm water and a little lemon-juice, and, after it has remained about a minute, or even less, tilt the board up on its end, and pour over it a kettleful of boiling water, being careful to remove all the mixture, and avoid rubbing. If the engraving is not very dirty, the less soda used the better, as it has a tendency to give a yellow hue.

(*i*) Does not injure the quality or texture of the engraving. Immerse the print in a lye made by adding to the strongest muriatic acid its own weight of water; to 3 parts of this mixture add 1 of red oxide of lead or black oxide of manganese. If the print is very dirty, it may remain in the liquid 24 hours without harm. Indian ink stains should be first assisted out with hot water, and pencil marks with rubber or breadcrumbs. If there be old paste on the back, it must be removed with warm water. The saline crystals left after immersion are removed by several rinsings in warm water.

(*j*) To remove surface dirt from engravings and mezzotints, the most effectual plan is to use common bookbinders' paste, applied with a paste brush, both to front and back of the print; the paste will take up the whole of the dirt, which will come away with the paste when it is removed with water. A bath of plain water completes the operation, from which the print will emerge as fresh as when first issued. Many a guinea has been earned by this simple but efficacious plan.

Frames.—(*a*) Fly-marks can be cleaned off with soap and water used sparingly on end of finger covered by piece of rag. When all cleared off, rinse with cold water, and dry with chamois leather; next buy 1 lb. (1*d.*) of common size, and 2 penny paint pans. Boil a little of the size in one of the pans with

as much water as will just cover it. When boiled, strain through muslin into clean pan, and apply thinly to frames with camel-hair brush (called technically a "dabber," and costing 6*d.* to 1*s.* each). Take care you do not give the frames too much water and "elbow grease." On no account use gold size, as it is used only in regilding, and if put on over the gold would make it dull and sticky.

(*b*) Dissolve a very small quantity of salts of tartar in a wine bottle of water, and with a piece of cotton wool soaked in the liquid dab the frames very gently (no rubbing on any account, or you will take off the gilt), then stand up the frames so that water will drain away from them conveniently, and syringe them with clean water. Care must be taken that the solution is not too strong.

(*c*) If new gold frames are varnished with the best copal varnish, it improves their appearance considerably, and fly-marks can then be washed off carefully with a sponge. The frames also last many times longer. It also improves old frames to varnish them with it.

(*d*) Gilt frames may be cleaned by simply washing them with a small sponge, moistened with hot spirits of wine or oil of turpentine, the sponge only to be sufficiently wet to take off the dirt and fly-marks. They should not afterwards be wiped, but left to dry of themselves.

(*e*) Old ale is a good thing to wash any gilding with, as it acts at once upon the fly-dirt. Apply it with a soft rag; but for the ins and outs of carved work, a brush is necessary; wipe it nearly dry, and do not apply any water. Thus will you leave a thin coat of the glutinous isinglass of the finings on the face of the work, which will prevent the following flies'

fæces from fastening to the frame, as they otherwise would do.

(*f*) The *Papier Zeitung* recommends the following method of renovating gilt frames. It consists in applying with a camel-hair pencil a gum solution to which has been added gold bronze having the colour of the frame. Before mixing with the gum water the bronze must be washed with water until it runs off perfectly clear. If one application does not suffice, it may be repeated until the spot entirely disappears, but of course one coat must be dry before the next is applied. Spots treated in this way look very well at first, but it will not last, for it is not able to resist the moisture in the air unless it is specially prepared. For this purpose an ordinary bristle brush is rubbed with a piece of yellow wax until it is somewhat sticky, then it is passed very lightly over the spot several times as when dusting it. This gives it a very thin coat of wax that hardens in 2 or 3 days; in the meantime it must be protected against dust.

Sponge.—(*a*) First clean, wash, and squeeze out the sponges; then dip them into a 2 per cent. solution of potassium permanganate. Here they become quite brown (from separated manganic oxide); after 10 minutes, take out, wash in water, again well press, and dip into a 2 per cent. solution of oxalic acid [some prefer diluted sulphuric (1:20) or diluted hydrochloric acid (1:15)], in which they become perfectly white. Success mainly depends on the soaking in the permanganate solution; if they are macerated too short a time they do not become thoroughly white; if too long, they are apt to become rotten. (Siemens.)

(*b*) First clean the sponges by immersing in dilute hydrochloric acid. Then soak in a bleaching liquid,

composed of 1 part sodium hyposulphite, 12 water, and 2 hydrochloric acid. After some time, remove and well wash. To the last wash-water a little glycerine is added in order to preserve the sponges soft. The liquid is best pressed out by passing the sponges through a clothes-wringer.

(*c*) Toilet sponges which have been in use, often become peculiarly slimy, fatty, and almost useless, owing to some action of the soap. Mere washing in distilled water does not remove the difficulty. It may be overcome by using fused calcium chloride. The sponge is pressed as much as possible, placed on a plate, the powdered calcium chloride is sprinkled upon it, and allowed to deliquesce upon the sponge. After about ½ hour, the sponge may be washed in water and dried, when it will become white. (Valta.)

(*d*) Soak the sponges, previously deprived of sand and dirt by beating and washing, in a 1 per cent. solution of potassium permanganate. Remove them, wash thoroughly with water, and press out the water. Next put them into a solution of ½ lb. sodium hyposulphite in 1 gal. water, to which 1 oz. oxalic acid has been added, and leave in the solution for 15 minutes. Finally, take out, and wash thoroughly. By this treatment the sponges are rendered perfectly white. Many sponges contain a more or less dark-coloured brownish core. If treated only with permanganate and acid, the core is either not bleached at all, or, if it has been somewhat bleached, the tint is apt to grow again darker. (Borham.)

(*e*) Soak for 10 minutes in a 2 per cent. solution of potash permanganate; then in a 2 per cent. solution of oxalic acid with the addition of a little sulphuric acid for about ½ hour; finally treat with a 2 per cent. solution of potash carbonate for ½ hour, wash, and

dry. The solution of potash carbonate produces the yellow colour often particularly wanted. (*Chem. and Drug.*)

(*f*) A sponge employed in photographic manipulations for a few months loses all its valuable qualities, becoming black, hard, and greasy, and contaminating anything which it touches. To clean it, a solution of potash permanganate in water is prepared of such a strength that it appears of a wine colour, and into this the unserviceable sponge is immersed, and allowed to remain for some time. When taken out and squeezed, it is next put into a diluted muriatic acid of ordinary commercial quality, being immersed and kept saturated therein for some time as before. The most appropriate strength of this acid solution is about 10 parts water to 1 of acid. The sponge is taken out after sufficient treatment, squeezed well to free it from the acid, and then washed well in good spring water. When taken out, it will be found to be quite clean, to have again assumed its light colour, and to be free from all foreign matter. Sponges treated in this way become like new sponges, and can be used without any fear of their contaminating, even if employed for the filtration of neutral liquids. The main thing to be attended to in this plan of purifying sponge is to see that it is thoroughly saturated both by the permanganate and the acid solutions, which should be allowed ample time to soak through the mass; care must also be observed to wash the sponges thoroughly with plenty of water at the end of the operation. (Dr. J. Stinde.)

(*g*) When sponges get greasy, let them dry, and then work them with a small quantity of turpentine, and after a few minutes wash them with warm soap-

and-water with a little bit of soda. This will get them quite clean with very little trouble. (E. T. Scott.)

(*h*) Put a handful of salt on the sponge, and rinse the salt well through the sponge. Let the sponge dry in a thorough draught of air. The latter precaution alone will keep sponges free from sliminess, unless they become saturated with soap.

(*i*) I tried the effect of sulphuric acid as follows:—In a large basin mixed about 1 pint water and 2 tablespoonfuls sulphuric acid (common oil of vitriol), then steeped the sponge about 2 hours, wrung it out several times in the acid, and finally well washed out the acid in clean water; it was then just like new, having regained its former size, colour, and elasticity, with not the slightest trace of its former sliminess. It was a large bath sponge, and in an extremely bad condition. (J. W. Jackson.)

(*j*) Dissolve some citric acid in water in a hand-basin, and wash the sponge in it as in (*i*).

Stuffed Specimens.—(*a*) Give a good brushing with a stiff clothes-brush. After this warm a quantity of new bran in a pan, taking care it does not burn, to prevent which quickly stir it. When warm, rub it well into the fur with your hand. Repeat this a few times, then rid the fur of the bran, and give it another sharp brushing until free from dust. (*b*) Sponge with white soap and warm water, rubbing well into and about the roots of the hair, but avoid using an excess of water to soak into the stuffing, or the specimen will, in all probability, never thoroughly dry, and moths and rot will be the result. Dry in a current of air as free from dust as possible; brush the fur occasionally as it dries (a coarse comb at first will, perhaps, separate the hairs better). Before putting it into its case, wash freely with benzoline, rubbing with the

fur; you may never dread moths, and your specimen will always be clean if your case is properly made and closed up air-tight by means of paper pasted over every joint and crack.

Teapot.—(*a*) Fill with boiling water and add some strong washing soda; let it remain for a day or two. (*b*) Weak solution of spirits of salt (hydrochloric acid).

Textile Goods.—The arrangement of a laundry is dealt with in another section. The present section is concerned with the ordinary household washing, drying, ironing, and starching operations.

The first step is to sort the dirty linen the day before washing actually takes place. White goods should be separated from coloured, and linen from woollen. Repairs may often be considerably reduced by doing them while the articles are soiled and before the ordeal of the washtub has converted thin places into holes and small holes into large ones.

Much labour is saved by putting the articles in soak overnight, which dislodges the dirt and avoids the hard rubbing otherwise necessary. A good soak mixture is an inch cut off a bar of soap to every 4 gal. of water used, and a dessert spoonful of washing powder, allowing both soap and powder to dissolve before introducing the clothes. For body linen the water should be hot, for bed linen it may be cold. Curtains, blinds, fringes, and other articles which harbour dust and smoke should be soaked in plain cold water. Another excellent soak mixture is made as follows:—Dissolve 2 lb. soap in 5½ gal. nearly boiling water; add 3 tablespoonfuls ammonia and 1 of spirits of turpentine; soak the clothes in this mixture for 3 hours before washing.

On washing day the first care is to get a copper full of boiling water. Meantime the articles in soak can be prepared. Always commence operations with the most delicate goods.

Thus laces and fine muslins are dealt with first. If to be boiled they must be tied up in a clean coarse muslin bag, but usually they will hardly require this treatment, but simple washing will suffice. In this case pass them into a hot soak mixture as already described and work them with the hands without rubbing, till clean. Then rinse, first in warm water, then in cold; fold; roll up in a clean towel, and put aside ready for starching.

Go over the body linen in soak and pay special attention to stains and extra dirty spots. Wring the articles as free as possible from the dirty water, beginning always with the finest, and put into another tub containing a warm soak; here wash again, and then pass through a tub of clean cold water to remove adhering suds. Next fill the copper with clean cold water and add the same quantities of soap and washing powder as before; wring the goods out of the cold washwater, put them into the copper, bring to boiling, and let boil for 10-15 minutes. Pass successive lots into the copper in the same way, replenishing the water, soap, and washing powder as needed. Each lot as taken from the boiler should be rinsed first through hot and then through cold water, well wrung, dipped, an article at a time, in water containing some blue, wrung out, shaken, folded, and put on one side. The bluewater will need additions of blue occasionally.

When all the body linen has gone through the copper, the table and bed linen may follow in the same way; but after the second rinsing on leaving the

copper these articles can at once be hung out to dry. The kitchen linen will come last and be washed in the suds of the previous batches.

Drying should always be at least partially effected in the sun if possible. When available, nothing is better than exposing linen on a clean lawn. Failing this it must be hung on wires or ropes provided for the purpose. Galvanised wire lasts longer and is cleaner than rope. Both require rubbing clean with a damp cloth before use. After sunning, the drying must always be completed before a good fire, especially in the case of body linen. Table and bed linen should be taken in while still damp, and folded and mangled before drying by the fire. Body linen is not mangled, but ironed or starched.

Ironing may be done without starching, or with. Calicoes are generally ironed on the right side, as they thus keep clean for a longer time. In ironing a frock, first do the waist, then the sleeves, then the skirt. Keep the skirt rolled while ironing the other parts, and set a chair to hold the sleeves while ironing the skirt, unless a skirt-board be used. Silk should be ironed on the wrong side, when quite damp, with an iron which is not very hot, as light colours are apt to change and fade. In ironing velvet, turn up the face of the iron, and after damping the wrong side of the velvet, draw it over the face of the iron, holding it straight; always iron lace and needlework on the wrong side, and put them away as soon as they are dry.

Starching is applied chiefly to shirts, cuffs, and collars, and in a rougher way to print dresses and white petticoats. A good cold-water starch is prepared as follows. Mix in a basin 3 tablespoonfuls of laundry starch and sufficient cold water to make a

paste; then add 1 teaspoonful of white soap shredded and dissolved in warm water and 1 teaspoonful powdered borax, mixed in ½ teacupful of boiling water; stir well together till it froths. To starch collars, &c., wring them from bluewater a few at a time, well rub them in the starch, and wring hard, stirring up the starch for each fresh lot; rub them a few at a time, fold, and pass through a close mangle or wring hard in a towel. Iron immediately.

Boiled starch for shirts, &c., is made in the following manner. (*a*) Into a *warm* basin put 4 tablespoonfuls of starch; rub down with warm water to a thickish paste; add 1 in. cut off the end of a bedroom composite candle, a piece of spermaceti as large as a pea, and 4 drops turpentine. Slowly pour in boiling water, with vigorous stirring till the starch turns transparent without losing its thickness. Take the shirts in a damp state, and first dip the fronts and collars, squeezing them tightly, and then the cuffs; be expeditious, as the starch should be used quite hot. Rub moderately, hang up to dry; when quite dry, damp with cold water, fold with the two sides of the front in contact, and roll up for a day before ironing, wrapping in a damp cloth if the weather is dry.

(*b*) A liquid starch gloss which is well recommended consists of 5 oz. glycerine and 2 oz. each spermaceti, gum senegal (cheap gum arabic) and borax in 49 oz. water, mixed and boiled together; 2 or 3 teaspoonfuls of this are added to ¼ lb. boiled starch.

Ironing starched goods requires more care. For cold-starched cuffs and collars it is well to have a table with a thick flannel and a clean cotton or linen cloth tightly stretched upon it. Lay the collar evenly on the table, and run a moderately hot iron lightly

along the wrong side first; turn it, and do the same on the right side. Repeat this once or twice rather quickly until it begins to feel a little dry. Then press heavily and evenly on the right side, pulling out button-holes, and ironing them straight. A fine polish is put on by using the edge of the iron, and rubbing with it from the top of the collar to the band, leaning heavily. Curl the collar, and put aside to harden. Cuffs are ironed in the same way; if reversible, with a band in the middle, the band is ironed thoroughly and finished first.

Hot-starched cuffs and collars are ironed in the same way but with a hotter iron.

When ironing a shirt, lay the back of the sleeve smoothly on the table; iron each side smoothly. Iron the wrist-band smoothly, wrong side first, and then right side. Next iron the shoulder-strap, then the neck-band or collar, doing the latter extremely carefully, and polishing it nicely. Now double the back of the shirt, and iron it on both sides. Spread the shirt out, and iron all the front except the breast. Lay a board covered with flannel under the breast, and iron very nicely, polishing highly at the last. Hang up to dry well, fold neatly, and put away.

The following curious recipe is recommended for restoring linen which has been scorched at the fire in drying. “It is almost needless to premise that if the tissue of linen is so much burnt that no strength is left, it is useless to apply the following composition; for nothing could prevent a hole from being formed, although the composition by no means tends to injure the fabric. But if the scorching is not quite through, and the threads not actually consumed, then the application of this composition, followed by 2 or 3 good washings, will restore the linen to its

original colour; the marks of the scorching will be imperceptible, and the place will seem as white and perfect as any other part of the linen. Mix well together 2 oz. fullers' earth reduced to powder; 1 oz. hen's dung; ½ oz. cake soap, scraped; and the juice of 2 large onions, obtained by the onions being cut up, beaten in a mortar, and pressed. Boil this mass in ½ pint strong vinegar, stirring it from time to time, until it forms a thick liquid compound. Spread this composition thickly over the entire surface of the scorched part, and let it remain on 24 hours. If the scorching was light, this will prove sufficient, with the assistance of two subsequent washings, to take out the stain. If, however, the scorching was strong, a second coating of the composition should be put on after removing the first; and this should also remain on for 24 hours. If, after the linen has been washed twice or thrice, the stain has not wholly disappeared, the composition may be used again, in proportion to the intensity of the discoloration remaining, when a complete cure will seldom fail to be effected. It has scarcely ever happened that a third application was found necessary. The remainder of the composition should be kept for use in a gallipot tied over with bladder."

Having dealt with the general operations, it will be well to add a few notes on special processes for certain classes of goods.

Bed Ticks.—Apply starch by rubbing it in thick with a wet cloth, then put the tick in the sun. When dry, rub it with the hands. If necessary, repeat the process, and the soiled part will be as clean as new.

Black Goods.—After washing, rinse in water containing salt, to fix the colour.

Chintzes.—As coloured dresses, adding a little

ammonia to the water.

Coloured Dresses.—As flannels, omitting the washing powder. Wash quickly in *warm* water, wring hard, wash again, rinse in cold water and hang to dry.

Crape Scarfs.—If the fabric be good, these can be washed as frequently as may be required, and no diminution of their beauty will be discoverable, even when the various shades of green have been employed among other colours in the patterns. In cleaning them, make a strong lather of boiling water, suffer it to cool; when cold, or nearly so, wash the scarf quickly and thoroughly, dip it immediately in cold hard water in which a little salt has been thrown (to preserve the colours); rinse, squeeze, and hang it out to dry in the open air; pin it at its extreme edge to the line, so that it may not in any part be folded together. The more rapidly it dries the clearer it will be.

Flannels.—The great difficulty in washing flannels, blankets, and all woollen goods without causing excessive shrinkage is due to the nature of the fibres, which, under the conditions of rubbing and heat, become matted together in a kind of felt, reducing the dimensions of the article and adding to its thickness. The following recipes for washing such goods, are all destined to prevent this felting process.

(*a*) The water should be only warm, not boiling, and soda silicate or caustic ammonia is preferable to soap as a detergent. Flannels well soaped and shrunk when first fulled always remain softer and shrink less ultimately than those not so treated. The felting power of wool varies considerably, and it should be selected accordingly for fabrics intended to be frequently washed. Flannels should not be rubbed or

beaten in washing, merely rinsed, and soiled spots soaped and brushed with a soft brush. It is important not to press the material until thoroughly dry.

(*b*) Buy the flannel in the piece, put it into a tub, and cover it with boiling water, turning it about with a stick to allow the air to escape from between the folds. Leave it in the water until the next day, when take out and hang on a line to drain and dry. It must not be wrung or pressed, but allowed to get rid of the water in its own way. When made up into trousers or jackets, it will never shrink any more; but in the case of shirts, there may be a slight shrinking in the course of time, though not to nearly the usual extent. Flannel should be washed in lukewarm water, and without soda, when, if it has been properly shrunk before being made up, it will last very well.

(*c*) The great principle is, not to have the water any hotter than a *lady's* hand can comfortably bear. Cut up, overnight, some pieces of yellow or mottled soap, into a large saucepan of cold water; next morning allow this to heat gradually, until all melted. Have two tubs of the hot water ready, into which pour some of the melted soap, and whisk it with the hand to make a thoroughly good lather. The first tub must be more than double the strength of the second, which latter should have plenty of blue in. In the first tub wash the white flannels, without rubbing *any* soap on, excepting on stains of perspiration, &c. Directly after they have been done through the first tub, do them in the same way through the second, shake well, and hang out immediately. Coloured flannels can follow in the same way. Stockings should always have a third wash. The small pieces of soap left in the bedroom soap-dishes come in nicely for melting down.

(*d*) Flannel should be soaked in cold hard water before making, and hung up to drain and dry without any squeezing or handling in the water. After this it will not shrink in washing. Fill a tub with spring water, place the flannel in it, and take out as soon as it sinks to the bottom. It does not lose the appearance of new flannel when dry.

(*e*) To prevent shrinking in washing, soak the flannel for a night in cold water when dirty, and the next morning wash with curd soap in very lukewarm water. Do not wring, but press the water out and hang to dry.

(*f*) White Flannel. Use pipeclay, which should be mixed to proper consistency in a pipkin; stand on the fire till warm, stir with wax candle for 5 minutes, add a modicum of soap and a dash of Prussian blue, and stand by to cool, and always use cold, laid on with a sponge, and dry in shady breeze. For grease spots, lay over them pure clay, size the thickness of a crown piece, then place in the sun, and the clay will absorb all the grease without fail. When trousers are dry, rub them to loosen the clay, which brush off, and you will have cleaner looking trousers than by washing, and they will be fit to wear two or three times without pipeclaying. The same for flannel jackets.

(*g*) In order to keep flannel from shrinking and felting as much as possible, dissolve 1 oz. potash in a bucketful of rain-water, and steep the fabric in it for 12 hours. Next heat the water with the cloth in it, wash it out without rubbing, simply drawing it through several times. Then place the flannel in another bath consisting of 1 spoonful wheat flour to 1 pint water, and wash in like manner. Then rinse in lukewarm rain-water. Flannel washed in this manner

becomes very clean, and will scarcely shrink or felt.

(*h*) It must strictly be observed that the heat does not rise beyond 100° F., and the fabric to be washed must be immersed in a bath of boiled soap, to which 1¼ dr. sal ammoniac per pint of fluid have been added; ¼ hour's immersion in a well-covered vessel will have dissolved the fat and dirt sufficiently, and a beating or rubbing will no longer be necessary in order to wash the fabric clean. Very dirty spots are rubbed in with soap, and brushed with a soft brush. If one washing is not to satisfaction, repeat the process in a weaker soap bath, observing the same cautionary rules, and conclude with rinsing in cold water. It is also important not to smooth the fabric in a half-moist condition; because in this case, the condition of felting is complied with in this operation; while smoothing of the sharply dried substance is performed without being accompanied by the evil effects of shrinkage. The addition of sal ammoniac is to be left out with sensitive colours.

(*i*) Scotch methods for Shawls.—Scrape or cut up 1 lb. soap, and boil in a small quantity of water. When sufficiently cool, beat to a jelly with the hand, at the same time mixing with it 3 tablespoonfuls spirits of turpentine, and 1 of spirits of hartshorn. Wash the shawl thoroughly in this, then well rinse in cold water, and, when all the soap is out, in salt and water. This last need only be done when the shawl contains delicate colours. Then fold the shawl between two sheets, being careful not to let two folds of the shawl come together. Mangle, and afterwards iron with a very cool iron.

(*j*) To wash red or scarlet flannel when soiled, mix a handful of flour in a quart of cold water, and boil 10 minutes. Add this to some warm suds, and wash

the flannel gently, rinsing rather than rubbing; rinse in 3 or 4 warm waters, and the brightest scarlet will never lose its colour. Soft soap or olive soap should be used for woollen goods in preference to bar soap.

(*k*) After rinsing, a wringing machine dries them better than any other method. The drying must be done *rapidly*, and the articles should be shaken and pulled during the drying.

Lace.—(*a*) Washing Black Lace.—Mix bullocks' gall with sufficient hot water to make it as warm as you can bear your hand in, and pass the lace through it. It must be squeezed, not rubbed; and it will be well to perfume the gall with a little musk. Rinse through 2 cold waters, tinging the last with a little blue. After drying, put it into some stiffening made by pouring boiling water on a very small piece of glue; squeeze out, stretch, and clap it. Afterwards, pin out on a linen cloth to dry, laying it very straight and even, and taking care to open and pin the edge very nicely. When dry, iron on the wrong side, having laid a linen cloth over the ironing blanket.

(*b*) Cleaning White Lace.—Boil gently for 15 minutes in a solution of white soap; put it into a basin holding warm water and soap, and keep gently squeezing it (do not rub it) till it is clean, and then rinse it from the soap. Then take a vessel of cold water, into which put a drop or two of liquid blue; rinse in it. Have ready some very clear gum arabic water, or some thin rice-water. Pass through it. Then stretch out even, and pin to dry on a linen cloth, making the edge as straight as possible; open out all the scallops, and fasten each with a pin. When dry, lay a piece of thin muslin smoothly over it, and iron on the wrong side.

(*c*) Ditto.—Cover an ordinary wine bottle with fine

flannel, stitching it firmly round the bottle. Tack one end of the lace to the flannel, then roll it very smoothly round the bottle, and tack down the other end, then cover with a piece of very fine flannel or muslin. Now rub it gently with a strong soap liquor, and, if the lace is very much discoloured or dirty, fill the bottle with hot water, and place it in a kettle or saucepan of suds and boil it for a few minutes, then place the bottle under a tap of running water to rinse out the soap. Make some strong starch, and melt in it a piece of white wax and a little loaf sugar. Plunge the bottle 2 or 3 times into this and squeeze out the superfluous starch with the hands; then dip the bottle in cold water, remove the outer covering from the lace, fill the bottle with hot water, and stand it in the sun to dry the lace. When nearly dry take it very carefully off the bottle, and pick it out with the fingers. Then lay it in a cool place to dry thoroughly.

(*d*) Ditto.—Take a black bottle covered with clean linen or muslin, and wind the blond round it (securing the ends with a needle and thread), not leaving the edge outward, but covering it as you proceed. Set the bottle upright in a strong cold lather of white soap and very clear soft water, and place it in the sun, having gently with your hand rubbed the suds up and down on the lace. Keep it in the sun every day for a week, changing the lather daily, and always rubbing it slightly when you renew the suds. At the end of the week, take the blond off the bottle, and (without rinsing) pin it backward and forward on a large pillow covered with a clean tight case. Every scallop must have a separate pin; or more, if the scallops are not very small. The plain edge must be pinned down also, so as to make it straight and even. The pins should be of the smallest size. When quite dry, take it off, but do not starch, iron, or press

it. Lay it in long loose folds, and put it away in a pasteboard box.

(*e*) Thread Lace.—As in (*d*).

(*f*) Ditto.—When it has been tacked to the bottle, take some of the best sweet oil and saturate the lace thoroughly. Have ready in a wash-kettle, a strong cold lather of clear water and white Castile soap. Fill the bottle with cold water, to prevent its bursting, cork it well and stand it upright in the suds, with a string round the neck secured to the ears or handle of the kettle, to prevent its shifting about and breaking while over the fire. Let it boil in the suds for an hour or more, till the lace is clean and white all through. Drain off the suds and dry it on the bottle in the sun. When dry, remove the lace from the bottle and roll it round a white ribbon-block; or lay it in long folds, place it within a sheet of smooth white paper, and press it in a large book for a few days.

(*g*) Starching Lace.—Use a very thin boiled starch or the liquor in which rice has been boiled. Dip the lace in the starch, and squeeze out. Clap between the folds of a towel to partially dry it. Lay wrong side up on the table, slightly picked out, and place a piece of muslin over. Rub a cool iron over several times, till a little dry. Take up, and with the fingers pick it out to show the pattern and the edge. Iron again. Pick out once more, carefully draw to each side, and give a final ironing. The iron must be very cool, or the lace will be stiff; moving it about in the hands, and drawing it out tends to make it flexible.

Loose Colours.—As black.

Silk Goods.—(*a*) Silk scarfs and stockings are best washed in tepid water, with white soap dissolved in

it, then rinsed quite free from soap, wrung dry in a towel, and ironed dry on the wrong side with a muslin cloth between the iron and the silk.

(*b*) Heat some rain or soft water, and while on the fire cut into it slices of good yellow soap, to make a lather; put the stockings in while the lather is warm, but not scalding, and wash in two such waters (a wineglassful of gin in the first water is an improvement); rinse well in lukewarm water, having ready a second rinsing water, in which is mixed a little blue (not the common kind, but such as is used for muslins and laces), or rose pink, which can be procured at a chemist's, and is used in the same way as the blue, by tying it up in a piece of flannel and squeezing it into the water. After rinsing, put the stockings between towels and let them get almost dry; place on a small sheet, lay out quite flat, as they are when first purchased, tack to the sheet with a needle and thread, turn the sheet over them, and mangle. If it is not convenient to mangle them, the next best plan is to put 4 or 6 stockings one upon the other between muslin, lay them on a stone doorstep, and beat them with the rolling pin. They must not be mangled or beaten in towels, as the pattern of the towels would be impressed on them. If the stockings have lace fronts they will more particularly require the tacking mentioned above to make them look nice. No soda or washing powder of any kind must be put to them. They must be done quickly.

Stains, Removing.—The great difficulty in eradicating stains is to do so without damaging the often delicate tints of the fabric. Following is a synopsis of the best plans in use, arranged according to the nature of the substance causing the stain.

Acids.—Nearly all acids produce a red

discoloration on goods dyed black or blue with vegetable dyes. If the acid is strong, the fabric will probably be locally destroyed as well as stained. The best treatment for all acids is the *immediate* application of a strong alkali, either ammonia, potash, or soda, but ammonia is the most satisfactory. When once the stain is old nothing will efface it. Nitric acid stains are the most troublesome, as the acid bleaches away the original colour. Repeated moistening with a very strong solution of potash permanganate (Condy's fluid may be used as a weak substitute) followed by rinsing with water, is said to be effective.

Anilines.—(*a*) Wash out in alcohol containing some acetic acid, unless the colours of the fabric would be damaged by acetic acid, in which case use alcohol alone. (*b*) Try a solution of sodium sulphite.

Coffee, Chocolate, &c.—Apply a mixture of glycerine and egg-yolk; wash out with warm water, while still damp iron on the reverse side with a moderately hot iron.

Dust.—White and cotton coloured goods only require beating and brushing. For old dry stains on coloured silk and woollen goods, apply alcohol mixed with yolk of egg, let dry, and scrape off; wipe away remaining traces of the egg by means of a linen rag dipped in warm water.

Fruits, Red Wine, Vegetable Dyes.—The greater part may be removed without leaving a stain, if the spot be rinsed in cold water in which a few drops of aqua ammoniæ have been placed, *before the spot has dried*. Wine stains on white materials may be removed by rinsing with cold water, applying locally a weak solution of chloride of lime or dilute chlorine water, or eau de javelle (potash or soda

hypochlorite), and again rinsing in an abundance of water. Some fruit stains yield only to soaping with the hand, followed by fumigation with sulphurous acid (fumes of burning sulphur); but the latter process is inadmissible with certain coloured stuffs. If delicate colours are injured by soapy or alkaline matters, the dye must be renewed by applying colourless vinegar of moderate strength. For coloured cotton and woollen materials, the stain is washed with hot soapy water (to which more or less chlorine water has been added, according to the fastness of the dyes), rinsed in water containing a little ammonia, dipped in a solution of soda hyposulphite and then in a solution of tartaric acid, and finally washed in hot water. For silk and satin goods the same programme must be followed but with very dilute solutions. Another plan is to treat with salts of sorrel (hydrogen potassium oxalate) or with solution of soda hypochlorite. The latter especially must be carefully removed when the object is attained. Another well-tried plan, when space is available, is to spread the stained fabrics on the ground in the open air, smear the spots with soap, and sprinkle ground potash or common salt upon them. Water is added and replaced when lost by evaporation. After 2 or 3 hours' exposure the whole fabric may be washed, and will usually be found freed from its stains.

Grass.—White goods need only be washed in boiling water. Coloured goods, whether cotton, woollen, silk, or satin, are damped with a solution of tin chloride and immediately washed out in abundance of water.

Grease.—(*a*) Simple washing in soap and water. (*b*) Stains from oil colours will yield to a mixture of

soap and caustic potash. (*c*) Chalk, fullers' earth, or steatite (French chalk) diffused through a little water to form a thin paste, spread upon the spot, allowed to dry, and then brushed out. (*d*) Ox-gall and yolk of egg. The ox-gall should be purified, to prevent its greenish tint from degrading the brilliancy of dyes or the purity of whites. Thus prepared it is most effective, especially for woollens. It is diffused through its own bulk of water, applied to the spots, and rubbed well in with the hands till the stains disappear, after which the stuff is washed with soft water. (*e*) Volatile oil of turpentine will take out *recent* stains, for which purpose it ought to be previously purified by distillation over quicklime. Wipe the stain with a sponge dipped in oil of turpentine, cover with filter paper (blotting-paper) and pass a hot iron over several times; finally wash out in warm soapy water. (*f*) Benzine or essence of petroleum is commonly used for removing grease spots; but these liquids present the inconvenience of leaving, in most cases, a brownish ring. To prevent this, the garments, &c., should be laid out flat, *in daylight*, upon a cake of plaster of Paris, or upon some folds of blotting-paper, moistened with sulphuric ether, otherwise known as rectified ether, and rubbed gently with a soft brush or clean linen rag. This process, if necessary, may be repeated. It neither injures the colour nor the material, and evaporates completely on exposure to the air. Another remedy is to scatter powdered gypsum or lycopodium on the moist surface, brushing the powder away when dry. (*g*) Equal parts strong ammonia water, ether, and alcohol form a valuable cleaning compound. Pass a piece of blotting-paper under the grease spot, moisten a sponge, first with water to render it "greedy," then with the mixture,

and rub with it the spot. In a moment it is dissolved, saponified, and absorbed by the sponge and blotter.

Gelatine, Glue, Blood, Sugar.—Wash in clean warm water.

Green nuts, Tanning Juices.—Wash white goods in weak eau de javelle or chlorine water. For coloured goods, first damp, and then touch the spot with more or less dilute chlorine water, afterwards rinsing in clean water.

Ink, Ironmould.—For ink stains, dilute hydrochloric acid, which must subsequently be carefully washed out, will mostly be found effectual. For the same purpose oxalic acid or salts of sorrel (hydrogen potassium oxalate) may also be employed, and that most economically, in fine powder to be sprinkled over the stains and moistened with boiling water. The action of these solvents may be hastened by gentle rubbing, or still better by placing the stained portion of the fabric in contact with metallic tin. If there is much ironmould to be removed, dyers' tin salt (stannous chloride) will perform the same work at less expense than the oxalic acid compounds. Another solvent for such stains consists of a mixture of 2 parts argol with 1 of powdered alum. On coloured cotton and woollen goods let a drop from a burning tallow candle fall on the stain, and then wash out in a concentrated solution of pyrophosphate of soda. On fast dyes, lime chloride or tartaric acid may be used. On fine silk or satin goods damp with strong vinegar and leave covered for some time with beechwood ashes, washing finally in strong soapy water. Some iron stains submit to a washing in a solution of yellow prussiate of potash with addition of sulphuric acid; the blue colour thus produced is removed by rinsing in a solution of

potash carbonate. One of the simplest and most efficacious removers of ink stains is milk, applied *instantly*.

Lime and other Alkalis.—If white goods, wash out in clean water. For coloured cottons or woollens, silk or satin, wet the stuff, and apply successive drops of dilute citric acid; when the stain has disappeared, wash thoroughly in clean water.

Mildew.—(*a*) Dip the spot into a strained weak solution of lime chloride (2 teaspoonfuls to 1 qt. water) for a moment and expose to the sun for a few minutes; repeat till gone, and then rinse thoroughly in clean water. (*b*) Soak in water for an hour and then sun. (*c*) Moisten with lemon juice and lay in the sun. (*d*) Moisten with lemon juice, cover with a paste of soft-soap and chalk, and sun for ½ hour; repeat till gone.

Milk, Soup.—For white goods, wash thoroughly in soapy or lye water; for coloured cottons and woollens, wipe the stain with a sponge dipped in pure turpentine-oil or benzine, remove excess with blotting-paper, and wash out in warm soapy water. For silks and satins use purest benzine ether.

Nitrate of Silver.—(*a*) Dip in a neutral solution of copper chloride and touch the spot with a crystal of soda hyposulphite dipped in ammonia. (*b*) Damp with solution of potash hypermanganate and dip into solution of potash bisulphite. (*c*) Moisten with solution of mercury bichloride (a deadly poison). (*d*) Moisten repeatedly with very weak solution of potassium cyanide and rinse thoroughly in clean water.

Oil, Paint, Varnish.—(*a*) New stains will submit to carbon bisulphide, or spirits of turpentine. (*b*) Cover

old stains with butter or olive oil, and when softened apply first spirits of turpentine and then benzine. (*c*) For white goods, and coloured cottons and woollens, damp the patch, and pass a sponge dipped in turpentine-oil or benzine repeatedly over the stain, then lay on a sheet of blotting-paper and pass a hot iron over; finally wash out in warm soapy water. (*d*) For silks and satins spread on a thin paste of ether and magnesia carbonate; when the ether has volatilised, brush away the magnesia, or rub with crumb of bread.

Perspiration.—Wash in a solution of soda hyposulphite, and then bleach if the goods are white.

Stearine, Wax.—Remove with a knife; place a piece of wet linen beneath, cover the stain with several layers of blotting-paper, and pass a hot iron over. Any remaining trace can be removed by a sponge dipped in benzine.

Tar, Pitch, Resin.—For coloured cottons and woollens the stuff is damped, and fat is applied to the stain, on which soap is well rubbed. The soap is allowed to act for a few minutes, and is washed out alternately with oil of turpentine and hot water. If this has not succeeded, the yellow of egg mixed with some oil of turpentine is applied, and when this has dried it is scratched away, and thorough washing out in hot water ensues. The last method is the washing of the stuff in water mixed with a little muriatic acid, and thorough rinsing out in pure river water. For silk and satin, the stuff is wetted, and a sponge dipped in a solution of ether and chloroform is rubbed over the stain. If the stain is no longer noticeable, white clay is strewn over it, over which blotting-paper is placed, and the stain is extracted by passing a hot smoothing iron over. If this process has not been successful, the

yellow of egg mixed with chloroform is used in the same manner.

Unknown origin.—(*a*) For white goods, and coloured cotton goods, a small quantity of soap is dissolved in lukewarm water, and for each pint is added a coffee spoonful of ammonia. The stain is wiped with a sponge steeped in this fluid, and the material is finally washed out in water. (*b*) For coloured woollen stuffs, dissolve 20 parts ox-gall, 40 of borax, 500 of spirit, and 200 of ammonia, adding 30 of glycerine and the yellow of two eggs. The stuff is washed in this boiling solution. It is subsequently rinsed in clean warm water, and dried in the air, but not in the sun. (*c*) For silk and satin, dissolve 40 parts borax and 10 of soap in 70 of diluted spirit and 30 of ether, adding 10 of magnesia carbonate and the yellow of two eggs. The mixture is applied to the stain, and the stuff is washed in lukewarm water, rinsed in cold water, and dried at a moderate warmth, being subsequently ironed with a moderately hot iron.

Urine.—Wash in alcohol or very weak solution of citric acid.

Vinegar, Wine, Acid Fruits.—For white goods, wash out in clean water, to which ammonia has been added. For coloured cotton and woollen materials, silk, and satin, diluted ammonia is spread over the satin, and when it has disappeared a thorough washing in water ensues.

Wine, Beer, Punch.—Wash in soapy and then clean hot water.

Tobacco Pipes.—A very simple and effective plan. Cut ½ in. from the end of an ordinary cork, and fit it tightly into the bowl of the pipe. Then with a knife

cut a hole through the cork wide enough to admit the nozzle of a water tap with a little pressure, turn on the water gently until the flow through the stem is sufficiently strong, and let it run until the pipe is clean.

Violin.—(*a*) Use soap and water, but avoid its running through the "*f*" holes. Clean the interior with *dry* rice.

(*b*) Moisten the solid parts with salad oil, then mix same oil and spirits of wine together in a basin, trying its strength first on a part of the neck or scroll, then with a piece of white linen rag, dipped in the oil and spirit, rub the soiled parts, keep shifting the rag as it gets dirty: it will take several days to do, but keep the parts well soaked, where dirty, with oil after every rubbing; but by no means scrape it.

(*c*) Ordinary paraffin oil. *Slightly* saturate a rag of soft silk, and proceed to wash your violin therewith. The effect is almost magical; the paraffin dissolves the crust of dirt and resin and cleans the varnish without injuring.

(*d*) For the outside, a strongish solution of washing-soda, applied with piece of flannel. If you find the soda remove the varnish (as it does with some oil-varnishes), use soap-and-water, and then paraffin. When clean, rub with linseed-oil; spirits of wine removes the old resin at once, but sometimes takes the varnish with it. For the inside, get a handful of rice, steep in solution of sugar and water 5 minutes, strain off, and nearly dry the rice till just sticky. Put in at sound-holes and shake till tired. This will pick up all dirt, then turn out.

Violin Bows.—(*a*) Take a small piece of flannel, wet it (cold process), well rub it with best yellow soap,

double it, holding the hair gently between the finger and thumb, rub gently till clean, using plenty of soap; rinse flannel, wipe off, then wipe dry with a piece of calico or linen; in an hour afterwards it will be ready for the resin. (*b*) A solution of borax-and-water.

Wall-papers.—To remove oil stains or marks where people have rested their heads, from wall-papers, mix pipeclay with water to the consistency of cream, lay it on the spot and allow it to remain till the following day, when it may be easily removed with a penknife or brush.

Watches.—A correspondent of the *Watchmaker and Metal-worker* tells how he cleans watches with benzine. The method may be useful for other fine work. He says: I immerse the parts in benzine and dry in boxwood sawdust. This gives the gilding a fresh, new look, which I have not been able to get by any other process. The movement must be entirely taken down. The dial screws may be screwed down tightly and left, but all parts united with screws must be separated, so that there will be no places where the benzine can remain and not be at once absorbed by the sawdust. I have a large alcohol cup, which I fill about half full of benzine, taking down my movement and putting the larger pieces in the fluid. The scape wheel, balance, and delicate parts I treat separately, that they may not be injured by contact with the heavier pieces. I then take the pieces one at a time, and tumble them into the sawdust. In a few seconds they will be dry, when I pick them out and lay in a tray, using brass tweezers, which do not scratch. I treat all the parts in this way except the mainspring, when a slight use of the brush and clean chamois will remove all dust. Of course, the holes

must be cleaned with a pointed peg; and I wipe out the oil sinks with chamois over the end of a blunt peg, but it is not often necessary to clean the pinions with a peg; they will come out of the sawdust bright and clean. The mainspring must not be put in benzine unless you want it to break soon after. The fluid seems to remove the fine oily surface which a spring gets after working for a time, and which is very desirable to retain; so I clean my springs by wiping with soft tissue paper. If they are gummy, I put on a little fresh oil to soften, and wipe off, being careful not to straighten out the springs.

Vermin, Destroying.—Before proceeding to classify the various kinds of noxious creatures whose presence is objectionable to man, and giving hints for their destruction or removal, it will be well to put forward a word of caution *against* using any substance which will *poison the vermin* in situations where their bodies can putrefy unseen and produce unpleasant and injurious odours. Wherever poisons are mentioned in the following recipes their use is intended exclusively away from the dwelling, and there are many sound reasons why poisons should be avoided on all occasions.

Insects.—As this word is commonly used in the household it embraces a considerable number of small creatures outside the class known as insects to naturalists, and may be regarded as including all winged and creeping vermin.

Before descending to special remedies against different insects a few lines may be devoted to that universal insecticide the so-called "Persian insect powder." This is of two kinds, one produced in the Transcaucasian region and another in Dalmatia. The first is the produce of *Pyrethrum roseum* and *P. carneum*, and the last of *P. cinerariæfolium* [*Chrysanthemum turreanum*], all common wild flowers in their special districts. The useful part of the plants is their flowers, which are gathered when half developed, in dry weather, dried in the shade under cover, ground to powder, and stored in air-tight vessels. The plants can be cultivated in warm climates. The Dalmatian gives the stronger powder, or perhaps the powder sold there is less adulterated. Experiments have conclusively proved that while these powders are perfectly harmless to human

beings and domestic animals, they are distinctly poisonous to all insects having open mouth parts, such as bees, wasps, ants, mosquitoes, flies, fleas, bugs, dragon-flies, spiders, carpet-beetles, &c.

Ants.—(*a*) White ants will eat the whole timber work of a house without noise. They bore close to the surface of the wood, but without destroying it, so that there is no visible indication of what they are doing. They will even bore through the boards of a floor and up the legs of a table, leaving the latter a mere shell. The principal woods used in this country which are said to resist the white ant are cedar, greenheart, ebony, and lignum vitæ, and the heartwood of jarrah. Pitch pine is sometimes attacked. White ants will not attack new teak, but will bore through teak to get at yellow pine. Arsenic seems to prevent the attack of these insects, and is sometimes used for this purpose in the concrete, mortar, paint, and plaster of buildings. Arsenic is also mixed with aloes, soap, &c., to form a wash to exterminate these insects. Creosoting is an effectual preservative against white ants, but on account of its smell is only adapted for out-door work, and can hardly be applied to very dense tropical timbers. A cheap source of arsenic for this purpose is the lime arsenite residue from aniline dyeworks.

(*b*) Black Ants.—Scatter a few leaves of green wormwood about their haunts. (*c*) To clear them from pantries, chalk the shelves upon which the provisions are put, so that the ants cannot move about; or apply moistened fly-paper and lay about the pantry; or apply quassia tincture, and soak crumbs of bread with it, and lay it about the pantry. (*d*) Leave a vessel, such as a butter-crock, containing at the bottom a few stewed prunes, or a little water

in which prunes have been stewed, uncovered in the places frequented by the ants; it will attract them, and thousands will drown in it. (*e*) Boil pieces of string in beer and sugar, and lay them in the ants' way; collect once in 24 hours, when they will be found covered with ants, and drop into boiling water. (*f*) Pour benzoline down the holes. (*g*) Pour boiling water down the holes. (*h*) Rooms on a ground floor may be cleared by carefully pouring some strong oil of vitriol down each hole. This will be fatal to the living insects and all their eggs, but will destroy flooring, plaster, and bricks wherever it touches.

(*i*) Red Ants.—Grease a plate with lard, and set it where the insects abound. They prefer lard to anything else, and will forsake sugar for it. Place a few sticks around the plate for the ants to climb up on. Occasionally turn the plate bottom up over the fire, and the ants will fall in with the melting lard. Reset the plate, and in a short time you will catch them all.

Blackbeetles.—(*a*) Keep a hedgehog. (*b*) Set a deep dish or earthen pan, containing a little sugared beer by way of attraction; it will entrap the insects in vast numbers, if a few pieces of wood are inclined against the sides to serve as ladders. They will tumble in when they reach the edge, and the glazed sides will prevent their getting out. (*c*) Immediately before bedtime, strew the floor of those parts of the house most infested with the vermin with the green peel, cut not very thin, from the cucumber. (*d*) A mixture of Persian insect powder and powdered wormseed, thrown about where they frequent. (*e*) Use powdered borax, about ½ lb. to each room. It requires perseverance and care in its use. It should be

scattered about freely wherever they congregate, and particularly in cracks and crevices where they can hide from it. It may be blown or forced by the blade of a knife into narrow cracks. The effect of the borax is to cause them to emigrate. It may kill a few, which will be found afterwards in a dried withered up condition lying about on the floor. They may be swept up without injury to carpets or furniture.

Bugs.—The following are paste poisons:—(*a*) 1 oz. mercurial ointment, ¼ oz. corrosive sublimate, ¼ oz. Venetian red. (*b*) Soft soap and cayenne pepper. (*c*) Soft soap and corrosive sublimate. (*d*) Soft soap and strong snuff. The following are washes for furniture or floors:—(*a*) A small quantity (6*d.* worth) salts of wormwood, dissolved in a bucket of hot writer. (*b*) Solution of pyroligneous acid, arsenite of potash, decoction of oak bark, and garlic. (*c*) 2 dr. corrosive sublimate, 8 oz. spirits of wine rubbed in mortar till dissolved, then add ½ pint spirits of turpentine. (*d*) 1 lb. each sal ammoniac, and corrosive sublimate, 8 gal. hot water. (*e*) 1½ oz. camphor, 8 oz. each spirits of turpentine and spirits of wine. (*f*) Weak solution of zinc chloride. (*g*) Benzine. (*h*) Equal parts spirits of turpentine and kerosene. Application:—(*a*) The room must be thoroughly cleared; take the bed and bedclothes into the open air, and beat them thoroughly; take the bedstead to pieces, and after a thorough purification with hot water, plug every hole and crevice with one of the pastes given above; stop all cracks, &c., in the floor and walls with the paste also. (*b*) Empty the room; scrape off all paper and burn immediately on the spot in charcoal brazier; fill all cracks in plaster, paint, and wormwood with a poison paste; scent the floor with a wash; burn all old scraps of carpet.

Crickets.—(*a*) Half fill some jampots with water and set at night. (*b*) A covered box with perforated lid containing a little salt or oatmeal.

Earwigs.—Place lengths of hollow bean-stalk or other tube where the insects collect, and each morning empty them into boiling water by blowing sharply through.

Fleas.—In Beds.—(*a*) Sprinkle chamomile flowers in the bed. (*b*) Use young leaves of wild myrtle in the same way. (*c*) Strew fresh mint under the beds. (*d*) Have walnut leaves about the person. (*e*) Place a piece of new flannel in the bed, and there seek the vermin. (*f*) Sprinkle the bed or night dress with a little solution of camphor in spirits of wine. (*g*) Sponge your person with camphor water-¼ oz. camphor, ½ oz. tincture of myrrh in 1 qt. water, shake well before use.

In Rooms.—(*a*) Slice a strong onion and rub the bottom edge of the trousers. The favourite point of attack is at the ankles and the legs up to the knee; they do not jump so much from above. (*b*) Make a strong decoction of laurel leaves by filling a large copper with the leaves, adding as much water as possible, and boil for 4 or 5 hours. Then take the leaves away, and deluge the floors with the boiling hot liquor. The liquor will but very slightly discolour the ceilings, which can be whitened again.

On Animals.—(*a*) Oil of pennyroyal will certainly drive them off; but a cheaper method, where the herb flourishes, is to dip dogs and cats into a decoction of it once a week. Mow the herb and scatter it in the beds of pigs once a month. Where the herb cannot be got, the oil may be procured. In this case, saturate strings with it and tie them around the necks of dogs and cats, pour a little on the back and

about the ears of hogs, which you can do while they are feeding, without touching them. By repeating these applications every 12 or 15 days, the fleas will leave the animals. Strings saturated with the oil of pennyroyal, and tied around the neck and tail of horses, will drive off lice; the strings should be saturated once a day. (*b*) Equal parts ox-gall, oil of camphor, oil of pennyroyal, extract of gentian, spirits of wine; wash.

Flies.—In Rooms.—(*a*) A castor-oil plant growing in the room kills many and drives away the rest. (*b*) A bunch of walnut leaves keeps them out. (*c*) A large, handsome Japanese lily (*Lilium auratum*) behaves like the castor-oil plant. (*d*) Soak blotting-paper in a solution of sugar of lead, and sweeten with molasses. (*e*) Mix treacle, moist sugar, or honey with $^{1}/_{12}$ of orpiment. (*f*) Boil ¼ oz. of quassia chips in 1 pint water for 10 minutes; strain; add 4 oz. molasses. (*g*) Spread laurel oil on picture frames, curtains, &c. (*h*) When going to bed, blow some Persian or Dalmatian insect powder into the air of the room and close it for the night; burn the dust swept from the room in the morning.

On Animals.—(*a*) Procure a bunch of smartweed, and bruise it to cause the juice to exude. Rub the animal thoroughly with the bunch of bruised weed, especially on the legs, neck, and ears. Neither flies nor other insects will trouble him for 24 hours. The process should be repeated every day. A very convenient way of using it, is to make a strong infusion by boiling the weed a few minutes in water. When cold it can be conveniently applied with a sponge or brush. Smartweed is found growing in every section of the country in the United States, usually on wet ground near highways. (*b*) Scatter

lime chloride on a board in the stable or pen.

Harvest Bugs.—Smear the legs all over with (*a*) Decoction of colocynth; (*b*) strong vinegar; (*c*) paraffin; (*d*) thick soap lather; (*e*) tincture of iodine; (*f*) benzine; (*g*) tar ointment (*h*) 1 oz. insect powder (Dalmatian) macerated in 1 oz. weak spirit, and then diluted with 2½ oz. water.

Mosquitoes and Gnats.—To keep them away from the person:—(*a*) 1 oz. each olive oil and oil of tar, ½ oz. each glycerine, spirit of camphor, and oil of pennyroyal, 2 dr. carbolic acid; mix and shake well before use. (*b*) Sponge with 1 oz. camphor dissolved in 1 qt. cold water. (*c*) Dissolve as much camphor as possible in olive or castor oil, boil down the oil to half, and smear on the face and hands. (*d*) Mix 3 oz. olive oil, 2 oz. oil of pennyroyal, 1 oz. glycerine, 1 oz. ammonia; shake well; apply, avoiding the eyes. (*e*) Rub lime juice on the skin. (*f*) Essential oil of lemon. (*g*) Rub with bruised laurel leaves. (*h*) Dust the face and hands with potato flour. (*i*) Vaseline or petroleum ointment. (*j*) Rub on 4 oz. glycerine, 4 dr. oil of turpentine, 2½ dr. oil of spearmint. (*k*) Hang a piece of camphor in a muslin bag from the topmost coat button-hole. (*l*) Dissolve in a cupful of water as much alum as the water will contain—in other words, make the strongest solution possible of alum and water; add ⅓ proportion of aromatic vinegar, and ¼ of glycerine; keep it in small flat phials convenient for the pocket, and apply it constantly during the day. Rae mentions that he does not believe without its alleviating influence he would have been able to carry out his journey in Lapland, so severe were the attacks of these insect pests.

Driving from Bedstead.—Hang on the bedstead: (*a*) a few bruised leaves of pennyroyal; (*b*) a sponge

dipped in camphorated spirit; (*c*) a bunch of elder; (*d*) a bunch of wormwood; (*e*) a bough of ash.

Driving from Room.—Burn: (*a*) Camphor in a tin dish over a candle so that it evaporates without igniting; (*b*) cow-dung; (*c*) wormwood; (*d*) juniper wood sawdust.

Moths.—Numerous opinions have been expressed from time to time as to the most effective means of preventing the ravages of the larva of the "clothes-moth." The most practical may be summarised as follows. (*a*) When the number of garments or other fabrics is small an efficient plan is found to be to keep them exposed to the air and liable to constant disturbance, with occasional shaking and beating. (*b*) One writer finds it a very good plan to put winter things, such as curtains, furs, heavy shawls, dresses, extra blankets, &c., away in wine cases, papered inside and out with newspaper; when nailed down, every crack or crevice is pasted over. This should be done in April, before any moths are about; the clothes are then safe. Other articles which cannot well be packed away for the summer, such as dress-coats, are quite safe if folded in plenty of sound newspaper. (*c*) Another states that articles put away for 5 years in a warehouse were perfectly uninjured in all cases where they were *completely* wrapped in linen, while every part not thus protected was more or less destroyed by moth. (*d*) One experimenter placed 4 moths in the balance, and found that they weighed 2¾ gr. They were then placed in a watch-glass, and dried over the steam of boiling water. There remained ·830 gr., say 30 per cent., or, in other terms, if 100 lb. of the grubs were dried they would lose 70 lb. or 7 gal. of water (and this is exclusive of what the insect must have lost in

perspiration and other animal functions). The remedy which suggested itself was, that if we could render our garments absolutely dry, even if the mother moth should deposit her eggs, they could not grow or live in the absolute absence of moisture; and that if we could place our garments for a short time, during the moth season, May and June, in a close chamber, heated by steam pipes to the boiling point, aided by a little chloride of calcium, on trays to absorb moisture, the necessary conditions would be met; and even if the mother moth had succeeded in depositing her eggs before the hot chamber process had been applied, it would still prove effective, as the eggs would be hard-boiled and rendered unproductive. Possibly if drying ovens were kept available at a small charge, they would find extensive employ, as the losses incurred by dealers in furs is immense; and in private families for the treatment of clothing, blankets, and other articles they would be of great value. (*e*) The use of a vacuum and hot gases has been under experiment by the Government of the United States. It is believed that a large cylinder of boiler iron may be filled with woollen goods, either cloth or made-up garments, in unbroken bales or boxes; the top screwed on air-tight; the air exhausted by an air-pump worked by the steam engine, and the vacuum filled after a sufficient time to kill all active developed moths and grubs, with air which has passed through a stove filled with ignited charcoal or anthracite coal. This atmosphere will contain no supporter of respiration; it consists of nitrogen, carbonic acid, and carbonic oxide, and some watery vapour, with a little sulphur and traces of other volatile impurities contained in the fuel. The carbonic oxide is a violent poison. The other gases named are all either inert, unable to

support life, or positively noxious. They will penetrate under the pressure of 15 lb. to the sq. in. into every nook and cranny between the folds of the goods, and into every empty pore of the woollen fibres themselves. They can be introduced at such a temperature as may be determined to be best and sufficient. Experiments at Nottingham reported in the *Journal of Applied Science* show, if correctly performed, that woollen goods may be exposed for 3 hours to an atmosphere in a close vessel heated to 250˚F. (121˚C.) without injury, and that even 295˚F. (146˚C.) is not seriously injurious to the fibre, though it changes the colours of some goods. One difficulty in caring for great quantities of these goods is the labour and exposure incident to opening packages, taking out to handle separately each article, exposing it after brushing to the attacks of the moths, always ready for action at the only season when this overhauling is needed. (*f*) The larva of the clothes-moth will only attack and devour substances that immediately serve it for food, and will not gnaw through the most flimsy envelope, provided this is not edible. But still in these the most careful folding will fail to keep them out, as the tiny hatchlings will find their way through the seams; these should be pasted together, but as the insects are particularly fond of paste this should be poisoned either with a little corrosive sublimate or by triturating some camphor with it. Moths will never eat through brown paper. This must be of the right sort, i.e. made from old tarred ropes, and smelling of tar. Larvæ of clothes-moths, if they can get at nothing else, will feed on ordinary paper if kept in a damp place. The protection of the wrappers consists in their coarse tarry nature. (*g*) Dust the articles with alum dried to a cinder and powdered. (*h*) Mix 2 oz. snuff, 4 oz.

cedar sawdust, 1 oz. black pepper, 1 oz. camphor, 1 dr. lupulin (hop flowers), and blow it into corners with a powder bellows. (*i*) Soak blotting-paper in a mixture of oil of camphor and spirits of turpentine, and lay it among the goods. (*j*) Prof. Riley says that the early days of June should herald vigorous and exterminating warfare against these subtle pests. Closets, wardrobes, all receptacles for clothing, should be emptied and laid open, their contents thoroughly exposed to light and air, and well brushed and shaken before being replaced. In old houses much infested with moths all cracks in floors, wainscots, shelves, or furniture, should be brushed over with spirits of turpentine. Camphor or tobacco should be placed among all garments, furs, plumes, &c., when laid aside for the summer. To secure cloth linings of carriages from the attacks of moths, sponge them on both sides with a solution of corrosive sublimate of mercury in alcohol, made just strong enough not to leave a white mark on a black feather. Moths may be killed by fumigating the article containing them with tobacco or sulphur, or by putting it, if practicable, into an oven heated to about 150° F. (*k*) Nothing is better than Mikado moth papers (Fleming, 101 Leadenhall St., E.C.), placed between folds of the articles to be protected, and occasionally renewed.

Poultry Lice.—(*a*) Damp the skin beneath the feathers and dust on powdered sulphur. (*b*) Scatter male persimon leaves on the floor of the house, or wash the house with a decoction of the leaves. (*c*) Thoroughly lime-white the house, adding sulphur to the lime.

Slugs and Snails.—Lay salt on the trails.

Wasps.—(*a*) Put pulverised commercial potassium

cyanide, one or two tablespoonfuls, into the entrance of the nest without disturbing it or the insects; they enter never to return. (*b*) At noon, or soon after, when the insects are abroad in search of food, fumigate the hole with sulphur; dig out the comb and destroy everything in it; then place a wine bottle, half full of water, in the hole, leaving the mouth of the bottle within an inch of the surface of the surrounding earth; on taking it up next morning, you will find every one of that family safe in the trap. (*c*) Pour some tar into and around the nest and ignite it; take care to have the head and hands covered with gauze. (*d*) Spread arsenic and the dust of loaf sugar (1 to 20) on pieces of orange peel out of the reach of children. (*e*) Hang bottles containing treacle and water in the plum trees and other resorts, and examine daily.

Rats.—(*a*) Mix together 8 oz. strong cheese and 2 oz. powdered squills, and place in their haunts and runs. It acts immediately, and the rats die instantly; whereas most of the pastes, &c., allow the animals to retire into their holes, where their subsequent death and putrefaction may cause great inconvenience from effluvia. (*b*) Make a strong solution of copperas water, and paint the walls of the whole cellar, then pound up copperas, and scatter it along the sides of the walls and into every hole where it can be thrown. (*c*) In the runs and holes, lay a mixture of tar and broken glass. (*d*) Feed them liberally for several days on a smooth surface, then damp the floor and smear it with caustic potash; the rats, in running over it while feeding at the bait, get their feet besmeared with it, which causes a burning or corroding of the flesh. At the same time they lick their feet to relieve the pain, and are either so annoyed or poisoned that they leave the premises. (*e*)

Scatter lime chloride in their haunts and holes. (*f*) Having caught one, tar him all over, or coat him with paste containing tincture of asafœtida, and turn him into the hole again.

Traps.—(*g*) Scald common gin traps and set them at the holes, covered with sawdust, avoiding touching the gins with the naked hand. (*h*) Feed the rats for 3 or 4 nights successively, leaving the traps (box traps) fixed open and baited with the following paste, so that they may go in and out and feed at their ease. If the rats are numerous and the premises extensive, take 4 lb. bread crumbs, 4 lb. flour, ½ pint treacle, 1 teaspoonful essence of anise, and ½ teaspoonful essence of musk; mix the whole well together, and bait the traps. Several traps should be so prepared. On the night the rats are to be taken, bait as usual, having the traps set for catching. (*i*) Set a steel trap in the run and cover it with a butter cloth. A fresh cloth must be used each time. (*j*) Fill a barrel about half full of water. Make the cover ½ in. smaller all round than the inside of the top of the barrel. Drive a nail or wire on each side of the cover exactly opposite each other, as a pivot, and fit in the barrel, so that a light weight will readily tip the cover. Put the bait on top, in a firm way, and place an empty barrel or box near by. (*k*) Mix 1 lb. oatmeal or flour, ½ oz. aniseed, 1 oz. cassia, 2 oz. white sugar, all finely powdered; feed with this mixture for 5 nights at least before you tilt up the trap, which must be concealed with straw scented with 4 drops oil of rhodium, 8 drops oil of cinnamon, and 8 drops oil of caraway. The paper on which the food is placed must also be scented with the same. When you cease to catch any at night, feed again, and when you suppose all to be caught in one place, remove the trap to another.

Snakes.—(*a*) In all probability, the acclimation or encouragement of certain animals which seek out snakes as their favourite food will do more towards effecting extermination than anything else. The mongoose enjoys a reputed pre-eminence in this respect which is quite undeserved—it need hardly be said that the "antipathy" which it is supposed to entertain toward its prey is a chimera born of an argument by analogy to human prejudices. The ichneumon hunts snakes to eat them; so do various foxes, tayras, rats, civets, grisons, weasels, genets, paradoxures, and other members of the *Viverridæ* and *Mustelidæ*. Still more addicted to an ophidian diet are pigs; it is said that Mauritius was cleared of venomous species by a number of wild hogs turned loose there. Toads, frogs, fish, lizards, newts, and even slow-worms devour young snakes; indeed, it is only their popularity as an article of food that serves to restrain their increase, for they are produced in broods of from twenty to a hundred or more. But their greatest enemies are birds. Peacocks, in particular, will desert the home where they are fed in a district abounding with snakes; not long ago, six pairs of pea fowl were employed to get rid of the vipers on an island off the west coast of Scotland, which they rendered almost uninhabitable by their abundance. Storks, pelicans, cassowaries, sunbitterns, cranes, falcons, and some vultures are also perpetually on the look-out for snakes, while the scientific title of the secretary bird, *Serpentarius reptilivorus*, sufficiently indicates its proclivities.

(*b*) A pitfall of some kind sunk below the level of the ground in an infested district, and furnished with water frogs, and a cage of rats, or some such small deer, might help to rid the neighbourhood.

(*c*) For every one that may be expected to find its way into a trap, however arranged, a dozen might certainly be taken, living or dead, by those who would make a business of pursuit; and for capturing them alive there is no safer or better appliance than the "twitch." This consists of a simple loop of string passed through an eye at the end of a long crooked stick, and controlled by the hand. Directly a snake is seen it is hooked out into the open, if need be, away from all shelter, the noose dropped over its head and drawn up tight, and in that way it can be carried, powerless to do harm, or deposited in any receptacle which is ready for it. Collectors, too, would find this little apparatus far more practicable than the net or tongs. Places likely to form a resort for the deposition of eggs—situations which combine warmth, moisture, and protection, as a rule—should be diligently explored; and rocks or other fastnesses known to be their favourite breeding grounds should, if possible, be frequently disturbed by blasting. (A. Stradling, C.M.Z.S.)

Removing Stoppers.—It not unfrequently happens that when a stoppered bottle has remained undisturbed for a considerable time, the stopper becomes firmly fixed in the neck of the bottle, and cannot be moved by the hand in the ordinary way. The removal of a fixed stopper requires judgment and tact, in order to preserve the bottle unbroken. One or other of the following means may be resorted to:—(*a*) Place the bottle firmly on a table, and hold it with the left hand. Then apply the right hand to the stopper, and pull it forcibly on one side, using the thumb as a fulcrum at the exterior of the neck of the bottle. If the stopper moves, the motion will be indicated by a ticking kind of noise; and the stopper

can then be withdrawn without further trouble. This plan should be tried at various parts, observing to pull the stopper towards the operator, and not away from him. (*b*) By tapping the stopper on alternate sides with the handle of a hammer, or with a piece of wood, it can frequently be loosened. (*c*) Dip one end of a cloth in boiling water, and then wrap it round the neck of the bottle; the heat causes the neck to expand which allows the stopper more room, whereby it can often be removed with ease. (*d*) Or the flame of a spirit lamp may be applied to the neck of the bottle with the same effect. But in both cases the operation must be performed quickly, in order that the heat may not get at the stopper and expand it, for if such is the case, it remains as firmly fixed as before. (*e*) Pass a piece of strong twine round the neck of the bottle and fix one end of the string to a hook; the neck will be heated by the friction occasioned by drawing the bottle rapidly backwards and forwards, the bottle being held in one hand, and one end of the string in the other. The heat expands the neck as before described. (*f*) Stoppers are sometimes fixed by the coagulating or crystallisation of substances between the inside neck of the bottle and the stopper. The application of oil, or water, or muriatic acid, to the top of the bottle, will often dissolve away so much of the hard matter as to render the removal of the stopper easy. (*g*) When the fixed stopper of a glass bottle resists all management —such as warming the neck with a cloth wet with warm water, by tapping, and by the wrench, or by all these in combination—there is another means which will frequently succeed. Let the bottle be inverted, so as to stand on the stopper in a vessel of water so filled that the water reaches up to the shoulder of the bottle, but not to the label. Two or

three nights of this treatment may be required sometimes before the stopper will yield. (*h*) Another method is to use a stopper extractor. This can easily be made out of a block of wood 3 in. square and 2 in. thick, by cutting a hole through its centre large enough to receive the head of the stopper. The use of the above is preferable to pulling out two drawers, sticking the head of the stopper between them, and twisting the bottle round. To apply the extractor, it is placed over the stopper, and grasped firmly in one hand, while the neck of the bottle is held by the other. A gentle, but firm and steady twisting motion is then used, care being taken to keep both hands moving in the same plane, but in opposite directions. If the pressure be applied too vigorously or spasmodically, or if the lines of the direction of the opposite forces be not quite parallel, there is a danger of wrenching off the head of the stopper or breaking the neck of the bottle.

Housekeeping.—Volumes might be written on this subject, with column after column of figures to illustrate exactly how much of the annual income should be expended on each item; but when done, the labour would be practically fruitless, for the simple reason that each household has its own special wants. The skill and knowledge of the housewife are constantly devoted to the solution of the question how to supply the needs of the house. No brief summary of hints or information can help her. Every topic discussed in this volume has a bearing on the subject and must be studied. A few words of advice may be offered:—(1) Keep account of every penny received and spent. (2) Pay cash. (3) Study quality before price: cheap things are seldom economical. (4) Avoid both extravagance and waste.

(5) Trust nothing to the servants. (6) Consult the index of this volume whenever you are in doubt.

Marketing.—The following observations condensed from two series of articles in that inestimable journal *The Queen*, will indicate what is in season during each month of the year; they will also contain suggestions as to the best mode of marketing and the signs and symptoms by which the quality of foods may be judged. Obviously remarks on the latter heads when once made will not need repetition.

January.

Meat.—Of meats, beef and mutton are of course in season all the year round; pork only in the cold weather. Veal can be had at any time, but it is cheaper in late spring and summer; and even lamb as an article of luxury can be bought as early in the year as this. Doe venison can be bought this month. The greatest difficulty a young housekeeper has to encounter is that of going to choose meat at the butcher's. No rules without experience in applying them are likely to be of great value. Good beef should be red, with a purplish hue where it has been lately cut. If it is very brilliant scarlet or very pale, it is not good. The fat should be opaque, not transparent, and should be abundant on the ribs and under the sirloin; there should be plenty of white or yellowish suet inside the animal, and even on the lean joints there should be specks of fat mixed up with the meat. It should not waste much in cooking, though this has to do with the stove as well as the meat, and it should not be watery—lying, for example, in a pool of moisture on the block. All this may have to do with the wholesomeness of the meat,

as these are the indications to show that the animal was in good health when it was killed, and that it was not “knocked on the head to save its life.” Even for those who do not like any fat with meat, a lean joint should be ordered, not a joint that would be fat on a healthy animal. This does not apply to the preposterously fat beasts killed about Christmas time, that are scarcely in a state of health from repletion, and the meat is too rich to be very wholesome, and far too fat to be economical. The yellow colour of the fat in Christmas beef is caused by feeding on oilcake instead of green food. Then, as regards the tenderness of meat, it should be fine grained, and should not have thick strips of sinew or gristle running through it. All meat has some in some parts, of course; for instance, in the coarse end of the ribs (i.e. the ribs nearest the tail) there is a strip of gristle about 1½ in. under the skin. It is there always, and is very tough and prominent in old meat. Butchers often cut it out, and it should be cut out before cooking; but it is better still to insist on having the first cut of the ribs (i.e. the shoulder end). All these indications are, it may be easily seen, comparative rather than absolute, and an inexperienced housewife walking into a butcher’s shop will be puzzled to know exactly how red, what tinge of purple, what proportion of fat, and what thickness of gristle she is to be prepared to expect. It is for each woman to decide whether she will choose her own meat or leave it to the butcher’s choosing. At any rate, the butcher will do his part of the bargain better if he clearly understands that his customer knows good meat from second rate, and will not overlook shortcomings in quality or weight. The meat should be weighed frequently, if not invariably, and the butcher should not be allowed to send more

than is ordered, or less than he charges for. Comparatively few butchers kill their own meat. They buy at the dead-meat markets such parts of such animals as they have the best sale for. A first-class butcher in a wealthy neighbourhood, only buys the best meat and the prime joints; but a butcher in a poor neighbourhood, with a low-class trade, finds a ready sale for coarser inferior meat, and in some town slums it seems as though every animal had at least 6 heads and a corresponding number of internal arrangements. The coarse meat may be perfectly wholesome; it would be in a respectable shop; but, being coarse or tough, it commands a much less price in the wholesale market, the sales at which, and the ruling prices, are quoted constantly in the daily papers. The price given is at per stone of 8 lb. Retail buyers can often make an excellent bargain in the meat markets, either by arranging with a salesman to have a certain quantity delivered once or twice a week, or by going to the market themselves. On a Saturday night, or on any night in bad keeping weather, meat of all kinds can often be bought at much less than its usual price. Against this has to be set the trouble, the value of the time, the railway fare, and the possibility of an inexperienced person being taken in.

Beef is no doubt the cheapest meat to buy. It is most satisfying, and there is least bone. The prime joints of beef, and the leg and loin of mutton are usually about the same price, and in these there is not much difference; but the cheaper joints of mutton are very bony, while the cheaper joints o£ beef can be quite solid meat with no bone at all. These solid pieces of beef are what economical people should buy, instead of ribs and sirloins, and rump, for every day household use. They are far less

fat than the more expensive joints, and therefore they waste less in cutting at table as well as in cooking. Ribs of beef cut to greater advantage for a large party if the bone is taken out and the meat rolled. The cheaper joints are the thick flank, “leg of mutton piece” (part of the shoulder), the shin, clod, and sticking piece. Of these the last three are only fit for stewing or braising, as the meat is tough, though it is wholesome and nourishing. It is very suitable for economical pies and puddings, but needs separate stewing first. Of mutton the leg is most economical, though the shoulder is generally lower in price. Breasts of mutton are sometimes sold at a very low price, and may then be cheap for stewing or braising. On the whole, the fillet is probably the most economical joint of roasting veal; the breast is better fitted for stewing, but it should be considerably lower in price than the leaner and less bony joints.

Fish.—Cod is now at its cheapest; soles, more or less in season all the year; lemon soles, which are rather less round in shape, less firm in texture, and about half the price of the black soles; haddocks, skate, conger, hake, herrings, plaice, ling, all of which are among the cheapest of fish; whiting, halibut, oysters, lobsters, crabs, shrimps; with shell-fish, such as winkles, whelks, and mussels, all are in season. Turbot, smelts, brill, flounders, and sea bream, red and grey mullet, are also to be recommended. Rhine salmon puts in an appearance this month, and, taken in conjunction with early cucumber, is delicious in flavour if extravagant in cost.

Game and Poultry.—Turkey is never better than at this season; but we may recommend our readers, if they wish to taste turkey in perfection, to eschew the

larger specimens, and pin their faith on a hen turkey of 7-9 lb. in weight. Among birds eaten with the trail, the golden plover is perhaps one of the best when skilfully dressed, either as a roast or *en salmis*. Larks, excellent either roasted, *en caisses*, or as an adjunct to rump-steak pudding, are also abundant; while from America are imported the savoury pinnated grouse and succulent canvas-back duck—not to be eaten except with currant jelly and celery salad. Grouse went out in December, but there remain fowls, chickens, geese, pheasants, partridges, wild ducks, hares, rabbits, capercailzies, snipe, and woodcock.

Vegetables.—Broccoli, cabbage, savoys, spinach, Scotch kale, and sprouts for green; the green part of leeks is also useful as a garnish. Celery, parsnips, Jerusalem artichokes, and turnips for white vegetables. Lettuce, endive, beetroot, cresses, and forced cucumbers for salad. Potatoes can be bought at 50*s.* to 60*s.* a ton, according to size and quality. There is no economy in buying very small potatoes, as even at a low price, they are dear in the long run. Small consumers will find it more economical to buy by the sack of 168 lb. or the bushel of 56 lb. They should be kept in the dark and covered so that frost cannot reach them. Every week until new potatoes come in, the old ones grow dearer, and it is more difficult to get them good. A rough skin is said to indicate a mealy potato, and a smooth skin a waxy one; but that is not a sure guide, and the best way is to boil a sample and watch the result. There are few potatoes that cannot be made good by appropriate cooking, but some are good anyhow. Salsify—better known and appreciated in France and in America than in this country—an excellent vegetable, susceptible of varied treatment at the hands of a

skilful cook—is also to be obtained.

Fruit.—Not now very plentiful. American apples, by the lb. or barrel, can be had in plenty, but they are not cheap. Apple chips can be used for all cooking purposes where fresh apples are employed, and are no doubt the cheapest substitute for fresh fruit. Medlars, pears, and hothouse grapes are the only home-grown fruits. American grapes, sent over in barrels of sawdust, and oranges are so familiar that we almost forget they are foreign. This is pre-eminently the season for dried and crystallised fruits of all kinds. Old raisins (which can, of course, be bought at a much cheaper rate than any new crop) are better than new for cake and pudding making, as the skins are less tough, and large cake bakers commonly buy their year's stock late in the season.

February.

Meat.—Beef, mutton, pork, and in a lesser degree veal are all in season, and lamb begins to appear frequently on our tables; but neither lamb nor veal has yet attained its highest flavour.

Fish.—Turbot and brill are still seasonable, and are much alike, though turbot is considered the better, and is the dearer of the two. The flesh should have a yellowish tinge, and these, like all other flat fish, should be preferred when they are thick in proportion to their size. Turbot keeps well for a few days, and should be hung up by its tail, not laid flat. Other fish are still in season that were in the markets last month. The lists of the London fish markets give the following names: Soles, plaice, sturgeon, eels, conger, skate, haddocks, sprats, halibut, herrings, whiting, mackerel, hake, roker, coal fish, smelts. As much fish is caught and brought to London that

should be left in the sea, it does not follow that all the prices quoted are of fish in full season. There are names in the list quite unfamiliar to some readers, but there is not one that does not belong to a fish that, good of its kind and well cooked, is fit to set before any one. We often should fare better and save money if we lengthened our list. Codfish, haddock, plaice, flounders, and the ever-welcome sole are in fine condition, but herrings and mackerel are not to be recommended. Smelts, whitings, and red mullet are still in season. Of late years the conger-eel has taken up a position formerly denied to him, and although in bad odour, on account of his cheapness, he is not a bad fish when carefully dressed, and, above all things, makes an excellent soup. Shell-fish are scarce, dear, and—with the exception of oysters—are not so good as later in the season. Salmon is never finer than during this month.

Game and Poultry.—Game is on the wane. Grouse, pheasant, and partridge are over, and game imported from the forests of Norway and the prairies of Illinois but inadequately fills the place of our home-grown birds. In default of these come swimming and wading fowl, woodcock, snipe, and golden plover. Wild duck holds its own, and always presents an appetising morsel. Of all Lenten fowl, the curlew holds the chiefest place, and affords an admirable dish either as a roast or *en salmis*. The godwit is also an excellent bird. Larks are to be had, and, in default of ortolans, are agreeable if diminutive. Hares are still to the fore, and rabbit is to be obtained, and may be roasted, smothered in onions, or best of all exhibited in a curry.

Barndoor poultry waxes scarce and dear. Turkeys no longer abound as at Christmas, and guinea-fowl

are found the best substitute. Spring chickens present but a diminutive appearance, while geese and ducks are becoming rare.

Vegetables.—Seakale and rhubarb can be added to the list of vegetables, but they are still costly, though before the end of the month forced rhubarb will be common.

Fruit.—Oranges are now at the lowest prices, and very plentiful. It is a time of year when bottled and tinned fruits are in great request, both for dessert and for cooking.

Apples, with the exception of the *reinette* and other varieties of russets, are becoming scarce. France and America, however, send us lady-apples, and a few choice pippens, such as the famous Newtown variety.

Breadstuffs.—Good flour should have a very slight yellow tinge, should not feel gritty between the fingers, and it should be adherent, so that a handful pressed together retain its shape. There should be no mouldy smell nor acid taste. The best test of all is to bake a loaf of bread, always granted that the character of the flour is not to be held liable for shortcomings of cook or yeast. The very fine and white pastry flour makes the best-looking and also delicious-tasting bread, and is much to be preferred for puff paste and rolls; but for family use seconds flour and seconds bread is better, for not only is it cheaper, but it is more nourishing, because it contains less starch and a larger proportion of bone and flesh forming material. Rice is added in making bread, sometimes because it is cheaper than flour, at other times because it retains water. Bread made so is heavier and of closer texture. Potatoes are used only in small quantity, to assist the action of the yeast. Alum enables flour to be used that without it

could not make passable bread.

As it cools, bread begins to lose weight. This may be stopped by throwing a thick cloth over the loaves, but the crust thereby becomes heavy. No private person would need to do this, but as household bread is sold by weight, and every customer may demand a full 4 lb. to each quartern, or 2 lb. to an ordinary loaf, it is sometimes in the baker's interest to do so. When bread is left at the house it is not customary to weigh it, but the humbler housekeepers who fetch their bread take care to have a slice thrown in as makeweight if the scale does not turn at 2 lb. or 4 lb. Fancy bread is never sold by weight.

It is customary to allow about 1 lb. baker's bread a day for each person. Two people would eat a half-quartern loaf between them. Of course, individual appetites vary, and if there is great abundance of other food, the bread bill may be diminished; but (though, of course, there should be no idea of stinting the supply) 1 lb. a day is an ample allowance, and if more is consumed there is probably some waste going on, new loaves being begun before the old are finished, and pieces of bread thrown into the dustbin or hog-tub. This is as unnecessary as it is undesirable. Half a stale loaf can be made fresh by warming it through in the oven. Slices of bread should not be cut till they are needed; but if they are cut, they can be made into puddings or fritters for the nursery tea or kitchen supper, much more popular and wholesome, and no more costly, than the monotonous bread and butter and bread and cheese. Smaller pieces can be dried and pounded for cutlets or fish; soaked in cold water or milk, they come in for rissoles and stuffing.

March.

Meat.—Pork is not seasonable in hot weather, and is not often seen on table after this month. Beef, mutton, and veal are obtainable as usual, and lamb can also be had, though it will be dear for a few weeks yet.

Fish.—Slightly salted and smoked haddocks are consumed in enormous quantities in London. Fresh or smoked, they are always a low-priced fish. There is not much to be remembered in choosing such fish, except that they should be large and thick; the smaller ones are all bone and skin. They should be scalded to draw out the salt and to make them soft, a preliminary to cooking that is often forgotten.

Perhaps nothing varies in quality and price so much as fish. It must be in season, as it is always tasteless and insipid, sometimes actually unwholesome, at other times. Fish out of season should not be bought, however cheap it seems to be. It is always in best condition just before spawning, when it is filled with roe. Afterwards it loses the store of fat, and becomes poor and watery. It must be fresh, and this is not easy of detection to the inexperienced. The smell is a guide; but fish kept on ice may not smell disagreeably, yet it may have been a long time out of the water, and as soon as it is taken from the ice it will begin to decompose, and in a few hours of warm weather will be quite uneatable. It should be bright and red about the gills and eyes, not dull and brown; but this also is an appearance that the fishmongers know how to give the fish long after nature has taken it away. It should not have been knocked about or bruised; the scales should be all there. A large fish is usually to be preferred to a small one, provided it be not old and coarse fleshed, and consequently tough, for the small

contain a greater proportion of bone. The flesh should, with some few exceptions, have a bluish tinge when freshly cut. It should be firm, though not tough; but the firmness has something to do with good cookery. Salt enough to make the water like weak brine, or a little vinegar, tends to make the flesh of boiled fish firm.

In choosing any shell-fish, the great thing to be considered is the weight in proportion to size. The heavier they are the better; the lighter fish are apt to be watery. Of lobsters choose those with broadest tails. The very large lobsters, hoary with white incrustations on the shell, are often old and tough.

Cod is a winter fish, flourishing best in the coldest waters. Whitebait is brought into town each afternoon for the late dinners of fashionable London, as it loses its freshness even in a few hours, especially when the warm weather of June and July comes. Smelts when fresh are brown on the back and silvery-looking. They are not so plentiful now as in late autumn.

Monday is a dangerous day to go marketing, because perishable goods may have been kept from the Saturday before. For the same reason, on Saturday night fish may often be bought very cheap, because, though it is perfectly good at the time, it will not keep for 36 hours.

All oily fish must be perfectly fresh, and they do not generally keep long or well. Salmon trout, for instance, is said never to be eaten in perfection except by the fisherman, and many cases of poisoning with mackerel have been sufficiently severe to be noticed in the papers, while mild cases of discomfort due to that cause are known to every one. Mackerel lives but a very little time after it is

taken out of the water. There are two mackerel fisheries, one in the spring and one in the autumn, and the fish are sometimes sold even in London at a very low price; in the fishing villages a score or more can be bought for a shilling. Nothing like this price is to be met with in town, but yet they are among the cheapest foods as soon as the fishing boats are in full work; and tons will be sold this month and next from barrows in the streets, often excellent fish, though they cost about a quarter of what we pay at the fishmonger's. It should be bright and silvery looking, not bruised about the head.

Of salmon, it is usual to allow about ½ lb. for each person, if a handsome piece is wanted for boiling; less will do if a large party is to be provided for, but more is needed for a dinner of 2 or 3 persons. The middle of the fish costs more than the head and shoulders, and the tail less than either. Salmon goes farther than most kinds of fish, but only very seldom is it a cheap food. A curdy appearance between the flakes generally denotes a good fish. Turbot and the smaller species of the same genus are in prime condition. Brill is an admirable fish when chicken-turbot is not to be had. Soles are firm and white as ever. Salmon, now in splendid condition, has to endure the rivalry of the dainty trout. Towards the end of the present month shad begin to ascend the Severn and some of the rivers of France. This delicate fish is never better than when simply grilled. Eels are now in season, and may be served either as a stew, a spatchcock, or *à la tartare*.

Game and Poultry.—Goslings are to be found, and in the opinion of many are much more agreeable in their youthful beauty than in the mature and adipose condition of stubble-fed geese. Guinea-fowl are

always good, great and small, and perhaps are best when nipped in the bud as mere eggs—a delicious morsel to a delicate palate.

Very little game is to be had, and that little consists, besides hares, of aquatic birds, woodcock, snipe, plover, widgeon, and teal, together with curlew.

Vegetables.—The vegetable market shows signs of spring. Forced cucumbers appear to keep salmon company. Spring salads take the place of winter. Artichokes from France are tolerably plentiful, and that excellent vegetable—sorrel, which forms such an agreeable addition to shad or to a *fricandeau*, is to be seen in our markets, although at present it finds but little favour in the sight of English cooks. Covent Garden imports sweet potatoes for the benefit of American customers, and custard-apples from the island of Madeira. New potatoes, carrots, turnips and parsnips are more abundant than in the preceding month. Portugal sends green peas, and imported asparagus becomes less costly.

Fruit.—We should be badly off for fruit if it were not for oranges, which are actually cheaper than English apples in the apple season. Now is the time to make marmalade, as Seville oranges are plentiful. If oranges or any other fresh fruit have to be kept, they should be in the dark, and laid on wood, not on a plate or dish. It is better to put them in rows, and not heap them up. Grapes are still in the market, flanked by apples and pears of the most durable kinds, and early strawberries.

April.

Meat.—Grass lamb is the meat of the season.

Fish.—Whitebait is a choice natural product. It is supposed that this delicious fish can only be obtained, either "plain," "devilled black," or "devilled red," in true perfection at those excellent hostelries which by its means have attained celebrity. No greater mistake exists. It is within the power of every gentleman to have as good whitebait at his own table as he can obtain elsewhere. Fresh bait, ample flouring, and boiling—absolutely boiling —lard will solve the problem in the most satisfactory manner.

Salmon is getting cheaper—if not better—and plump chicken-turbot is still in. The gigantic but rather coarse halibut remains, with plaice and flounder. Dainty brook-trout and larger specimens of the same genus, from the Irish lakes, present an agreeable spectacle; while the gurnet is in great force. Whiting is yet in season, but mackerel and herring are better later on. Oysters take their leave.

Game and Poultry.—Spring chickens, ducklings, goslings, and guinea-fowl but feebly replace the juicy birds of the autumn and winter months.

Vegetables.—Among the prime vegetables of the month asparagus holds the chiefest place, and is always delicious. To those who have not yet tasted it we may recommend cold asparagus, with plain salad-dressing, as a breakfast dish without a peer. Green peas, early French beans, seakale, sorrel, spinach, succulent mushrooms, early carrots, and baby turnips are plentiful.

Fruit.—Pines, melons, oranges, hothouse grapes, peaches, nectarines and strawberries, and a few durable apples and pears apart—fruit is scarce; but delicious tarts can be made of green peaches and apricots.

May.

Meat.—Veal and lamb are in full season, and sweetbreads are in great request. As the supply is always limited, butchers not seldom try to pass off bullock's sweetbread—i.e. the pancreatic gland—on their customers. True sweetbread is a gland in the neck of the young animal only. This should not be tolerated, as bullock's sweetbread is coarse-flavoured and hard, and needs long and careful washing and cooking before it comes to table. It can, however, be made very palatable with care, and is occasionally worth buying as a change, under its rightful name, and at a legitimate price. Brains parboiled in salt and water to harden them are another good substitute for sweetbreads, and offer one more change from the perpetual joint and fowls that are on every table.

Game and Poultry.—A young fowl has large feet, knees, and neck in proportion to its size, and its thighs look white or pinkish. An old one has thin, scraggy legs and purplish tinge on its thighs; the scales look hard and horny, and often there are long hairs on the skin. If the beak is on, it should be soft, and so with the breast bone, which is frequently broken by the poulterer to give the bird a plump appearance. The length and size of the claws is another indication of age; the size is little or no guide, as that depends on the variety and the feeding. The small-boned, short-legged varieties are generally said to be the best. A very fat bird is to be avoided, for it wastes much in cooking, and even what remains of the fat cannot be eaten. Birds that are kept in the dark and crammed previous to killing become very fat, but the flesh loses flavour and firmness, and they are far inferior to barndoor fowls. Cleanliness is also essential to the production of a well-flavoured fowl; the same may be said of ducks,

now as ducklings to be eaten with the earliest green peas. Full-grown ducks are better in late summer or autumn. Their age can be judged from the appearance of the feet, and by the pliability of the bill. The down that covers them may be an indication of youth, but it may also be put on by the poulterer with a sprinkling of gum.

Chickens, turkey poults, ducklings, goslings, and guinea-fowl dispute supremacy, but very little is to be said for any of them. The pigeon is possibly the best bird procurable during May. Plover's egg, always delicious, even when eaten under difficulties, seems to gain in beauty when presented in the form of an aspic.

Fish.—May is the true mackerel month. The herring too puts in an appearance during the month of May, and is a thoroughly delicate fish. The only valid accusation against the herring is on account of his innumerable bones, but this is not the true reason of his being voted unfashionable. Unfortunately, the herring is too cheap, and, in consequence of this defect, is in the habit of haunting vulgar localities, and thus excluding himself from the refined society that he is so well qualified to exhilarate.

Whiting and smelts still appear, but are practically superseded by whitebait. The Salmonidæ are in grand condition. Salmon, salmon trout, lake and brook trout prevail on our dinner-tables; but the most delicate member of the entire family is rarely seen. Either from scarcity, the distance of the lakes from the metropolis, or from some other cause, the beautiful silvery char seldom reaches London. Small as he is, he has all the richness of the *salar*, and possesses a delicacy all his own. Turbot now ceases, and codfish has retired. Brill, gurnet, soles, plaice,

and flounders are in season. Oysters having departed, other shell-fish improve much in quality. Lobsters and crabs now lose much of the dryness that is so conspicuous a fault with them during the winter months.

Vegetables.—Vegetables are now plentiful and cheap. In warm seasons that are yet sufficiently damp they grow quickly, and the fibre is less woody and hard than that of vegetables grown in cold or dry weather. With the warm weather comes the difficulty of transport, but it is not yet so great as in July and August, when the plants are full of sap and ferment quickly under a hot sun. Gardeners have a habit of keeping vegetables for a few hours in a hot bed or greenhouse before sending them to the kitchen. They have some idea that it improves the quality—an idea that is wholly erroneous, and should be combated. Potatoes are often laid in the sun for a few hours to dry, but they should never be allowed to lie long enough for fermentation to set in. All withered vegetables should have the stalks freshly cut, and the ends should then be put in a bowl of water, just as withered flowers would be treated. Through the stalks they suck up water enough to fill their shrunken cells, and make them green and stiff once more, but to plunge the entire plant under water is a mistake, and after a few hours of such treatment the water is often perceptibly warm, and the leaves bruised and decaying. Of course this does not apply to washing vegetables and salads, which cannot be too thorough and complete, especially of the vegetables that many housekeepers buy off barrows in the streets.

Asparagus is now in great perfection, and green peas wait upon the insipid duckling. Unless young,

quickly grown, freshly gathered, and properly cooked, green peas are apt to be a failure, and when four important conditions have to be fulfilled the chances are naturally against success. Summer cabbages, cauliflowers, spinach, young carrots, turnips, and potatoes are all to the fore; nor do salads fail to keep pace with these, as cabbage, lettuce, summer endive, and corn-salad are to be had in profusion.

Fruit.—The weak point of May is fruit, as almost the only good fruit that can be obtained at a reasonable price is the orange. Strawberries are to be bought for money, but in this instance the open-air-grown fruit is far preferable to the productions of the hothouse.

June.

Meat.—Lamb is now in fine condition, and, besides the ever-welcome fore-quarter, supplies admirable material for entrées of various kinds. Lamb's head, either baked and served upon a mince or stewed with green peas, will always find legions of admirers.

On the subject of veal mankind is by no means so unanimous as on that of lamb, and in this country especially veal is generally denounced as unwholesome. Although it is unfortunately the custom to allow calves to grow unreasonably large before the day of sacrifice, and to compensate the loss of whiteness by phlebotomy, thereby losing much of the tenderness and succulence of the meat, veal is after all one of the most valuable materials for the production of dainty dishes. Calf's head is susceptible of various treatment and the ears are esteemed choice morsels. Tongue, liver, sweetbread and feet have their several admirers. Breast of veal,

either stuffed or curried, is a good dish, and so is the *fricandeau* well larded and served with mushrooms, peas, spinach, or—best of all—with sorrel. To the various forms of *paupiettes*, *escalopes* and cutlets there is verily no end, and to sum up its qualifications, veal makes an excellent roast. This latter remark, however, applies only to the loin. The huge mass called in English fillet of veal is one of the most tasteless and barbarous of joints.

Buck venison is in season from the middle of this month until September. It is one of those delicacies of the table that is not very often bought in the open market, and no one looks a gift horse in the mouth. Lean venison is scarcely worth eating, and is often sold at a very small price; the fat should be thick and abundant, clear and bright looking; the hoof smooth and close. In cool weather a haunch may hang for a fortnight, and it should be kept perfectly dry by wiping with cloths. Tastes, however, differ greatly as to the length of time that venison should be hung, and indeed "high" meat or game is actually in a state of decomposition, and it has been known to produce symptoms of poisoning in persons unaccustomed to its use. It begins first to decompose near the bone, and its state can best be ascertained by running a skewer into the middle of the joint.

Fish.—Lobster, whiting, trout, eels, and salmon, continue in season. The tiny Thames flounder is exceedingly sweet in flavour, and although lacking the firmness of the sole has peculiar merit of its own, either accommodated in *sootje*, or fried in perfect style.

Game and Poultry.—Goslings and half-grown geese—called in many country places green geese—are in season from now to September. The 29th of that

month is a fixed date when every one knows that geese are in season to continue so until early spring. Ducks have no such date in their history; and, beginning in April or May as ducklings at a high price, they grow larger and cheaper all through the summer until the decline and disappearance of green peas. The age of both these birds may be guessed from the toughness of pinion, beak, and feet; from the deep orange or red colour of the feet of an old goose, those of a young bird being yellow; from the downy appearance of the feathers, and the size of the quills. A duck or goose, especially if not very young, is better for hanging a day or two, but it must not be in the least high, as the abundant fat would be rank. Rabbits, that is wild rabbits, are out of season. A few are seen in the shops, for they are not protected by game laws, but careful housekeepers know better than to buy them. Tame rabbits are fattened for market all the year round, though it is in winter that they are imported and sold in largest quantities.

Chickens are larger, and turkey poults assume respectable dimensions; but the great event of the present month is the advent of quail, wheatear, and ortolan. These delicious birds are doubly welcome at the present moment, as they afford inestimable relief from the insipid sameness of spring banquets. Of all game birds the quail is the most dainty, and combines in the highest degree delicacy of texture, beauty of form, and subtle aroma.

It is generally admitted that of all small birds the ortolan is the best, although some fastidious epicures affect to prefer the becafico and the reed-bird. Caught in great numbers in the south of France, ortolans are subjected to a preliminary process of fattening before the day of doom. Perhaps the most

refined method of cooking ortolans is the traditional one of wrapping them in a vineleaf and simply roasting them. Johannesberg is the wine of all others which has the greatest sympathy with the tiny bird of the sunny south. Wheatears abound on the great South Downs of England, and these plump morsels may be dealt with in the same fashion as their foreign compeer.

Eggs.—During spring and early summer eggs are cheap and good. Those of the plover, turkey, and guinea-hen are exquisite in flavour, and always command a comparatively high price; but the productions of the barndoor fowl, the game-fowl, the bantam and Cochin China are to be obtained at a very moderate price, while the choice vegetables now in season suggest varieties of omelet but little known to the English cuisine. Eggs should be put by for winter use during this month or next. Recipes for preserving them are given on p. 117. Fresh eggs are not easy things to choose. It is quite easy to distinguish a distinctly bad egg, because, on holding it to the light, it is seen to be opaque, and a fresh egg is transparent; but there is no such visible difference between a new-laid egg and one that is some days or weeks old. The actual difference consists in the evaporation of water and its replacement by air, so that at one end there is a large air bubble in a stale egg. This is often enough to cause a rattling of the yolk if it is shaken close to the ear. Sometimes the yolk is seen to be settled on one side. The comparative weight is a sure test, for the air is lighter than the water, and a stale egg floats in brine where a fresh one sinks; but the drawback of this test is that the salt and water are not available in the market. Dissolve 2 oz. kitchen salt in 1 pint water. When a fresh-laid egg is placed in this solution it will

descend to the bottom of the vessel, while one that has been laid on the day previous will not quite reach the bottom. If the egg be 3 days old it will swim in the liquid, and if it be more than 3 days old it will float on the surface, and project above the latter more and more in proportion as it is older.

Vegetables.—Green vegetables of all sorts are now at their best. Green peas, asparagus, summer endive, spinach, and sorrel. New potatoes are plentiful, and though really inferior to the ripe tuber, are greatly preferred by many persons pretending to taste.

As is fitting in summer, salads are to be found in great abundance, and perhaps the best of these is the Cos lettuce; for plain salad or for *mayonnaise* of fish or fowl no better basis exists. Lobster, crab, salmon, trout, sole or chicken *mayonnaises* form an agreeable interlude in any repast, and the prevailing fashion of serving a plain salad with roast meat is both healthful and appetising. In all salads compounded of Cos lettuce it should never be forgotten that tarragon vinegar is indispensable, as this pleasant condiment relieves the flavour of the lettuce in the most agreeable and refreshing manner.

Fruit.—At present rhubarb and gooseberries are the only fruits available for kitchen purposes. Apricots have even descended to street barrows; they are imported, and of the hard variety generally used for cooking. By the end of the month we shall be thinking of jam, and it is not amiss to issue an early warning against the idea that damaged or over-ripe fruit is good for jam.

Early raspberries, cherries, currants, apricots, peaches and nectarines are to be obtained, but the strawberry is master of the situation. Some pretend that the flavour of the wild strawberry is superior to

that of the finest cultivated varieties. Strawberries make an excellent beginning for the day, and never taste better than when plucked and eaten at once. One great advantage the strawberry unquestionably has over other fruits—it may be eaten at any time and in any quantity "without compunction."

July.

Meat.—The fiery temperature of the dog-days renders necessary some departure from the national system of alimentation. Even the carnivorous Briton turns aside with weariness, if not absolute loathing, from huge masses of tough beef and tasteless mutton, and sighs for a break in the monotony of our insular cuisine. There is veal it is true, but the fatted calf is not relished by everybody, and grass lamb, although now in superb condition, has lost the charm of novelty, and, like salmon, is viewed askant during the torrid days of July.

Red-deer venison is the flesh of a thoroughly wild animal, and possesses a high flavour, but is unfortunately not free from a certain dryness and toughness of fibre, resulting from "too high training" or superabundance of exercise; while buck venison is a delicious compromise between the wild flavour of "beasts of venerie" and the luscious products of artificial feeding.

By many epicures the neck of a fine buck is held in almost equal estimation with the haunch. Lovers of tit-bits linger affectionately over a venison fry; this prime delicacy must be ordered of venison dealers a few days in advance, especially if the weather be very hot.

Large joints—excepting in the case of venison which is readily convertible into stews and hashes—

are not to be recommended, and a recourse to "kickshaws" is almost unavoidable.

Game and Poultry.—Entrées of fowl are always dainty and wholesome. Quail and ortolan still supply the roast, which in this month receives an important addition in the leveret—the *avant-courier* of the game season.

A guinea-fowl well hung is the nearest approach to a pheasant that the season affords. Then there are turkey poults, green geese, ducks, wild ducks, wheatears, and plenty of poultry, besides rabbits.

Fish.—The fish for the month are salmon and salmon trout, which will not be cheaper or better than now; grey and red mullet, which was in ancient Rome prized above all fish, and is still thought a delicacy; prawns, shrimps, crayfish, most often used for soup or garnish to other fish; mackerel, still abundant, but not so good as it was some weeks ago; fresh haddocks, conger, whiting, herrings, eels, soles, plaice, turbot, Thames flounders—the cheapest of flat fish, and sometimes muddy-flavoured, though a good flounder makes not a despicable dish. A large number of ling, hake, or white salmon, coalfish, roker, and other little-known fish find their way to the less fashionable quarters of London, and are sold at a low price.

At the best tables trout take the place of salmon, while chicken-turbot and whitebait supply an agreeable variety, and the much-vilified mussel partly fills up the vacancy left by the secession of the oyster. The John Dory is now in fine condition, and yields to no fish in the sea for fineness of texture and delicacy of flavour. It is unhappily the custom to stuff the Dory with an over-rich stuffing and serve him with a potent sauce. This treatment effectually

destroys the fine flavour of a fish which requires no stronger condiment than caper-sauce.

Vegetables.—Of vegetables we have a great abundance. Green peas are plentiful and cheap, and the later varieties will keep our tables supplied for many weeks yet. French beans, said to be in season when beef is in perfection, broad beans, artichokes, cauliflowers, cabbage, carrots, marrows, outdoor mushrooms if the weather is propitious, outdoor cucumbers for the next 10-12 weeks, and salad of all kinds grown quickly and crisp in summer weather, new potatoes at their best, all belong to July.

Fruit.—Walnuts should be ready for pickling at the beginning of this month. They should be so soft that a pin easily penetrates them. This is a good time to make all sorts of pickles; but it is cheaper to buy them than to buy all the materials. Ketchup can be made of the shell when the walnuts are ripe in September.

What fruit ripens this mouth depends greatly on the part of England where one looks for it. In the large markets, where much foreign fruit comes, the seasons are not definitely defined, and all sorts of fruits are to be found out of their proper season. Much, probably more than half, of the peaches and nectarines and better kinds of fruit grown for sale, are grown in houses, or at least with some protection of glass. Without it they will hardly ripen in the north of England, and everywhere the uncertainty of spring weather, and the fatality of a wet frost while the fruit is setting, make the glass almost a necessity where the crop is raised for profit.

The cry of “cherry ripe” is still familiar, and the subacid fruit is exceedingly grateful to a parched palate. Strawberries are on the wane, but raspberries,

currants, and gooseberries take their place. On the good qualities of raspberry and currant tart it is needless to dilate.

August.

Game.—The great events for the fashionable and dining world during the coming month are, no doubt, the commencement of grouse shooting on the 12th, and of black-cock shooting on the 21st. At one time, when it was less customary for gentlemen to sell game, a great part of that sold in shops was obtained in some questionable manner. Perhaps even now there will be some who do not think of marketing for grouse, but wait until a present comes from friends at a Scotch or Yorkshire moor. From whatever source grouse are obtained, the housekeeper ought to know if they are old or young birds, in order to avoid the old in case of purchase, and to cook the young and hang the old in case of gift. It is comparatively easy to distinguish the two when lying side by side. The undeveloped plumage, the smooth legs, the short spur are conspicuous. The old birds are usually larger than the young, and the bones of the pinion and thigh stiffen with age. They are not so easy to distinguish apart, except by practice. The old birds not only are improved by longer hanging, but require longer to cook, so that it is better not to serve old and young on the same day. Except for this addition, the meat supply remains as for last month.

Vegetables.—Some of the summer vegetables are past their best days, but their place is speedily taken by others. Vegetable marrows can be cut and hung up for winter use, and French beans are still tender enough for pickling, though the length of time they will continue so depends on getting a due proportion

of rain with summer sunshine. In dry seasons vegetables are always stringy and tough.

Fruit.—Gooseberries, raspberries, and currants will not last the month out in the warmer parts of England. Even if they are kept from the birds they drop from the trees as soon as they are perfectly ripe, and there is so much other fruit that they are not missed. Strawberries are nearly over, although a few late varieties are still fit for table. But there is no scarcity of fruit for those who have money in pocket. The market lists comprise peaches, nectarines, apricots, greengages, melons, grapes, green figs, early pear and apples, pine-apples, oranges, lemons.

Groceries.—With regard to groceries, there are two very distinct points to be debated. In the present day no hints on marketing are in any way complete without some consideration of the advantages and disadvantages connected with retail shops and co-operative stores. It will be conceded by every one that the stores are not well adapted for the sale of goods involving great latitude of choice. Nor, as a rule, have they large trade in articles of an exceptionally perishable character. Rapidity of distribution is one of the conveniences that customers at stores have decided they prefer not to pay for. Housekeepers, as well as servants, who are accustomed to have a boy to call daily for orders, and return in an hour's time with the order, though it be only 6*d.* worth of sugar or 1 lb. of steak, often have an insuperable objection to the stores. The fact is that the stores make heavier demands upon their foresight than people can meet. None of us is so long-sighted in her household arrangements that she would like to be wholly dependent on the stores. The country shops exist for the benefit of even the most

uncompromising adherents of the stores, and, that being so, it is just as well to remember that if no one ever deals with the shops they may some day die of inanition, and that during a slow decline they must deteriorate. It is, no doubt, a remembrance of these facts that induces many persons to deal with local tradesmen, even though they make no tangible difference in their prices for ready money. And then the competition of the stores has brought into existence the ready-money shops. Some are well known to all. There is no reason why they should not sell as well and as cheaply as the stores if they adhere strictly to the "no credit" system, if they spend no more than the stores do on rent in a fashionable neighbourhood, advertisements, ground-floor space, plate-glass windows, and such unnecessary luxuries. But the difficulty of enforcing ready-money payment is very great where the bulk of the customers are weekly wage-earners, liable to be thrown out of work at any time through ill-health, winter weather, depression of trade. It would not be necessary to insist on the want of thrift that makes these people live always on the wages of the week to come, instead of on the wages of the week gone by, if this were a habit solely confined to the uneducated classes. But it seems the ordinary custom of most persons earning limited incomes—and it is productive of so much misery that the one hint for housekeepers of all degree needing most to be pressed home is that to make a practice of paying ready money is the only way to ensure good value, either in the goods purchased or in comfort gained.

September.

Meat.—As for the meat market, buck venison goes out, and pork is again seasonable. It need scarcely be

said that fresh pork is eaten all the year round by a section of the public. All meat ought to be very cheap. The highest prices for mutton always mean for Southdown, of which there is only enough to supply a small percentage of customers. Not a twentieth part of the mutton killed is Southdown, so that butchers cannot fairly quote the prices given for it as a justification of exorbitant retail prices of mutton in general. Southdown sheep carry most of their weight in the hind quarter, and the Leicester and other coarser sheep are heavier in front, and this also must be allowed for in quoting market prices, as the fore quarter is always cheaper than the leg and loin.

Ham must not be too new. The best manufacturers keep their hams for some months before they send them out; but people in a small way of business cannot afford to turn over their money so slowly, and it never would answer to keep cheap hams. If the consumer has no place to keep them, it is often possible to make arrangements to have them kept a month or two at the shop. Ham and bacon must be hung up in a warm but airy place, and they are generally tied in canvas or paper bags. They are often hung in a kitchen, which does very well if it is not too warm. There is much fashion and fancy as to choice of different parts of bacon. The streaky covering of the rib bones, corresponding to the thin flank of beef and breast of mutton, is preferred for boiling, and commands a high price, strangely enough, because that is one of the cheapest parts of other meat. A leaner part is the back, or part of the gammon. The cheapest is the fore hock or fore end, for boiling or family use. Part of the thick flank is very good for boiling. To choose bacon, a knife or skewer should be run in close to the bone, and, when

withdrawn, should have no strong, rancid smell. The bacon should not have yellow, "rusty" patches.

Game and Poultry.—Partridge-shooting begins with the month. Much the same hints must be given to distinguish old from young as for grouse. The tough, hard beak is characteristic of last year's birds; the under half of the beak breaks or bends if a young bird is held up by it. There is also in the breast plumage of an old bird a mark shaped like a horseshoe. They should have dark-coloured bills and yellowish legs. French partridges, with the beautiful grey and brown plumage, are not considered so good eating; they are slightly larger.

September witnesses the advent of the stubble-goose in all the glory of sage and onions and apple-sauce, but many prefer gosling, or tender adolescent "green" goose, to the plump stubble-fed bird. This animal must of course be roasted to get rid of his superabundant fat; but in Ireland a curious dish, called a goose-pie, is often consumed by the robust inhabitants, and boiled goose is sometimes eaten in the rural districts.

Fish.—Net-fishing ended last month, but line-fishing still goes on. Good takes of herring are reported from the Scotch coast, and before the month is out the Cornish fishermen will be drawing their harvest of pilchards from the sea, packing and curing them for foreign exportation. This yearly exportation of pilchards is one of the unaccountable food customs of England. We send them to the Mediterranean, and we import sardines in oil. Sardines are eaten everywhere, and yet the two fish are so much alike that many persons believe them to be the same in different stages of growth; and in appearance and flavour they both strongly resemble

herrings, which are eaten in England far more than any other fish. It is said of herring, pilchard, and sardine, that if you hold them up by the dorsal fin, one tilts its head up, the other its tail up, and the third swings even.

Oysters are again in the market. Small ones with fairly smooth shells are the best, though it may be advisable to buy the larger and less delicate fish at a lower price for scalloping or cooking.

In a country admirably supplied with lobsters the tiny crayfish cuts an insignificant figure, except in the eyes of those who by foreign travel have become awakened to its rare merit. To be thoroughly appreciated, the crayfish should be eaten hot, and "accommodated" *à la bordelaise*.

Among true fishes grey mullet holds the chiefest place during the present month. This excellent fish may be cooked in various ways—boiled, broiled, or *au vin blanc*. John Dory holds his position, but salmon is gone and codfish is hardly yet in season; turbot and brill are good in September, and the latter fish is no insignificant rival to the turbot.

Vegetables.—This month sees many of the winter's potatoes out of the ground, and stored in a dry dark place for winter. In choosing them it should be remembered that large deep eyes cut to waste. Champions, for instance, are good, but on this account not economical. A rough-skinned potato is generally floury; but there are many exceptions to this rule. Small potatoes are seldom economical, even at a low price, the waste in peeling being so great. The best way to try them is by cooking a few in various ways.

As the golden tints of summer are succeeded by

the brown hues of autumn, a certain falling off in vegetables begins to make itself felt; but ripe potatoes, scarlet tomatoes, creamy cauliflowers, and abundant artichokes console us in some measure for the asparagus, peas and beans of earlier days. Summer salads are scarce, while the celery and endive of winter have not yet appeared. Cold cooked cauliflower makes an excellent salad, and potato salad is well known in America and in Germany. The comparative cheapness of artichokes at this season is a strong inducement to indulge in one of the most delicate of all possible salads. Cut up and served either with plain salad dressing, or better still with a rich *mayonnaise*, artichoke bottoms present a delicious dish, and if a little cooked and finely minced truffle be added, the salad gains much in elegance and flavour.

It is a delusion to suppose that the small button mushrooms are the only variety worthy of careful cookery. The huge field mushrooms are excellent when toasted and eaten for breakfast, with a little pepper, salt, and butter, and a slice of well-made dry toast.

Fruit.—Stone-fruit of all kinds is to be had in abundance. Peaches and plums, apples and pears, form the basis of many charming tarts, pies, and puddings. West Indian pines are to be bought at a low price, and as the tropical fruit lacks the high flavour of hothouse fruit, it is perhaps eaten to the best advantage when sliced and dressed with wine, sugar, and a little orange or lemon juice. Magnificent melons of all sizes, shapes, and colours, from the huge green rosy-hearted water melon, and the rocky-looking Dutch variety to the elegant “cantelupe,” the dainty “nutmeg,” the recherché “green fleshed,” and

the tiny “golden drop.” In this country it is but too common to regard the melon simply as a dessert fruit, to be eaten with sugar and accompanied by wine. Eaten in this way the melon is excellent; but perhaps the true use of the melon, like that of most fruits, is to form the initial dish of the day. In America it is customary to begin breakfast with a melon seasoned with pepper and salt.

The apple crop is commencing in most parts of the country; but winter apples will not be picked until quite the end of the month.

Buying at the Stores almost necessitates buying in large quantities. Whether it is wise to do this more than one is compelled must depend to some extent on the facilities for keeping groceries. If they are anything tolerable, it will not be amiss to give a large order for necessaries at the beginning of the month or quarter, when last month’s earnings or income have just been paid. Some groceries improve by keeping, as, for instance, candles and soap, which harden by exposure to the air, and so do not waste in use.

Many others are no worse for keeping. Under this head come all the groceries that are sent out in air-tight tins and bottles, and these are also delightfully independent of a bad store-room; and the greater number of the rest will keep without harm in wood or earthenware for any reasonable length of time. The things that do harm with keeping are those that are artificially dried, such as oatmeal and maize meal, which readily take up moisture from the surrounding air and turn bitter. Salt, and, to some extent, sugar, have the same disagreeable absorbent power, but they can easily be dried, and return to their former condition. Cheese is another thing that

improves with keeping in a damp place, or closely covered; but, as the process of ripening is really a careful cultivation of mites and mould, and, as mould is fatal to most food, it is not wise to buy a store of cheese and keep it in the store-room.

To choose groceries is not always an easy thing. One would need to qualify for a buyer in the grocery trade to do it well. But a few hints every one can pick up, and every one will find useful. The quotations in the daily newspapers will not help us much, for those paragraphs bristle with trade terms, and are barely intelligible to the outsider. A grocer selects sugar by the taste and smell; to the average housekeeper all sugars smell alike. Mites are common in moist sugar, less so in crystallised, and they may be detected by dropping a pinch into water; the sugar sinks and the mites float. Presently the sugar dissolves, and the sediment may fairly be taken for sand or other adulterant. The profit on the sale of cane sugar has of late been extremely small; in fact, cane sugar has often during the past year sold for less than it cost to bring it to England. The chief adulterant used is grape sugar, which is made from starchy matter. Grape sugar has much less sweetening power than cane sugar—5 parts of the former doing the work of 3 of the latter—and it crystallises with difficulty. The sugar prepared from beet, of which much is used in England, is cheaper, and therefore it also may be said to be used as an adulterant, when it is passed off for cane sugar; but the two sugars nearly resemble one another, and there is no reason to suppose that beet sugar is unsuitable for preserving. There is, however, this difference in the two sugars—i.e. that the treacle drained off from beet sugar has an unpleasant flavour, and so cannot be used as cane treacle is.

Lump sugar and crystallised sugar are least likely to be adulterated, and are therefore better to buy than ordinary moist sugar.

Rice is sold under many names. Aracan is the lowest priced, and that grown in Rangoon is not much dearer. Patna rice is recommended for curries, because it is said to keep its shape better when boiled, and occasionally Carolina, which is very large grained, is spoken of. True Carolina is seldom met with in this country; there is but a limited supply, and little of that leaves America; selected Patna does duty under its name. The rice that swells most in cooking is the best. Rice is like potatoes, and different sorts develop different tendencies, and need different treatment. Good Rangoon is generally cheapest for household purposes, and good rice broken is more advantageous than inferior rice whole. Tapioca used to be an article of luxury, but is now as cheap as sago, which it strongly resembles in taste and nourishing power. Corn-flour can always be recommended. To ensure having a genuine article it is well to order the brand of an established house.

October.

Meat.—The grosser viands, supplied by the butcher, are in great perfection. Beef, mutton, and veal are all to be recommended, and lamb has been replaced by pork. Esteemed coarse and indigestible by many, the flesh of youthful swine yet possesses rare merits.

Game and Poultry.—Pheasants come into the market. Ude says they should “be eaten when blood runs from the bill, generally 6-7 days.” Cooked quite fresh, they have not much more flavour than a fowl; but the time of keeping depends on the weather. In

damp, warm weather nothing keeps long or well. The birds should be plucked just before cooking; always hung in the feathers. The development of the spur in the cock bird, and of the wing feathers in both cock and hen, show the age. The hen is smaller, but generally thought better.

Hares are plentiful. Many are brought from abroad. The average weight of a hare is about 5-7 lb., but it is not a suitable dish to serve for a large party, as, except for the slices on either side of the back, there are no choice morsels to be carved from a hare. There are few dishes that it is so hard to carve well. An old hare should be well hung, and jugged rather than roasted. It may be distinguished from a young one by its size, by the much-spread cleft in the upper lip, by the rough and blunted claws, and by the comparatively small size of the knee joints. A hare should hang some time, "better not paunched or skinned, but if paunched, it should be wiped inside every day, and sprinkled with pepper and ginger." Some persons advise that an old hare should lie for a time in vinegar and water. Vinegar always has the effect of softening the fibres of meat, and so making it less tough. It is for this reason that vinegar is often added to boiled meat or stew.

Rabbits are also very plump and good, and barndoor poultry is abundant. Capons, ducks, geese, and young turkeys crowd the markets. By no exercise of the culinary art can the tame duck be made to rival her wild compeer, but she is nevertheless very toothsome when "accommodated" *aux olives*.

Fish.—Among the fishes of the present month may be found John Dory, grey mullet, and red mullet. During October turbot is very fine. A sigh of regret must, however, be exhaled over the persistence of

English people in accompanying this delicate fish with the rich stew popularly known as lobster sauce. *Hollandaise* sauce and caper sauce are much to be preferred, for one reason among others, that they permit the epicure to taste the fried smelts or fried oysters, with which every turbot should be served.

Smelts, soles, whiting, skate, eels, and the famous Dublin Bay haddock are now in season; but although codfish is supposed to be "in" from September to March, the true gourmand will reserve the pleasure of discussing that magnificent dish—cod's head and shoulders with oyster sauce—until at least November. Sea bream, a fish in good condition during the autumn and winter, only requires to be properly understood and properly dressed to be thoroughly appreciated.

Vegetables.—Potatoes need be covered only when there is fear of frost; but they must never be exposed to the sun, especially when they are washed and freed from the particles of earth that cling to their skins. They should be turned over, and any diseased ones picked out from time to time.

The common way of buying potatoes is by weight or by measure. Small consumers almost always buy by weight, but it is not in any way a good plan. It is dear. 2*d.* a lb. is not an uncommon price; 9*s.* a bushel is almost unheard of. Last year it was easy to get very fair potatoes at 1*s.* 6*d.*-2*s.* a bushel of 56 lb. There must be few households where a bushel of potatoes could not be eaten while they were good, and they would keep very well in a sack at the bottom of a cupboard, if no better placed offered. In larger quantities they can be had cheaper than by the bushel. Just as with carrots, or onions; they are cheapest soon after they are dug out of the ground;

and carrots keep well in any outhouse or cellar that is fairly dry, stacked a few inches from the ground, and covered when the frost comes. Per bushel the price is very moderate; but they make a considerable item in housekeeping expenses when they are bought one or two at a time from the greengrocer's stall. Onions are even easier to keep, for they do not dry up as carrots are apt to dry in the kitchen cupboard, nor sprout so soon as carrots if they are too damp.

Vegetables are also sold by the sack or by the stone of 8 lb. Local customs vary much. The actual weights and measures are standard the same over all the country; but what is sold by weight in one county is sold by measure in another. One needs be a ready reckoner to turn pounds into gallons, stones into bushels or sacks, quarts into pecks. And it is easy to see that a given measure does not contain the same weight of any two things. A gallon nominally holds ⅛ of a corn bushel, which is 7 lb. Practically a gallon measure of fruit may weigh anything over 5½ lb. Sometimes though the measure is spoken of, the weight is given. Of course, the larger the fruit, the less advantageous to the purchaser to measure instead of weigh. The disadvantage may be enough to compensate for the great waste of small potatoes, small apples, or other fruit.

To pass over the truffle when discussing the luxuries of October would be an unpardonable omission. The diamonds of the kitchen are never in more superb condition than at present. On their immense value, from their faculty of communicating an incomparable flavour to everything with which they are associated, it is needless to dilate. France rejoices in no less than 4 species of truffles; and of these priority of place is universally granted to the

black truffle of Périgord.

Apart from the important position occupied by truffles in sauces, salads, *farces*, and entrées, the truffle possesses the admirable faculty of enhancing the flavour of Burgundy about fifty per cent.

With the exception of peas, beans, and asparagus, almost every vegetable is in season. Artichokes, tomatoes, *aubergines*, cardoons, cauliflowers, Brussels sprouts, and winter spinach may all be had.

Fruit.—Lovers of fruit may rejoice in late peaches and plums, early apples and delicious pears. Grapes are also abundant; and the advent of ripe walnuts is enthusiastically hailed.

Plums can be kept many weeks if wrapped in thin paper and laid singly on wood. Damsons and bullaces hang through the early frost, and can be kept through November, laid out on wooden trays. They are besides the most suitable fruit for bottling and preserving for tarts, and are greatly in demand, and generally much dearer than cooking plums.

Mulberries and blackberries are plentiful, but the former travel so ill that they have not much place in the markets. Blackberries are seldom sold except in country and seaside towns. The American blackberry, having a larger and fuller-flavoured fruit, and more serrated leaves, has been introduced into this country, and promises to be a valuable addition to our list of autumn fruits.

The best way of keeping ripe nuts is in an earthenware crock covered, in a cellar, where they remain quite moist up to Christmas. Those who have forgotten to make walnut pickle in July can turn the shells into good ketchup now.

Chestnuts are generally sent to our markets from abroad, and, there being little demand for them except as luxuries, they are dear. The Spanish chestnut grows and ripens well in many parts of England; but most of the trees are valued chiefly for their ornamental appearance, it not being worth while to plant trees for the sake of the nut harvest.

November.

Fish.—At the head of the fish list is the cod, which has never quite disappeared from the market, though its season is from November to March. It is best in cold, frosty weather, and caught in high latitudes. The Dogger Bank is the fishing ground best known by name, but there are several different species brought to the London market, which perhaps accounts for the great variety in the quality of this fish. A thick head, red gills, bright eyes, flesh bronze-shaded where it is cut, are all indications of a good and fresh fish. It should besides be elastic to touch, with a stiff back and tail, which shows that it is likely to be firm-fleshed. It will crimp only when it is very fresh. The sound and liver are both esteemed. Cod liver is a very suitable food to buy for an invalid, if it should happen to be relished, as it is both nourishing and digestible.

The following are mentioned as fish in season; Barbel, brill, carp, cod, dace, eels, haddocks, herrings, ling, perch, pike, plaice, skate, smelt, soles, sprats, tench, whiting, cockles, mussels, crabs, lobsters, oysters. In this country fresh-water fish do not form an important article of food. Their excellence depends almost entirely on the character of the stream in which they are caught. Like all fresh-water fish, the larger they are the better. Shell-fish are also among the foods that vary most

according to special conditions of their life. Well-known instances of mussels having proved poisonous when taken from the copper sheathing of an old pier, and of shrimps that caused symptoms of poisoning because they were caught at the outlet of a sewer, have originated a belief that to eat any cheap shell-fish is dangerous to health. But there seems no foundation for the belief.

Meat.—There is nothing new to be said about meat this month. Beef, mutton, veal, doe venison, pork are in season. Small pork, with a thin rind, a fair amount of fat, finely-grained lean, and small bones is to be chosen for roasting; bacon pork is fatter and larger. The quality of pork depends on the food that has fattened it.

Game and Poultry.—Birds are never more plentiful than in November. Partridges, pheasants, grouse, wild duck, teal, plover, dotterel, woodcock, snipes, widgeon, ducks, geese, turkeys, fowls, are all in season. The best turkeys are said to be fattened in Norfolk. At any rate, most persons will agree that those fed and fattened in England are preferable to those sent from Ireland, France, or Belgium. The number consumed in England at Christmas is very much greater than the number fattened in this country. The best indication of youth is the absence of spur and the smooth skin, soft and silky to touch, which with age becomes hard and wrinkled. As to plumpness, that may be felt by the breast and thighs. It is not quite easy to see if a fowl is plump, for either it has its feathers on or else it is trussed, and the skill of the poulterer is used to give the bird its best possible appearance. With this aim it is pressed into a round plump shape, a thin layer of fat is laid over the breast, known as the leaf, and supposed to

come out of the bird, but quite as often fetched from the butcher's shop, and even white down is powdered over and secured with a little gum. A hairy turkey, with reddish or purplish thighs and back, is likely to be old, so is one of unusually large size. The chief attainment of a successful poultry breeder is to get size and youth together, but it is only the successful who accomplish it.

Partridges and pheasants are much cheaper than last month. It is no longer quite so easy to distinguish old birds from young, as the plumage is gradually developing. One sign of youth is that the penfeathers are pointed in a young, rounded in an old bird. It happens very often that wild duck, widgeon, teal, and sometimes the common plover are sold at a very low price in the London markets, or are hawked about the streets. All these birds are apt to be coarse-flavoured, rank, and fishy. It is rare that a widgeon is anything else. Teal is the best of the three, and a good wild duck is not to be despised. The most of them are caught in the fens of Lincolnshire, where they abound. All these birds have soft pliable legs and feet while they are fresh, and the legs very soon dry and stiffen. They should be eaten as fresh as possible, for keeping only develops the oily flavour. Of plovers there are two kinds, the golden and the grey, the latter being the commoner and the former the better kind. Neither is so commonly seen on fashionable tables as plovers' eggs, for which, however, the eggs of other semi-aquatic birds are often substituted.

Coals.—A few words about coals may not be unacceptable to some housekeepers. They always last longer if they are kept in a well-ventilated coal-cellar. Shut up, they give off gas, which helps

forward their speedy consumption, and is also unwholesome to the inmates of the house. Country people cannot do better than keep the coals out of doors—that is, if they can so arrange that they are not likely to be stolen to any large amount. If they are wetted, so much the better, for they burn slower, and make less dust. By far the cheapest way is to have a truckload (about 7 tons) direct from the colliery; in that way they cost several shillings a ton less. The coalheaver is one of those public functionaries who comes in for a good share of general abuse. As coals are sold by weight, the most obvious way of delivering short measure is by wetting them, when a given bulk weighs more. It is also easy to fill the sacks less than full. A respectable coal merchant would not lend himself to any such practices. Of course, with connivance of the servants, it is easy to deliver any quantity of coals a sack or two short; but that might equally be said of any other goods. Coke helps much to economise coal, and should be purchased of the gas company. Briquettes made of coal-dust are very cheap and most enduring fuel; they are sold by special agents.

December.

Meat.—All meats are in their primest condition in this month.

Game and Poultry.—Barndoor poultry specially challenges attention during the present month. Deliciously plump, fat, well-fed capons come from the Eastern counties.

To the enormous turkeys so popular at Christmas-tide we cannot accord unqualified admiration, as they are terribly apt to be dry and tasteless—not to say stringy. Smaller turkeys than those in fashion at

the present moment yield a far greater amount of satisfaction. Perhaps the best way to deal with a turkey of exaggerated dimensions is to boil and serve it with celery sauce or oyster sauce, both excellent accompaniments to any kinds of boiled poultry.

Towards the end of the month doe venison puts in an appearance. Hares and wild rabbits are still very good, and even tame rabbits, when very fat, are by no means to be despised. Rabbits are often sold skinned and trussed for table, and in that state they are not so easy to choose well. The claws should be smooth and sharp, the knee joints large, the ears soft; when it is old its fur turns grey. If fresh it will be supple and moist, with a blue tinge on the flesh. Wild rabbits have more flavour; tame are whiter, fatter, and more delicate. Fowls, geese, pigeons, teal, turkeys, widgeon, wild duck, larks, ortolans, partridges, pheasants, plovers, quails, snipe, woodcock, and swan are all in season just now, and at no time is there so much choice of birds. Pigeons vary much; to waste and to fatten is with them only the work of hours. They should not be fully fledged when they come to table, and the fillets should be bright red; when old these darken to purple and the legs are thin.

Grouse are getting scarce, and are but feebly replaced by capercailzie and ptarmigan. Partridges and pheasants are still in prime condition, and all sorts of water-fowl are in great abundance. Woodcock and snipe, having had ample time to recuperate after their migration, are now superbly plump, while to those who cannot afford such expensive luxuries the golden plover affords a tolerable substitute. The lark also affords a toothsome morsel.

Fish.—Codfish is now in its prime; the perennial sole still appears in many shapes on well-appointed tables; while sturgeon, turbot, skate, whiting, and the delicious smelt contend for notice. Red mullet also charms the eye and palate.

Vegetables.—The vegetable world, albeit less generous than in the summer months, still affords sufficient luxuries. Brussels sprouts, spinach, savoys, and Scotch kale, rival in tenderness the excellent greens so much sought after at Christmas. Carrots are still good; while cardoons and salsify—a root which has curiously enough, like cardoons, dropped out of fashion in England—are also to be obtained. Radishes, endive, and beetroot supply salads, and celery is in prime condition.

Forced seakale and beans are already in the market. Broccoli, parsnips, celery, artichokes, turnips, leeks, onions, sorrel, beet, winter salads, are the commonest vegetables.

Fruit.—For fresh fruits we have apples and pears home-grown, and apples, oranges, tomatoes, grapes from abroad, and hothouse pineapples and melons. In dried fruits the choice is endless. Raisins, currants, and sultanas are but three names given to many different kinds of dried grape. They should be plump and moist, and have few or no stones in their skins. Large cake-makers often pour boiling water on them to make them swell and look plump in the cake. The relative prices vary a good deal. As a rule, currants cost less than raisins or sultanas; but then they are not so nourishing nor so sweet, and they do not go so far. The best raisins are generally sold on the stalks for table fruit, and they are to be preferred for cooking. From raisins one passes by an easy transition to almonds. Jordan almonds are about

double the price of the Valencia, which, however, serve very well for many purposes. The best are long and oval-shaped, the commoner kind rounder and flat. Bitter almonds come from Mogador. Peach nut oil is often used to flavour in their stead, but should be used with great care, as it is a poison; indeed, many persons cannot eat anything flavoured with bitter almonds, even though the flavouring is not at all strong. Green almonds and pistachio nuts are very much liked by some persons, but they are not imported in large quantities, possibly because they soon turn rancid.

All kinds of French and Portuguese plums are said to improve by keeping. The various kinds of tinned fruits have, to some extent, driven these out of popular favour.

Supplementary Literature.

F. R. Hogg: 'Indian Notes.' London. 1880. 5*s.*

Dr. R. Riddell: 'Indian Domestic Economy and Receipt Book, with Hindustan romanized names; comprising numerous directions for plain wholesome cookery, both Oriental and English; with much miscellaneous matter, answering all general purposes of reference connected with household affairs likely to be immediately required by families, messes, and private individuals residing at the Presidencies or out-stations.' Calcutta and London. 8th edition, 1877. 6*s.*

The *Queen*. London, weekly. 6*d.*

THE DINING-ROOM.

Dietetics.—The naturally proper introduction to the art of serving meals is a knowledge of the science of eating. To gain this it is not necessary to study anatomy, nor physiology, nor even chemistry; it is sufficient for the ordinary individual to make himself familiar with the main facts relating to the nutritive and digestive qualities of the various foods, and to exercise a moderate amount of common sense in applying the facts to his own particular case.

Quantity and Quality of Food needed.—The subject has recently been attacked in very sensible language by Dr. R. M. Hodges, in a paper read before the Boston Society for Medical Improvement, from whom much that follows is quoted.

Dr. Hodges remarks that the amount of food required by a healthy adult will surprise most persons, even those who are good feeders. While this varies with the work performed, the heat or cold of the weather, and the condition and quality of the food taken, it has been estimated that, in the case of a man in health and of average size, the total daily ration should weigh about 6 lb. 13¼ oz., of which 1 lb. 5¼ oz. consist of dry food substance, the remaining 5½ lb. being water.

According to Church, under ordinary circumstances a daily ration should contain something like the following proportions and quantities of its main ingredients:—

Water	5 lb. 8 oz.	320 gr.

Albuminoids, or flesh-formers	0 lb.	4 oz.	110 gr.
Starch, sugar, &c.	0 lb.	11 oz.	178 gr.
Fat	0 lb.	3 oz.	337 gr.
Common salt	0 lb.	0 oz.	325 gr.
Phosphates, potash, salts, &c.	0 lb.	0 oz.	170 gr.

This might be furnished by a mixed diet of the following foods:—

	oz.	
Bread	18	}
Butter	1	}
Milk	4	}
Bacon	2	} Altogether these quantities
Potatoes	8	} will contain about
Cabbage	6	} 1 lb. 5¾ oz. of dry substance,
Cheese	3½	} though they weigh
Sugar	1	} in all 6 lb. 14½ oz.
Salt	¾	}
Water alone and in tea, coffee, beer, &c.	66¼	}

It will be seen that the weight of this allotment exceeds by 1 oz. even when the solid matter contained in beverage is omitted—that of the analytic table which precedes it. This excess is

mainly owing to the fact that in all articles of food actually used there are small quantities of matters (cellulose, &c.) which cannot be reckoned as having a real feeding value. (A. H. Church, 'Food.')

Authorities on the subject of diet say that nitrogen is the most essential of all foods, and that a certain amount—about 316 gr.—should be taken daily by an adult man. If the minimum quantity of nitrogen (which, for the sake of argument, may be put as low as 250 gr.) be not consumed, the various functions of the body languish, and a degree of weakness is induced, with greater or less rapidity, according as the quantity falls much or little below 250 gr. per diem. But let the consumption drop to an average of only 138 gr., which is the smallest amount necessary for the bare maintenance of life, and in a year or two (not at once, for every body contains a store of nitrogen) important modifications of the nutritive processes, with distinct predispositions to disease, will inevitably be established. (Parkes.)

These results of experimental investigation have a practical significance. They find expression in the fact that a failure to consume all the essential elements of full rations, whether nitrogenous or non-nitrogenous, will sooner or later, as in the disastrous Irish and Lancashire famines, give rise to a train of symptoms which have been justly denominated those of "chronic starvation."

From the small knowledge of the value of food possessed by individuals as well as the public, a diminution in its adequate supply easily escapes attention; loss of appetite is looked upon with indifference, and the first steps are inadvertently taken toward a condition which is as full of meaning in the case of a single person as when a whole

community are its subjects. The absence or the keenness of appetite affords no indication of the amount of food which the stomach will digest and the body assimilate or an individual be benefited by swallowing.

The body requires not only to be fed, but filled; and the object of eating is as often to bring up past arrears as to supply present demands. Quality of food, with all the heat and force it may contain, will not make up for quantity, which is required for constructive and reparative purposes. The constant waste of flesh and blood can only be compensated for by an equivalent assimilation of actual materials. Yet, in spite of this self-evident proposition, a large proportion of the better educated classes of the community readily deceive themselves and mislead others in regard to the amount of food necessary for their welfare and nutrition.

From a practice, often beginning in infancy with the common maternal prejudice against giving solid food at a sufficiently early period and in adequate amount, persisted in through childhood from an erroneous idea that “meat once a day” is an ample supply of animal food, still continued during adolescence, especially in the case of girls, under the conceit that eating heartily, or “between meals,” is neither wholesome nor lady-like, a habit of going without enough sustenance is finally established in adult life which is further perpetuated and confirmed by a great variety of influences. Among the more common may be mentioned personal temperament, disturbed mental conditions, languid indoor life, fatigue and exhaustion, theoretical dietetic prejudices, fastidiousness as to eatables, unwise distribution of meals, insufficient variety of food, too

rigid domestic economy, and, pre-eminently, the revived fashion of tight lacing. These, and a multitude of similar agencies, apart from pathological derangements, are well-recognised causes of deficient bodily nourishment and prolific sources of disturbed health, revealing themselves in deficient weight, "weakness," anæmia (want of blood), feeble circulation, neuralgia, cough and throat trouble, constipation, headache, backache, nausea, and a variety of phenomena, unconnected with sensible organic alterations, but characterised by neurotic and functional symptoms easily magnified by the patient and overtreated by the physician.

As testifying to the widespread ignorance relating to food and feeding, the following extract may be quoted from the *Medical Times and Gazette*, May 24, 1884, p. 712:—"At the existing (1884) International Health Exhibition, London, the 'Vegetarian Society' are furnishing a sixpenny dinner to 400-500 people daily. From a carefully kept account of the substances used for the bill of fare the following 'food equivalents' have been reduced, showing that each diner receives, of

Albuminoids	0·63 oz.
Fat	0·44 oz.
Carbohydrates	3·17 oz.
Mineral matters	0·09 oz.

Physiologists lay down the standard diet for ordinary labour pretty much as follows:—

Albuminoids	4·2 oz.
Fat	1·6 oz.

Carbohydrates	18·7 oz.
Mineral matters	1·0 oz.

It appears, therefore, that it would require about six of the sixpenny dinners to support a man during a day's hard labour."

The consequences of an insufficient dietary, says Hodges, are most frequently exemplified in young people, of both sexes, growing school children, boys fitting for college, *débutantes* in society, young mothers of families, seamstresses, shop girls, &c.; and, although they also appear at other periods of life, and under other circumstances than those which have been enumerated, it is during the years of adolescence that the utilisation of feeding has its supreme value, and its prophylactic and curative effects, as a therapeutic method, are most easily obtained. Sir Andrew Clark, Grailly Hewett, Clifford Allbutt, and others, who have described the ailments which follow inadequate alimentation, have especially urged the necessity for greater attention to the question of diet in the bringing up of families.

The underfed constitute so considerable a class that a large part of medical practice is devoted to attempts at satisfying their importunate demands for "something which shall make them feel better." To attack with drugs symptoms which are daily regenerated by starvation is labour in vain, so long as that condition is permitted to exist. But if the famished tissues of those who say they are not sick, and there is nothing the matter with them, only that they "do not feel well," and "cannot eat," be permeated with the fat which is so often loathed in food—if veins be filled with a more bounteous supply of blood, and if outdoor air be made

attainable without the expenditure of an already slender supply of strength—their bodily functions will take on renewed vigour and be reanimated from better life-giving resources, force will be stored up, energy will be developed, and innumerable discomforts evicted. The futile use of iron, quinine, bitters, elixirs, and other so-called “tonics,” either when self-prescribed or methodically directed by physicians, and the insuccess of medicines, as a rule, to relieve the wearisome complaints daily listened to from persons whose mode of living is an injustice to themselves, do not always serve as a reminder that suitable nutriment, in some form or other, is the only real “tonic,” and that its methodical consumption can alone relieve the protean afflictions of many, if not most, of these querulous supplicants. To say to them in a vague and general way that a nourishing diet should be taken, and that anxiety and overwork are to be avoided, is to give weak advice. The most rigid and literal obedience to fixed and precise rules in regard to the quantity and character of their food and the times of taking it—in fact, the carrying out of a process of “stuffing,” practised at short intervals of time, without regard to appetite and pushed to the stomach’s maximum capacity of digestion—is necessary to extricate them from their deplorable situation.

The theoretical standard of a full ration has been given. The conventional standard, however, is an unsettled one. The statement that a person eats as much as other members of his or her family may mean a great deal or nothing, for there are large and small eaters both by habit as well as by example, and there can be no criterion of the amount proper to be eaten under given circumstances except that which is determined by a physician’s judgment. This amount,

as has been said, should not only be specified exactly, but its consumption ensured, and nothing but precise and positive evidence accepted in regard to the fulfilment of the specifications given. (R. M. Holmes.)

Function of Food.—The subject is treated from another point of view by F. W. Moinet, in a lecture on Food and Work, read before the Pharmaceutical Society, who observes that as the food we eat or drink—the latter term applying only to the condition of the article used whether fluid or solid—is the only source from which the elements forming the constituents of the body are derived, it naturally follows that no article of food can satisfy the requirements of life which fails to comply with this condition. But as comparatively few articles of food contain all these elements, or in their proper proportion, it follows that we must combine different articles of food together to make a satisfactory meal, i.e. a meal not only sufficient to satisfy the appetite, but also capable of supplying the different elements required by the tissue to replace what has been spent on work. Hence the reason and necessity of living on a varied diet, which experience taught our ancestors long before the scientific facts on which it is founded were discovered. For with the exception of milk, which is a perfect food, no ordinary article of diet contains all the necessary elements. But this is not only a necessity, but also a great advantage, as our food would be very apt to pall on our palates were it always the same, so nature liberally supplies us with a great variety to choose from, which are nearly equally capable of nourishing the body, and at the same time suiting different tastes, which to some individuals is a matter of importance, either from habit or natural peculiarity, still more valuable to the

invalid whose recovery sometimes depends not on medicine, but on diet.

Another reason of this variety in nature is that all animals and vegetables are not found to flourish under the same conditions of climate and soil; hence in different countries the food supply is often obtained from different sources, plants and animals, especially the former.

The function of food may be described as twofold: —1st, to afford material to replace what is spent in labour, physical or mental, muscular or brain; 2nd, to supply fuel which is spent in force.

A considerable proportion of our food, especially the fatty and starchy matters, after being digested and assimilated and stored up in the various tissues, is slowly burnt or oxidised by the oxygen which has been carried from the lungs by the blood; the fat is decomposed into carbonic acid and water, which are given off by the lungs and the kidneys and skin. By this oxidation, or burning, heat and force are generated to keep up the temperature of the body and keep the vital functions going, and to supply physical and mental energy, all the internal and external work of the body being performed by the combustion of the stored-up fat in the tissue. Hence the necessity of a regular and constant supply of food to warm the body, supply mental and physical energy, and repair the waste of the tissues. This brings us naturally to consider next whether this twofold function of food is performed by the same or any article of food. In some cases it is; but as most articles of food do not contain the substance required in suitable proportion to perform both these functions, we require to take more than one article of food to make up what the other lacks, and in this

way we get a diet sufficient to fulfil both these functions. It is for this reason that articles of food, or their nutritive principle, have been classified according as they contribute especially to the growth and nutrition of the body, or to the production of heat and force, into two great classes:—(*a*) Heat-producers; (*b*) Flesh-formers, or non-nitrogenised and nitrogenised compounds.

(*a*) *Heat-producing, or Non-nitrogenised.*

Sugar	}		{	Carbon
Starch	}	composed of	{	Hydrogen
Gum	}		{	Oxygen
Oils and Fats	}			

(*b*) *Flesh-forming, or Nitrogenised.*

			{	Carbon
Albumen	}		{	Hydrogen
Gluten	}		{	Nitrogen
Fibrin	}	composed of	{	Oxygen
Casein	}		{	Sulphur and
Legumin	}		{	Phosphorus

Of these compounds those which contain nitrogen are used principally for building up the muscles, while those which contain no nitrogen are burnt up in the body to yield heat and force. The flesh-forming compounds are not obtained solely from

animal food, as gluten and legumin are derived from the vegetable kingdom, from cereals and peas and beans respectively; while the heat-producers, with the exception of some oils and fats, are obtained solely from the vegetable kingdom. So that for perfect health our food must contain sufficient of both these two classes of compounds to repair the tissues, and to supply heat and force (the mineral substances being contained in these compounds, also partly supplied by the water we drink). As to the relative proportion in which they should be present in our food, there is no hard and fast line; this would be an impossibility unless we were to weigh and analyse every article we eat. We judge by experience what will satisfy the appetite and enable us to feel up to our work. Besides, it must vary considerably according to circumstances,—1st, the amount of work or exercise; 2nd, the climate. Thus physical or bodily exercise compels us to eat more than when idle, our increased hunger or appetite being nature's method of indicating to our minds that our bodies require food to replace what has been expended in force and to repair the waste of the tissues. Then the colder the climate more food is required, especially of the heat-giving varieties, as more will be spent in keeping up the warmth of the body. Cold is also more conducive to physical work than warm weather, so that for this reason also more food is required in a cold climate.

The following table by Dr. Stevenson Macadam gives an idea of the relative amount of flesh-formers and heat-producers in certain articles of food, showing the amount of heat-producing elements they contain for every 10 parts of flesh-formers.

	Flesh-forming.	Heat-producing.
Rice	10	123
Potatoes	10	115
Barley	10	57
Oatmeal	10	50
Wheaten Flour	10	44
Milk	10	40
Fat Pork	10	30
Fat Mutton	10	27
Beans	10	22
Beef	10	17
Hare	10	2
Veal	10	1

In the tropics, where little exercise can be taken, the waste of tissues is small, so that little nitrogenous food is required, and only a moderate amount of fat is taken; the need of heat-producers is comparatively small, so that starchy products, as millet and rice, are the principal articles of food. But gradually as we come north there is a marked increase both in the fatty and nitrogenous articles of food, until in the Arctic zone oily substances and animal food are the staple articles of existence, the amount of them that an Esquimaux will eat being something almost incredible, yet necessary to resist the severe cold.

The vegetable kingdom alone can supply all that is necessary for the human body both of flesh-forming and heat-producing substances, and we must not for a moment imagine that animal food is the only source of flesh-formers, as the world's population is supported to a large extent on vegetable products, especially in tropical regions, while in colder

climates, where vegetable products are hardly to be obtained, flesh and fat are indispensable. Thus man is clearly omnivorous; while men may be advantageously almost vegetarians in one climate, mixed eaters in another (as with us), and almost exclusively flesh eaters in a third, as in the Arctic regions. But there are some people who live exclusively on a vegetable diet (vegetarians) in our country, believing that such a diet is right in principle. Only those are true vegetarians who exclude milk, butter, eggs and cheese, as these are the very essence of animal food.

Man is capable of deriving all that is required for living and working from the animal or vegetable articles of food, either separately or combined. The question, therefore, is whether a purely vegetable diet or a mixed diet of vegetable and animal food is the better suited for our existence. To judge the question we have some facts to go upon. (1) We are so physically constructed as to be able to derive our nourishment from both animal and vegetable food. (2) In the Arctic regions hardly any vegetables are to be obtained. (3) Man alone has the intelligence to obtain food from all sources, and, by cooking, to render it fit for nourishment. It apparently follows, therefore, that while we are suited for either diet, or rather a combination of both, we may also select to some extent our diet according to our individual taste, habit of body, and other circumstances, as work and climate, experience having taught us that for the enjoyment of good health our diet must be regulated by the circumstances we have mentioned.

Nutritive values of Foods.—The following tables, based on those published by Letheby,[2] show the nutritive values (per lb.) of various food-stuffs, with

their composition.

(*a*) ANIMAL FOOD-STUFFS.

	Value per lb.	Carbon.	Nitrogen.
	d.	Grains per lb.	Grains per lb.
Butter, fresh	16	6456	—
Butter, salt	12	4585	—
Lard	9	4819	—
Bacon, dry	9	5987	95
Cheese, cheddar	8	3344	306
Beef	8	1854	184
Bacon, green	8	5426	76
Suet	7	4710	—
Pork, fat	7	4113	106
Dripping	6	5456	—
Mutton	5	1900	189
Herrings, red	4	1435	217
Cheese, skim	3	1947	483
Liver, bullocks'	3	934	204
White fish	2	871	195
Milk, new	2	599	44
Milk, skimmed	1	438	43
Buttermilk	½	387	44
Whey	½	154	13

(*b*) VEGETABLE FOOD-STUFFS.

	Value per lb.	Carbon.	Nitrogen.
	d.	Grains per lb.	Grains per lb.

Sugar	5	2955	—
Cocoa	4	3934	140
Oatmeal	2	2831	136
Pearl barley	2	2660	91
Rice	2	2732	68
Flour, seconds	1½	2700	116
Bread, bakers'	1½	1975	88
Rye meal	1¼	2693	86
Peas, split	1	2698	248
Maize meal	1	3016	120
Barley meal	1	2563	68
Carrots	1	508	14
Parsnips	1	554	12
Beer and porter	1	274	1
Treacle	1	2395	—
Potatoes	½	769	22
Turnips	½	263	13
Vegetables, green	½	420	14

Digestibility of Foods.—There cannot be the least doubt that in the matter of digestion no rule holds good for all stomachs alike, and it is absurd to attempt to lay down a hard and fast line. At the same time, some idea of the relative period required to digest various substances may be gained from a study of the published results of experiments, though one very doubtful element is left out of the case altogether, namely, the quality of the cooking, which every one knows influences the digestibility of the food. The most complete list is that by Dr. Beaumont, from observation of the process in the stomach of a wounded soldier.

Articles.	Preparations.	Time. h. m.
Rice	Boiled	1.0
Pigs' feet, soused	Boiled	1.0
Tripe, soused	Boiled	1.0
Trout, salmon, fresh	Boiled	1.30
" " "	Fried	1.30
Apples, sweet, mellow	Raw	1.30
Venison, steak	Broiled	1.35
Sago	Boiled	1.45
Apples, sour, mellow	Raw	2.0
Cabbage, with vinegar	Raw	2.0
Codfish, cured, dry	Boiled	2.0
Eggs, fresh	Raw	2.0
Liver, beef, fresh	Broiled	2.0
Milk	Boiled	2.0
Tapioca	Boiled	2.0
Milk	Raw	2.15
Turkey, wild	Roasted	2.18
" "	Boiled	2.25
" domesticated	Roasted	2.30
Potatoes, Irish	Baked	2.30
Parsnips	Boiled	2.30
Pig, sucking	Roasted	2.30
Meat hashed with vegetables	Warmed	2.30
Lamb, fresh	Broiled	2.30
Goose	Roasted	2.30
Cake, sponge	Baked	2.30
Cabbage-head	Raw	2.30
Beans, pod	Boiled	2.30
Custard	Baked	2.45
Chicken, full-grown	Fricasséed	2.45
Apples, sour, hard	Raw	2.50

Oysters, fresh	Raw	2.55
Bass, striped, fresh	Broiled	3.0
Beef, fresh, lean, rare	Roasted	3.0
” steak	Broiled	3.0
Corn-cake	Baked	3.0
Dumpling, apple	Boiled	3.0
Eggs, fresh	Boiled soft	3.0
Mutton, fresh	Broiled	3.0
Mutton, fresh	Boiled	3.0
Pork, recently salted	Raw	3.0
Soup, chicken	Boiled	3.0
Oysters, fresh	Roasted	3.15
Pork, recently salted	Broiled	3.15
Pork, steak	Broiled	3.15
Corn-bread	Baked	3.15
Mutton, fresh	Roasted	3.15
Carrot, orange	Boiled	3.15
Sausages, fresh	Broiled	3.20
Beef, fresh, lean, dry	Roasted	3.30
Bread, wheat, fresh	Baked	3.30
Butter	Melted	3.30
Cheese, old, strong	Raw	3.30
Eggs, fresh	Hard boiled	3.30
” ”	Fried	3.30
Flounder, fresh	Fried	3.30
Oysters, fresh	Stewed	3.30
Potatoes, Irish	Boiled	3.30
Soup, mutton	Boiled	3.30
” oyster	Boiled	3.30
Turnip, flat	Boiled	3.30
Beets	Boiled	3.45
Corn, green, and beans	Boiled	3.45

Pork, recently salted	Raw	3.0
Beef, fresh, lean	Fried	4.0
Fowls, domestic	Boiled	4.0
" "	Roasted	4.0
Veal, fresh	Broiled	4.0
Soup, beef, vegetables and bread	Boiled	4.0
Salmon, salted	Boiled	4.0
Heart, animal	Fried	4.0
Beef, old, hard, salted	Boiled	4.15
Pork, recently salted	Fried	4.15
Cabbage, with vinegar	Boiled	4.30
Ducks, wild	Roasted	4.30
Pork, recently salted	Boiled	4.30
Suet, mutton	Boiled	4.30
Veal, fresh	Fried	4.30
Pork, fat and lean	Roasted	5.15
Suet, beef, fresh	Boiled	5.30
Tendon	Boiled	5.30

This may be compared with the following table of precedence in digestibility of some animal foods, on the authority of Chambers:—

Sweetbread and Lambs' Trotters.	Roast Veal.
Boiled chicken.	Boiled Veal, Rabbit.
Venison.	Salmon, Mackerel, Herring, Pilchard, Sprat.
Lightly Boiled Eggs, New Toasted Cheese.	Hard-boiled and Fried Eggs.

Roast Fowl, Turkey, Partridge, and Pheasant.	Wood Pigeon, Hare.
Lamb, Wild Duck.	Tame Pigeon, Tame Duck, Goose.
Oysters, Periwinkles.	Fried Fish.
Omelette (?), Tripe (?).	Roast and Boiled Pork.
Boiled Sole, Haddock, Skate, Trout, Perch.	Heart, Liver, Lights, Milt, and Kidneys of Ox, Swine, and Sheep.
Tripe and Chitterlings.	Lobsters, Shrimps, Prawns.
Mutton.	Caviare.
Roast Beef.	Smoked, Dried, Salt, and Pickled Fish.
Boiled Beef.	Crab.
Rump Steak.	Ripe Old Cheese.

The contradictions are sufficiently glaring.

From some recent experiments by Jessen it would seem that raw meat is more digestible than cooked, which is perhaps not astonishing when due allowance is made for the way in which that operation is often performed. Thus the times required for digestion were:

Raw beef, shaved fine	2	hours.
” mutton	2	”
” veal	2½	”
Boiled beef, half done, shaved fine	2½	”
Raw pork	3	”
Boiled beef, well done, shaved fine	3	”

Roast beef, half done, shaved fine	3	”
Roast beef, well done, shaved fine	4	”

Klenze, experimenting on 18 kinds of cheese, found that cheddar was digested in the shortest time (4 hours), while unripe skim Swiss cheese required 10 hours for solution. There is no difference in the digestibility of all sorts of hard cheese, or all soft cheese, but all fat cheeses are dissolved the most rapidly, because, being open by reason of the fat, they are the more readily attacked by the solvent. There is no connection between the digestibility and the percentage of water present in the cheese, but there is some connection with the percentage of fat and the degree of ripeness.

Animal Foods.—There is surely no need to insist on the value of animal foods. At the same time there can be no doubt of a general tendency among town dwellers to eat too much meat. Twice a day is quite often enough for a meat meal, and then it should not form more than about ⅕ of the whole meal. Fresh fish is an excellent and wholesome substitute for meat, especially in the case of brain workers. Cheese is highly nutritious, but digestible only by those living out of doors; this does not apply, however, to the soft cream-cheeses. Lard, dripping, butter, and even butterine or bosch, have great value as heat-producing foods.

Vegetable Foods.—Few people rightly estimate the true value of vegetables, apart, that is to say, from the starchy products of the vegetable kingdom, such as potatoes, sago, rice, &c. Many people hardly think of eating cabbage or spinach with their meat, yet

there is no more wholesome food as an adjunct to the dinner table. The same may be said of many other vegetables. On the authority of the *Medical Record*, asparagus is a strong diuretic, and forms part of the cure for rheumatic patients at such health resorts as Aix-les-Bains. Sorrel is cooling, and forms the staple of that *soupe aux herbes* which a French lady will order for herself after a long and tiring journey. Carrots, as containing a quantity of sugar, are avoided by some people, while others complain of them as indigestible. With regard to the latter accusation, it may be remarked, in passing, that it is the yellow core of the carrot that is difficult of digestion—the outer, a red layer, is tender enough. In Savoy the peasants have recourse to an infusion of carrots as a specific for jaundice. The large sweet onion is very rich in those alkaline elements which counteract the poison of rheumatic gout. If slowly stewed in weak broth, and eaten with a little Nepaul pepper, it will be found to be an admirable article of diet for patients of studious and sedentary habits. The stalks of cauliflower have the same sort of value, only too often the stalk of a cauliflower is so ill-boiled and unpalatable that few persons would thank you for proposing to them to make part of their meal consist of so uninviting an article. Turnips, in the same way, are often thought to be indigestible, and better suited for cows and sheep than for delicate people; but here the fault lies with the cook quite as much as with the root. The cook boils the turnips badly, and then pours some butter over it, and the eater of such a dish is sure to be the worst for it. Try a better way. What shall be said about our lettuces? The plant has a slight narcotic action, of which a French old woman, like a French doctor, well knows the value, and when properly cooked is really very

easy of digestion.

Fruits.—There are few who cannot enjoy fruit in one form or another. For diabetics only the least desirable kinds, as certain nuts and almonds, are available, all others, as containing sugar, being forbidden. Sufferers from acid dyspepsia must select carefully, and limit their consumption to the least irritating—a few strawberries or a few grapes. Diarrhœa and dysentery preclude the use of all fruit. On the other hand, for constipated persons it is sometimes the only trustworthy remedy which they can use continuously with comfort; it is also of benefit in renal diseases, by its action on the bowel. Atonic persons generally take it well, and feel the better for its digestive property Those in normal health may eat almost any ripe fruit. The bland varieties are the most wholesome and nutritious—strawberries, apples, pears, grapes, and gooseberries. The last named, however, with currants and raspberries, are less wholesome than the others. Stone-fruits are apt to disagree with the stomach; but the more watery, as peaches and large plums, are better than the smaller and drier, as apricots and damsons. The pulp of oranges renders them heavy. Among other foreign fruits, bananas are wholesome. Dried fruits and the skin of fruits in general are indigestible. Nuts, the edible part of which is really the seed, contain much albumen and some fat in a condensed form, and are particularly difficult of digestion. Fruit may be taken with a meal or on an empty stomach. In the former case it promotes digestion by its gently irritating effect on the mucous membrane of the stomach and intestine. If an aperient effect be desired, it had better be taken in the morning before breakfast or between meals. A succulent and pleasantly acid variety is best for both

of these purposes, while it is also a food. The quantity of fruit which should be taken depends on the kind. If it belongs to the bland nutritious class, a healthy person may now and then partake of it as freely as of any other wholesome food; but he will gain most benefit if he take only a little, and take it regularly. The same may be said of the invalid with whom fruit agrees. Cooking removes much of the acidity from crude fruit, and renders it lighter as well as more palatable. So treated, it is productive of good and no harm; but it is a fundamental principle that whatever fruit is eaten uncooked must be fully ripe and not over-ripe. This may sound trite, and indeed the principle is commonly admitted, but not, it would seem, by all, for we still find people, and not a few, who will themselves deliberately take, and worse, will give to their children, green gooseberries, green apples, &c., the very hardness of which, apart from their acid pungency, suggest their unfitness for digestion. Such people use as food an acid irritant poison, whose necessary action is to cause excessive intestinal secretion, with more or less of inflammation. Hence arises diarrhœa. On the other hand, fruit which is over-ripe, in which fermentation has begun, is a frequent cause of this disorder, and equally to be avoided, and perhaps also more difficult to avoid because the insidious beginning of decay is not easily recognised. It should never be forgotten by any who incline to follow the season in their feeding, that the want of such precautions as the above may produce that dysenteric form of diarrhœa, “British cholera,” which is occasionally as rapidly fatal as the more dreaded Asiatic type of that disease. (*Brit. Med. Jour.*)

Bread and other Grain Foods.—Arguments on the bread question threaten to be endless, probably

because the champions on both sides have just enough scientific knowledge to enable them to misstate the case. The most reasonable review of the whole circumstances is contained in one of Prof. Church's papers in *Nature*. He deals first with variations in composition in the grain itself. These variations, chiefly affecting the percentage of nitrogen, depend upon hereditary qualities in different strains of the wheat-plant; upon climate and season: and, to some extent, but not so largely as is often stated, upon cultivation, soil, and manure. The hard translucent wheats, *blés durs et glacés*, are of high specific gravity, about 1·41, and, owing to their lengthened and wrinkled shape, of low weight per bushel; these wheats are rich in nitrogen. The soft opaque wheats, of less specific gravity, about 1·38, and, owing to their rounded and plump form, of high weight per bushel, are poor in nitrogen. The hard wheats grown in Poland, in Southern Russia, in Italy, and in Auvergne, are used in the manufacture of macaroni, vermicelli, semolina, and pâtés d'Italie. The softer and more starchy wheats are especially appropriate for the production of fine white flour. According to the most recent analyses, the percentage of nitrogen in different varieties and samples of air-dry wheat may range from 1·3 up to 2·5—numbers corresponding to 8·23 and 15·83, respectively, of gluten or flesh-forming substances. But the same variety of wheat may give a grain having 3 per cent. more gluten in a bad season than when matured in a fine summer. More than this, one may select from the same field, the same plant, or even the same ear, individual grains which shall show quite as wide a variation in gluten as that just cited.

Church next considers "how much flour and how

much bran will 100 parts of ordinary soft wheat yield on the ordinary system of low-milling adopted in England?" As the averages from an immense number of independent estimates we may put down the flour at a total of 80, the bran at 17, and the loss at 3. Thus, from an economical point of view, we appear to lose ⅕, or 20 per cent., of our wheat by submitting it to the numerous treatments involved in the manufacture of flour. But is this really the case? We think not. For much of the nitrogen in the rejected parts is not in the form of flesh-forming matter, and much that does so exist in the bran passes unaltered and unused through the alimentary canal, because of its close incorporation with fibre. But on the other side we must not forget that bone-forming materials are clearly deficient in wheaten flour, and that those phosphatic compounds present in bran are readily soluble to a large extent, not only in the several digestive secretions with which they come in contact in the body, but also in pure water.

But in comparing and contrasting bread made from flour with that made from whole wheat, Church considers other points. We shall find it impossible to make, by means of leaven or yeast, a light spongy loaf from whole wheat finely ground, the so-called *cerealin* of the bran inducing chemical changes which result in a moist, clammy, dense product. Even whole wheat merely crushed into meal, and not ground, partakes of the same defect. Fine flour, on the other hand, yields a bread which is light enough before mastication, but which, when masticated, possesses a marked tendency to become compacted into dense lumps which may never become penetrated by the gastric and intestinal juices, and which are a frequent cause of constipation. Whole-meal bread cannot be charged with this defect;

indeed it acts medicinally as a laxative, and by reason of its mechanical texture is hurried rather too quickly along the digestive track, so that the full virtue of such of its nutrients as are really soluble becomes in part lost. Yet there is no doubt that for many persons, especially those who have passed middle age and are engaged in sedentary occupations, whole wheaten meal in the form of bread, biscuits, scones, &c., forms an invaluable diet.

The following analysis may present some of the foregoing statements in a cleared light, and may add some additional particulars of interest. They represent, so far as a couple of sets of average results can do so, the percentage composition of ordinary white bread and of the whole-meal bread made by Hill and Son:—

	White	Whole meal.
Water	40·0	43·5
[a] Albuminoids or flesh-formers	7·0	[b] 10·5
Starch, dextrin, and sugar	50·7	40·6
Oil and fat	0·6	1·6
Cellulose and lignose	0·5	1·8
[c] Ash or mineral matter	1·2	2·0

(Church.)

[a] Calculated from total nitrogen present.
[b] As much as 12·5 in some samples.
[c] Includes common salt added.

Another writer who has worked out the facts arrives at closely similar conclusions. He sums up thus:—(*a*) The carbohydrates of bran are digested by man to but a slight degree. (*b*) The nutritive salts of the wheat grain are contained chiefly in the bran,

and, therefore, when bread is eaten to the exclusion of other foods, the kinds of bread which contain these elements are the more valuable. When, however, as is usually the case, bread is used as an adjunct to other foods which contain the inorganic nutritive elements, a white bread offers, weight for weight, more available food than does one containing bran. (*c*) By far the major portion of the gluten of wheat exists in the central four-fifths of the grain, entirely independent of the cells of the fourth bran-layer (the so-called "gluten cells"). Further, the cells last named, even when thoroughly cooked, are little if at all affected by passage through the digestive tract of the healthy adult. (*d*) In an ordinary mixed diet, the retention of bran in flour is a false economy, as its presence so quickens peristaltic action as to prevent the complete digestion and absorption, not only of the proteids present in the branny food, but also of other foodstuffs ingested at the same time. (*e*) Inasmuch as in the bran of wheat as ordinarily roughly removed there is adherent a noteworthy amount of the true gluten of the endosperm, any process which in the production of wheaten flour should remove simply the three cortical protective layers of the grain would yield a flour at once cheaper and more nutritious than that ordinarily used.

On this same subject the *Lancet* remarks that bread which contains all the constituents of the wheat, except the outer, insoluble and irritating portion of the seed, seems, when the appetite for it has been obtained, to be more satisfying and digestible than the white and fashionable product which is found on most tables, of rich and poor alike. It is believed, too, that for children, the whole meal is the best for sustaining growth and for building up the skeleton

strongly and in perfect form. The supply of whole-meal bread is now much facilitated by the improvements that have been introduced in the decorticated or granulated flour, to which Lady John Manners called public attention in her paper on Wheat-meal bread. In the decorticated whole meal the extreme outer coating of the wheat grain is, by a special process of abrading, to the perfection of which Dr. Morfit has rendered able service, cleverly removed. After the abrading process is completed, the whole of the grain is reduced to a fine flour, in which there is retained all the substances that are nutritious and digestible. Considering the fact that the whole-meal bread, when properly manufactured, is easily assimilated, we are led to the conclusion that it must be more nutritious generally than any other bread, in which starch predominates.

Oatmeal (Robinson's for choice) is not adapted for making bread, but forms an excellent porridge—say 2 handfuls coarse oatmeal, 1½ pint water, well mixed, boiled ½ hour, and eaten with milk and treacle or brown sugar. The same may be said of Robinson's Patent barley, which is wonderfully nutritious and adapted to youthful stomachs, besides being excellent in puddings (Keen, Robinson, and Co. are the makers).

Maize contains invaluable ingredients, and the preparation known as Brown and Polson's corn-flour cannot be too extensively used, especially in custards and blancmanges.

Salt.—The *Lancet* publishes the following:—"We have received from a correspondent a letter making some inquiries into the use of salt, and we are given to understand that among other follies of the day some indiscreet persons are objecting to the use of

salt, and propose to do without it. Nothing could be more absurd. Common salt is the most widely distributed substance in the body; it exists in every fluid and in every solid; and not only is it everywhere present, but in almost every part it constitutes the largest portion of the ash when any tissue is burnt. In particular it is a constant constituent of the blood, and it maintains in it a proportion that is almost wholly independent of the quantity that is consumed with the food. The blood will take up so much and no more, however much we may take with our food; and on the other hand, if none be given, the blood parts with its natural quantity slowly and unwillingly. Under ordinary circumstances a healthy man loses daily about twelve grains by one channel or the other, and if he is to maintain his health that quantity must be introduced. Common salt is of immense importance in the processes ministering to the nutrition of the body, for not only is it the chief salt in the gastric juice, and essential for the formation of bile, and may hence be reasonably regarded as of high value in digestion, but it is an important agent in promoting the processes of diffusion, and therefore of absorption. Direct experiment has shown that it promotes the decomposition of albumen in the body, acting probably by increasing the activity of the transmission of fluids from cell to cell. Nothing can demonstrate its value better than the fact that if albumen without salt is introduced into the intestine of an animal no portion of it is absorbed while it all quickly disappears if salt be added. If any further evidence were required it would be found in the powerful instinct which impels animals to obtain salt. Buffaloes will travel for miles to reach a “salt-lick”; and the value of salt in improving the nutrition

and the aspect of horses and cattle is well known to every farmer. The popular notion that the use of salt prevents the development of worms in the intestine has a foundation in fact, for salt is fatal to the small threadworms, and prevents their reproduction by improving the general tone and the character of the secretions of the alimentary canal. The conclusion therefore is obvious that salt, being wholesome, and indeed necessary, should be taken in moderate quantities, and that abstention from it is likely to be injurious."

Weather.—The weather should govern our diet as much as it does our clothing. In cold weather we require to enrich our blood and fatten our bodies. We should then eat heartily of substantial food and drink milk and cocoa. In hot weather, "the lightest possible food should be taken, and that in moderation. Very little tea or coffee, plenty of milk, with fish, and but little meat, and that well cooked, and a moderate indulgence in iced drinks are indicated. Spirits and heavy wines are, of course, interdicted. It should be known that frequent and excessive thirst is often aggravated by an injudicious consumption of ice. Such extreme thirst will often be immediately allayed by hot drinks, a fact which has been often verified. It cannot be too strongly insisted on that over-feeding and over-drinking (of any fluid whatever) are most pernicious, especially either before or after prolonged or considerable exertion. The principal meal of the day should be taken at sunset." (*Lancet.*)

Lightness is the first essential alike in the food and drink taken in warm weather. There is then less work to be done, less waste of tissue, less need of the pre-eminently muscle-forming and heat-producing

substances, meat and bread; and fruit, as being both palatable and easily obtainable, is much in use. Its advantages are that it provides a seasonable change of diet, light and wholesome if well chosen, and a palatable tonic and stimulant of digestion with aperient properties. (*Brit. Med. Jour.*)

Anti-fat Diet.—There is inconceivable folly in the fear of fatness. We do not for a moment deny that it is possible the organism may be too heavily packed with adipose tissue, and that the action of its several parts may be hampered by this encumbrance, while, as a whole, it is needlessly burdened; but this is a totally different matter from the fatness against which the fears of the multitude are for the most part unreasonably directed. There is not the least physiological connection between the accumulation of fat and fatty degeneration. As a matter of fact, what is known as "fatty degeneration" occurs more frequently in those who are lean than in those who are "fat" in a popular sense. It is therefore a misconception to suppose that fatness is in itself a disease. It only becomes morbid when, by mechanical pressure, fat impedes the functions of the organs, or by weight it unduly burdens the body so as to exhaust the strength or make too large a demand on the resources of force and vitality. Unfortunately, the true nature of the objections to fatness are not explained, and misconception is rather confirmed than removed by the prevailing mode of urging arguments against "fat" and in favour of remedies by which it is proposed to get rid of it. Practically speaking, it is idle to suppose that fatness can be certainly prevented by dieting. There are many ways of fat-making, and those persons who have a tendency to its production will make fat however they are fed—in truth, almost as rapidly on

one class of diet as on another. There are idiosyncrasies which may in a limited number of instances be taken advantage of to check the tendency to form fat, but these specialties of chemico-nutritive function are by no means common; and, speaking generally, it must be said that, except by starving the body as a whole, fatness cannot be prevented. The exceptions to this rule are chiefly such as may be explained on the principle of a special tissue appetite. Thus, for example, a man whose muscular system has been healthily developed somewhat in excess of the other parts of his organism may have what might be called a muscular-tissue appetite of such voracity that it will, so to say, seize upon the bulk of the nutriment supplied to the blood, and make muscle regardless of what may be left for the nutrition of nerves, &c. Such a person will lose fat without growing thin, so far as muscle is concerned, by a mere reduction of diet, without reference to the kind of food cut off, so that the latter do not chance to be essential to muscle nutrition. In the same way, though with different results, a "nervous" person, in the popular sense—that is, an individual whose nervous system is in perpetual activity, working incessantly and feeding voraciously—may consume so much of the food supplied for the body as a whole that only nervous tissue is nourished, and the rest of the body languishes. This is an instance of growing thin while feeding well, and it is the converse of the process by which, in another class of persons, growth of muscle persists in spite of a reduced diet. There are, in this way, persons whose specialty it is to make adipose tissue, and they will wax fat even when muscles, nerves, and the higher organisation are relatively in a condition approaching starvation. These and a score

of other matters have to be taken into account when calculating the probabilities—or rather the improbabilities—of success in the endeavour to diminish the fatness of any individual by a system of dieting. As regards the use of drugs against fats, setting aside such obvious modes as robbing the blood of its proper nutriment by purging and nauseating, we do not believe it is practicable to prevent the formation of adipose tissue or even to promote an elimination of fat by the use of medicines, unless it be by correcting some error in the chemico-vital processes of the organic economy, to which a particular remedy may, as a temporary expedient in here and there a suitable case, be intelligently directed. Measures against fatness are, from the very necessities of the enterprise and the conditions under which it must be carried out in the great majority of instances, predestined to failure. It would save a deal of disappointment, and a great many incidental injuries to health might be avoided, if these facts could be more generally understood; and we think medical practitioners generally may be fairly asked to state and explain them. (*Lancet.*)

Diet for Night-work.—For night-workers, the best plan includes a hearty breakfast when they rise, which is generally between 12 and 3 o'clock; some outdoor exercise and relaxation should precede a good dinner, partaken between 6 and 9 o'clock at night, before beginning work. If the work is to continue until 4 or 5 o'clock in the morning, a light but nutritious repast should be eaten shortly after midnight, in order to fortify the system for labour during the hours immediately following, when the vital powers are most enfeebled. When the work is done, and before retiring, a very simple lunch should be taken in the form of good hot broth or beef tea, or

a glass of light wine and a couple of biscuits. This will generally ensure sleep by withdrawing blood from the brain, where it has been concentrated by mental effort. In ordinary cases of sleeplessness, not confirmed by long-continued habit, a light meal of this kind will generally prove a remedy.

Diet for Children.—The great mortality of infants in this country is due to improper feeding. The following simple rules should be attended to. If the child can be nursed by the mother, give it nothing else for six months. If it cannot be so reared, give 1-1½ pint of good milk every day for the first 6 months, and 1½-2½ pints, with the addition of barley-water, or a teaspoonful or two of corn flour, till a year old. Take care that the milk is good and the bottles clean. As it gets its teeth, give it small quantities of more solid food, but do not indulge it in everything that comes to table. Growing children require a due proportion of meat.

With regard to condensed milk, it contains much less flesh-forming material than is generally supposed. Taking four per cent. for cow's milk as a fair average, the directions on the can, if followed out, give unexpected results. For children's use, we are told to dilute the condensed milk with 4 or 5 parts of water. Taking the lowest figure, we should then have 5 parts of diluted condensed milk which, according to Dr. Stutzer, would only contain 1·76 per cent. of flesh-formers, instead of 4 per cent., while the milk sugar would be increased from 4·5 to 10·85 per cent. We know that woman's milk contains more sugar than cow's, but still not in the above surprising proportions. Now that so much canned milk is used for infants brought up by hand, it becomes a question how far mothers who cannot suckle their

children are responsible for the health and even lives of their children by giving them milk from the tin instead of that from the living animal.

Diet for underfed Subjects.—The following remarks are derived from Dr. Hodge's essay before referred to.

As a stomach may become over-distended and permanently dilated by long gluttony or by the accumulated ingesta which a slow and feeble peristalsis refuses to move on, so may it also become contracted from the habitual want of sufficient victualling, sometimes to such a degree that the introduction of enough food can only be accomplished after the gradual dilatation of its receptacle. This may be effected by increasing the frequency of meals. The custom, common in America, of leaving a long interval between them is the reverse of that desirable for those who require extra feeding. The ordinary European arrangement adopts a system which is worthy of imitation, a "little and often" being the motto of the eater. It is useless to attempt too much at one time. The stomach conforms slowly, and rebels at a certain limit, but a brief respite and a short intermission put it in a less antagonistic attitude. If, for the reasons given, or from mere disinclination, 2 meals have been all which the subject under treatment declares can be "got down," as is often the case, then 3 must be taken or the time between successive feedings shortened to 2 hours, according to the aggregate amount of nourishment intended to be given and the readiness with which its forced consumption is effected. It is an advantage, therefore, that certain periods of the day, not precisely fixed, but approximate, should be established as meal times.

For instance, before rising, at the usual breakfast hour, in the middle of the forenoon, at the accustomed luncheon, in the middle of the afternoon, at the regular dinner, and on going to bed.

It is a common impression that to take food immediately before going to bed and to sleep is unwise. Such a suggestion is answered by a reminder that the instinct of animals prompts them to sleep as soon as they have eaten; and in summer an after-dinner nap, especially when that meal is taken at midday, is a luxury indulged in by many. Neither darkness nor season of the year alters the conditions. If the ordinary hour of the evening meal is 6 or 7 o'clock, and of the first morning meal 7 or 8 o'clock, an interval of 12 hours, or more, elapses without food, and for persons whose nutrition is at fault this is altogether too long a period for fasting. That such an interval without food is permitted explains many a restless night, and much of the head and back ache, and the languid, half-rested condition on rising, which is accompanied by no appetite for breakfast. This meal itself often dissipates these sensations. It is, therefore, desirable, if not essential, when nutriment is to be crowded, that the last thing before going to bed should be the taking of food. Sleeplessness is often caused by starvation, and a tumbler of milk, if drunk in the middle of the night, will often put people to sleep when hypnotics would fail of their purpose. It should be borne in mind that a full bladder is a frequent cause of early morning wakefulness. Rising and passing water will often send restless sleepers back to bed for a refreshing nap, which, without relief from this source of reflex irritation, would not have occurred.

Food before rising is an equally important

expedient. It supplies strength for bathing and dressing, laborious and wearisome tasks for the underfed, and is a better morning “pick-me-up” than any hackneyed “tonic.”

Skilful feeding by a nurse who recognises the art which may be exhibited in coaxing food into the stomach is often of advantage. Food thus administered must be introduced in large mouthfuls. Every gourmet knows how necessary this is for the satisfaction of the palate, and the correctness of the fact is substantiated by reason and by analogy. Well-shaped wisely-seasoned, large morsels make a relishing and appetising mouthful, inviting repetition. In divided bits they quickly satiate or excite repugnance. By this epicurean method the stomach is rapidly and persuasively charged with a sufficient supply of nourishment, as it never can be by the feeble pickings of an apathetic eater.

In cases where food is urgently called for, its artificial introduction is an easy and beneficial manœuvre. It does not require a stomach tube, and has but little resemblance to the procedure resorted to with the insane. It may be practised with insignificant discomfort by means of a soft rubber catheter, not exceeding a No. 12 in size, fitted to a small glass funnel, into which the nutriment is poured, or it may be sent through the tube by a Davidson’s syringe. The catheter need enter but a short distance into the œsophagus. If no resistance be offered, the operation can be performed by almost any one, even by the patient himself. Milk, cream, broth, eggs, and homogeneous liquids are thus readily deposited, and to the desired extent, in the stomachs of those disinclined to eat.

The number of females, especially those who “do

their own work," whose food consists almost wholly of bread and tea is very large. How inadequately they are nourished is shown by the statement that, in order to get the required amount of aliment, persons who eat nothing else must consume about 4 lb. of bread. As this is so much more than any one can dispose of with comfort, the practice of eating butter with bread is almost universal. This not only meets the necessity for a heat-producing, non-nitrogenous food; but the unattractive character of dry bread as an eatable is compensated for by the relish of a savoury addition. In proportion as the use of butter is increased, the requisite quantity of bread may be decreased. To eat "more butter than bread" should not therefore be the reproach to growing children which it is often made, and the large amount of the former which may be profitably disposed of by the underfed, without "disturbing their stomachs," is not surprising if the process by which oleaginous substances are taken into the system is recalled. "Fat, butter, and oily matter in general require no digestion; the emulsion into which they are mechanically converted, chiefly by the pancreatic and duodenal secretions, passes (almost directly) into the general circulation of the blood." For reasons similar to those which make cream and butter such useful articles of diet, and because the habitual food of insufficient eaters is so lacking in fatty matter, cod-liver oil has acquired its well-deserved place among therapeutic and alimentary agents.

The tendency of those whose appetite is deficient to lay great stress upon their readiness to take food which does not require mastication makes them willing consumers of soup. And yet of all articles entering into the common dietary soups are perhaps the most deceptive, and certainly the most important

to discountenance with the underfed. They fill up the stomach at the expense of solid, “staying” nourishment, and contain so little in the way of sustenance that they are therapeutically almost worthless. As a rule they are but some form of meat tea, and are now known to have a food value not unlike that which wine would possess, and which they resemble chemically. “They may have on the system a stimulant action somewhat analogous to theine. They may render more prompt and efficacious the assimilation of any wholesome food with which they may be associated, and they may even give so effective a fillip to an exhausted system as to enable it to dispense for a time with real food; but it is clear that they must not be looked to for direct nutrition.”

Broths, however—that is, soups which contain large quantities of solid matter, disintegrated meat, vegetables, macaroni, vermicelli, *pâté d’Italie*, rice, barley, sago, tapioca, &c.—are often, and in proportion to the consistency thus given, excellent alimentation. They are palatable and easily consumed in considerable quantities at a time. *Soupe à la Reine purée de gibier*, various vegetable *purées*, chowder of fish, *bisques* of oyster, clam, lobster, are illustrations of the perfection of this kind of cookery. That they may be what is sometimes called “rich” is no objection. The digestive powers of the underfed are usually good, though the owners of them may not think so. They are apt to be active and ravenous, even if the appetite is not.

The meat from which soup is made, allowed to become cold, should be compounded to a paste in a mortar, and then returned to the soup. Veal, pigeon, and rabbit are especially adapted to this procedure.

"French" cooks prefer to make "chicken broth" from rabbit.

Notwithstanding its capacity to digest, there is, invariably, something repulsive to an insensible stomach in what are conventionally called "roasted joints." This antipathy, together with considerations of convenience as regards the size of portions to be cooked, makes it almost imperative, for protesting but frequent eaters, that meats should be either broiled or stewed; and steaks of various kinds, chops, cutlets, chicken, game, some kinds of fish, and shell-fish become, therefore, the only really available resources of the caterer of an ill-ordered appetite. And yet no more difficult undertaking can be given non-hungry patients than that of eating beefsteak. Apart from its somewhat uncertain quality, nothing requires more mastication, and the class named always declare that there is no item of food of which they are already more "tired." Any other variety of meat—mutton, veal, venison, &c.—cooked in the form of steak is more readily eaten. The short, compact fibre of mutton chops, especially those from the loin, makes them less likely than beefsteak to be badly cooked, and far easier to be consumed. Well-selected, carefully-cut lamb chops, in their proper season, are a delicacy of the highest order, and rarely fail to be appreciated by the most benumbed eater.

Meats stewed, or semi-stewed, and then partially browned in the oven (braised, as it is called in the language of cookery), are attractive and submissive preparations, and this method of cooking is an excellent one for purveying small portions of animal food. In the various forms and denominations of stewing and braising, the *cordon bleu* finds scope for the highest aspirations of culinary art.

They impart an appetising flavour to viands cooked to extreme tenderness, the perfection of these methods being found in their application to sweetbread—a costly luxury, but an article which, by its slight demand for mastication and its nutritious qualities, is peculiarly adapted to the requirements of an invalid eater. Others of the viscera, besides the pancreas, and the thymus gland—namely, the brains, the liver, the kidneys, the testicles of lambs, successfully lend themselves to this process of cookery, and like calves' heads, pigs' feet, and sheep's tongues, are converted into delicate and easily-assimilated nutriment for those who are ignorant of, or can overcome, the associations which they suggest.

Of various mechanical processes available for rendering food easily eaten, preparatory mincing offers great advantages, and is particularly applicable to chicken and veal. A common and attractive method of serving both in the form of minced meat is that of *croquettes*, which are most easily prepared by the aid of Lovelock's mincing machine.

Dr. Hodges does not hesitate to assert that of all the modes in which minced meat may be presented, the calumniated and much-libelled sausage is, in winter time, one of the most useful and successful articles for frequent feeding. Lean and fat meats, more digestible together than separately, are discriminately mixed in the compact and appetising form of this ubiquitous and popular comestible, the sole secret of whose easy digestion is that it should not be eaten except when it has become thoroughly cold after cooking. Bread and butter can be tolerated with complete immunity when hot buttered toast would provoke exasperating dyspepsia, and it is

exactly thus that sausage cold stands in relation to that which is served hot. Presenting the albuminates and fat in an economical, savoury form, easily obtained and made ready for consumption, sausage, in some countries, might almost be said to have become a national food, and it offers to the fastidious or indifferent eater an article of diet from which great benefit may be derived. A trial of this stigmatised edible will be followed by a ready recognition of its alimentary value in the class of cases under consideration.

As has been remarked already, food, to be taken outside the conventional meal hours, must be of a kind easily obtained anywhere, readily "kept in the house," and which does not demand preparation or delay. Few persons can command the services of a "professed cook," or of a good "plain" cook, or have either at their disposal every two hours in the day. The practical articles of diet which meet these restricted requirements of convenience are few, and of these the chief in importance are eggs, milk, cream, butter, and bread.

"Raw albumen is one of the most digestible of foods; coagulated, it is comparatively indigestible." Eggs, to be easily digested, must be eaten uncooked, since albumen under prolonged heat acquires progressive degrees of toughness. Eggs should not be cooked by boiling, but by placing them in hot water, and allowing them to remain there for 7-10 minutes.

When cooked, buttered, salted, and peppered, they are soon tired of as articles of food, and alleged to be "bilious." Cooking, moreover, involves waiting and preparation. An uncooked egg is always ready and at hand, is clean to be kept anywhere, and scarcely needs to be broken into a glass. With a little knack it

may be swallowed direct from the shell, as most persons know if in childhood they have had access to country barns. A raw egg weighs 2-2¼ oz., and is said to contain about the same flesh-forming and heat-giving material as an equal amount of butcher's meat. It offers in perfection the quickest and neatest mode of taking a large equivalent of substantial and nutritious food at a swallow. Beaten-up eggs are a certain provocative of dyspepsia. When subjected to this process, an inviting draught of creamy froth is brought to the unfortunate recipient—a tumblerful of air, which has been introduced in the largest possible amount to a given quantity of egg, milk, wine, sugar, and nutmeg—than which nothing could be better devised to promote indigestion, abominable eructations, and the most uncomfortable flatulence or acidity. Every beer drinker has the good sense to blow off the "head" of his mug of beer, or to wait patiently for the froth to subside, before he imbibes the draught; and if crotchety persons will not learn the trick of swallowing an egg whole, they can compromise the difficulty by slowly stirring the white and the yolk, which may be thus mixed together, and made to seem a less revolting dose without the incorporation of air by beating. Taken as a medicine, and looked upon as such, eggs are at least equally palatable with cod-liver oil, for which they offer an equivalent substitute, adapted to winter or summer, as the latter hardly is, and far more rapidly digested. There is no limit to the number which may be taken with advantage continuously and for months at a time. Eighteen eggs are required to furnish the flesh-forming materials and other nutrients sufficient for the various needs of an adult man in one day.

Milk and cream are convenient, and therefore

important and desirable articles of food. It is a common assertion of patients that milk “always disagrees with them”—that they have “never been able to take it.” This statement, which, as a rule, may safely be attributed to mere prejudice, is also in some cases a true one, simply for the reason that the milk is drunk too rapidly, or because it is not rich enough, an easy remedy being to take the given quantity more slowly, or to increase by addition the amount of cream which the milk naturally possesses, the trouble being due, in the first instance, to the fact that a large and solid cheese curd is suddenly formed in the stomach by the rapidity with which the milk is deposited in that organ, and in the second, to the hardness of the casein derived from milk with an insufficient percentage of cream, which is always inconstant in amount (varying between 10 and 15 per cent.) or in composition, the water alone ranging from 45 to 65 per cent. Milk is often too poor, but never too rich, for purposes of enforced nutrition, and the fact is incontrovertible that it is the model food for digestibility.

By adding cream to milk the amount of fat is increased and the curd is softened; and its digestion can be still further facilitated by the disintegration of its coagula, accomplished by crumbling in bread, cracker, &c., or by the addition of a small amount of cooked meal or flour.

By this latter means cold milk is made warm, which gives it an increased efficacy. This end may also be attained and the distastefulness of warm milk removed by flavouring it with the preparations of cocoa, weak coffee, or some of the inert substitutes for the latter sold by grocers, the best of which perhaps is that known as “New Era coffee,”

consisting simply of roasted and ground wheat. But, as hot milk demands a certain amount of trouble, cold milk alone, or with bread broken into it, is, after all, the only practical resource so far as its use for frequent nutriment is concerned; and 2 qt. of milk, or 3 pints of milk and 1 pint of cream, are not more than the minimum quantity desirable for ingestion in 24 hours. Clear cream may be administered in doses of a wineglassful after each meal, as any other medicine might be, and a great deal can be disposed of by eating it liberally added to cooked fruit and various dessert dishes.

Blanc mange, Italian cream, and the various forms in which many delicate farinaceous articles are cooked, may thus be made more eatable through the zest given them by this accompaniment. There is a great difference in the palatableness as well as digestibility of cream which is obtained from milk by centrifugal force, as is largely done for the market, and that which is skimmed after “setting.” This distinction should be borne in mind in prescribing cream which is to be taken uncooked. The last-named product is by far the more desirable article.

Very few patients, especially women, drink a sufficiency of water to maintain their health or an adequate nutrition. Water is an important constituent of food, is, indeed, the carrier of food into and through the system, and forms more than ⅔ of the whole body. Neglect to keep up the supply of water leads to a diminution in the quantity of blood, and lessens the body’s strength.

When it is remembered that there are daily eliminated 18-32 oz. of water from the skin by perspiration, 11 oz. from the lungs, and 50 oz. from the kidneys, it is easy to see that the amount

consumed by many persons falls short of the demand, and that their bodies must be insufficiently supplied with the requisite degree of moisture; some 66 oz. of water alone, and in tea, coffee, beer, &c., being required for a daily supply over and above that which is contained in the solid food of a full ration to make good the average regular waste. The constipation which is so common in ill-nourished persons is largely due to a want of liquid in the intestinal canal. This, therefore, will be ameliorated by the free use of water, as is also the constipating tendency of milk, which is sometimes complained of, the curds being liquefied and reduced in size, and thereby made more readily digestible. Its effect on hardened fæcal masses or accumulated mucus in the intestines is equally obvious, and explains in part the intention as well as the success of the hot-water craze at present so popular.

The underfed are benefited, and the process of feeding is helped, by alcohol. But the amount of alcohol which such persons may take as a food adjunct with advantage is very small. The cumulative effects of a medicinal dose at stated intervals are of greater utility than the more instant result of a larger allowance swallowed in a single drink. A measure of alcohol which produces an effect quickly—that is, which flushes the face, or exhilarates, as a sherry-glass of wine does with most females, for instance—is a toxic dose, and will be followed by reaction. It is a quantity short of this which is allowable. A teaspoonful, or at most a dessertspoonful, three or four times a day, is usually as much as can be borne without such sequelæ as are above alluded to.

Spirits serve their purpose better than wine, for the reason that the relative quantity of alcohol

administered is more measurable. Wines vary in strength; spirits are comparatively uniform. Tinctures even, or elixirs, may be given when spirits are objected to either on principle or from prejudice. In any case there should be a large dilution with water, as a more gradually stimulating effect is thus produced. Alcoholic medicines ought never to be taken on an empty stomach.

Great pains should be taken to discountenance everything which reduces the bodily heat, and employments or amusements which in any sense tax the strength ought to be abandoned when a forced diet is attempted. Even ordinary exercise is often objectionable, and its complete discontinuance sometimes so important that confinement to bed is a necessity. Those who raise animals are practically made aware that a restless disposition is fatal to successful growth in vigour and flesh. The truthfulness of this observation is equally apparent with human beings who need “building up” in the literal sense of these remarks.

Mere fattening is not the object of full feeding, but it is to a certain extent its necessary accompaniment. The motive of the measure, as has already been stated, is to add to the quantity and quality of the blood, and it is hardly possible for an individual to grow fat without a decided increase in the volume of his blood. Weighing at stated intervals is therefore an important procedure, and there is no other way to make sure that the subjects of treatment are sufficiently well fed to gain blood. Persons who put on fat rarely fail to improve in colour; their comfort is enhanced; warmth of body is gained, in itself no slight improvement; the pulse becomes fuller; the cheeks grow redder; the spirits are raised; the

general mien becomes brighter; and these phenomena are explainable only by admitting that there has been an accession to their stock of blood. The scales thus become a thermometer of improving health and strength, by the aid of which the physician measures the progressive results of his regimen. Like the “pass book” used at banks, they reveal in a ready and serviceable way the healthful standing of an individual, the relation of his resources to the wear and tear checks which he is continually drawing, and whether his account is nearly or quite overdrawn, or superfluously plethoric. They ought not to be put into requisition too frequently, and only when there is reason to think that an encouraging increase of weight has taken place. This should manifest itself soon after systematic feeding has begun, and continue at the rate of 2 lb. a week, and not less than 1 lb., so long as improvement seems desirable, or until a weight has been reached, the minimum of which shall be equivalent to 2 lb. for each inch of stature.

Experience and observation have universally confirmed the expediency of a heartier and more systematised diet than recently prevailed. Its utilitarian advantages are publicly recognised. Within twenty years the rations of armies, of institutions, charitable, penal, and medical, have been liberally increased. Family habits in regard to eating, since the flush times of the civil war, have greatly changed, and the large allowance of food requisite for the maintenance of a sound health can scarcely be exaggerated in any statement of its details. In the application of this accepted dogma to special and personal cases there is much, however, still left to be desired. (R. M. Hodges.)

Drinks.—There are physiological facts in relation to drinking which ought to be recalled by those who know them, and brought to the knowledge of the unskilled in medicine, because they concern the promotion of health. Thus it is essential that there should be constantly passing through the organism a flushing, as it were, of fluid, to hold in solution and wash away the products of disassimilation and waste. Those who do not recognise the fact that ¾ of the entire organism is normally composed of fluid cannot fully realise the great need which exists for a copious supply. If there be not a sufficient endosmose, the exosmose must be restricted, and effete matters, soluble in themselves, but not dissolved because of the deficiency of fluid available, will be retained. Take, for example, the uric acid; this excrementitious product requires not less than 8000 times its bulk of water at the temperature of the blood to hold it in solution; and if it be not dissolved it rapidly crystallises, with more or less disastrous consequences, as in gout, gravel, and probably many other less well-recognised troubles. We only mention this particular excrement by way of illustration. In all, it may be fairly concluded that not less than 3½ pints should be consumed by any person in the 24 hours, and when the body is bulky 4 or even 5 pints should be the average. It is, moreover, desirable that the fluid thus taken should be in the main either pure water, or water in which the simplest extracts are held in solution.

So far as the mere sensation of thirst is concerned, there can be no question that it is a mistake to drink too much or too frequently in hot weather; the fluid taken in is very rapidly thrown out again through the skin in the form of perspiration, and the outflow being promoted by this determination toward the

surface, a new and increasing demand for fluid follows rapidly on the successive acts of drinking and perspiring, with the result that "thirst" is made worse by giving way to it. Meanwhile, it must not be forgotten that thirst is Nature's call for fluid to replace that lost by cutaneous exudation in warm weather; and if the demand be not met, what may be regarded as the residual fluid of the tissues must be absorbed, or the blood will become unduly concentrated. To thirst and drink, and perspire and drink again, are the natural steps in a process by which Nature strives to maintain the integrity of those organic changes which the external heat has a tendency to impede. The natural and true policy is to supply an adequate quantity of fluid without excess. Therefore do not abstain from drinking, but drink slowly, so as to allow time for the voice of Nature to cry "Enough." There is no drink so good as *pure* water. For the sake of flavour, and because the vegetable acids are useful, a dash of lemon-juice may be added with advantage. The skin should be kept fairly cool, so that a sufficient quantity of the fluid taken may pass off by the kidneys.

Sufferers from certain common forms of indigestion forget the immediate effect of loading the stomach with cold drinks. If hot drinks are sometimes debilitating to the organ of digestion, cold drinks are certainly not always bracing, but, on the contrary, are often depressing. It is especially desirable to remember this fact when the weather is more than commonly lowering to the nervous tone of the organism. Even though the fluid taken may be what is called stimulating, the consequence of its being cold is to chill the gastric organ and depress the nerve centres, whence it derives its supply of nervous force. The peculiar form of indigestion now

very prevalent, in which food is retained an unreasonable time in the stomach, with the result of flatulence, and it may be of irritative reaction on the part of the nerves of the viscus, and neuralgic pain as a consequence, is in a large proportion of instances the direct effect of persistent chilling of the gastric organ by copious draughts of cold drink. It is recognised that cold drinks are dangerous in very hot weather, acting as irritants, but it is not, apparently, understood that the mischief they do as depressants may be even greater, and that this effect is to be especially dreaded when the weather is itself depressing by cheerless or unseasonable cold. (*Lancet.*)

Water.—When fluid taken "as drink" is itself heavily charged with solid matter, it cannot fairly be expected to so entirely rid itself of this burden in the process of digestion and absorption as to be available for solvent purposes generally, although the separation between solid and fluid ingredients of the food is doubtless fairly complete in the processes preparatory to assimilation. The aim should, nevertheless, be to supply the organic needs in this particular abundantly, and with such fluids as are not overloaded with solids, but simple and readily available as solvents. Another urgent reason for drinking freely of bland fluids is to be found in the need of diluents. This is something slightly different from mere solution. Many of the solids of the tissue waste are of a nature to irritate and even disorganise the kidney, if they be brought to that organ for excretion in too concentrated form. There is no reason to suppose that the kidneys are liable to suffer from over-work if the specific secreting power of the kidney cells be not too heavily taxed. If only the products of disassimilation be diluted, so that they

can be passed through the kidney by the simple process of exosmosis, the organ will discharge its function without injury or exhaustion. As a matter of fact and experience, those who drink innocuous and unstimulating fluids freely do not suffer from kidney trouble, but are almost uniformly healthy—at least, so far as the excreting functions are concerned. It is a popular fallacy that the kidneys may and ought to be relieved by the determination of fluid to the surface of the body and perspiration. Except in cases of organic disease of the kidney, or where, as in the elimination of a special product, it is desirable to use the skin as an emunctory, the fluid diverted from the kidney is wasted so far as flushing purposes are concerned.

But if water be the drink, how shall it be drunk? The means must have regard to the end required of them. To moisten food and prepare it for digestion it is hardly necessary to say that it should be taken with a meal; a couple of tumblerfuls at dinner is not an excessive quantity for most persons. For thirst-quenching properties nothing can surpass this simplest of drinks, and all which approach it in efficacy owe their power almost entirely to it. As to temperature, there is no real ground for supposing that one should not drink a sufficiency of cold water when the body is heated by exertion. The inhabitants of hot climates have no such objection. Some tropical wells are dug so deep that the water within them, even in hot seasons, is as cool as that of a European spring. In fevers, too, the use of ice in quantities sufficient to allay thirst is a part of rational and legitimate treatment. The shock which has to be avoided in all such states is not that which cools the mucous membrane, but that of sharp chill applied to the surface of the body. Some persons, however, find

it convenient and beneficial to imbibe a certain amount of warm water daily, preferably at bedtime. They find that they thus obtain a bland diluent and laxative, without even the momentary reaction which follows the introduction of a colder fluid, and softened by abstraction of its calcareous matter in the previous process of boiling. This method, which is an accommodation to jaded stomachs, has its value for such, though it is not great even for them; but it affords no noticeable advantage for those of greater tone. The use of water as an aid to excretion deserves some remark. In certain cases of renal disease it has been found to assist elimination of waste by flushing, without in any way irritating the kidneys. Every one is probably aware of its similar action on the contents of the bowel when taken on the old-fashioned but common-sense plan of drinking a glass of water regularly morning and evening, without any solid food. Whatever may be true of harmless luxuries, enough has been said to show that health, happiness, and work find stimulus enough in the unsophisticated well of nature. The quality of water may be judged by its fauna and flora. It is a standing fact that water containing neither fish nor molluscs is unfit for drinking purposes. The presence of the common watercress (*Nasturtium officinale*) in a stream is sufficient evidence of the potability of the water; on the other hand, always avoid the water of a stream in which the duckweed or water lentil (*Lemna minor*) is found.

Tea.—Warm infusion of tea has been proved to have a marked stimulant and restorative action upon the brain and nervous system, and this effect is not followed by any secondary depression. It further increases the action of the skin, and raises the number of the pulse, while it has but little effect

upon urination, excepting simply as a watery diuretic. It tends to lessen the action of the bowels. Dr. Parkes found that tea is most useful as an article of diet for soldiers. The hot infusion is a patent protective against extremes both of heat and of cold; and Sir Ranald Martin proved it to be particularly valuable in great fatigue, especially in hot climates. But the habit of tea-drinking is one that grows on its victims like the similar ones of opium or alcohol. Taken in strict moderation, and with due precautions in the mode of preparation, tea is, like alcohol, a valuable stimulant; in its abuse there is also a certain analogy. There is hardly a morbid symptom which may not be traceable to tea as its cause. This is a fact that general practitioners often use to their own satisfaction and to their patient's advantage, if it happen to be that kind of patient who does not object to make some sacrifice in order to be rid of troubles. The alkaloid which tea contains appears to be less easily absorbed than that of coffee, owing to the very large quantity of tannic acid present. The tannic acid in tea is doubtless one of the causes why it is as a drink so attractive. It is slightly astringent and clean in the mouth, and does not "cloy the palate." Tannic acid is also one of the dangers and drawbacks of tea. It is largely present in the common teas used by the poor. The rich man who wishes to avoid an excess of tannic acid does not allow the water to stand on the tea for more than 5, or at most 8 minutes, and the resulting beverage is aromatic, not too astringent and wholesome. The poor man or poor woman allows the tea to simmer on the hob for indefinite periods, with the result that a highly astringent and unwholesome beverage is obtained. There can be no doubt that the habit of drinking excessive quantities of strong astringent tea is a not

uncommon cause of that atonic dyspepsia, which seems to be the rule rather than the exception among poor women. A word in reference to the now prevalent custom of dining late, and taking an afternoon tea. “Unless cautiously arranged, it is apt to produce dyspepsia. The rule should be that the tea should precede dinner by 3 hours, and not come sooner after lunch than 3 hours, supposing the lunch to have been a good meal; and that if any tea or coffee is taken after dinner, it ought to be immediately after, so as to constitute part of the same meal, and to partake in the same process of digestion. It is most injurious to take tea or coffee 1-2 hours after dinner, or any other full meal.” (Dobell.)

Coffee.—Coffee, like tea, when used as an article of diet, especially affects the nervous system. It is a brain and nerve stimulant; in very large doses, it produces tremors. It increases the action of the skin, and it appears to have a special power in augmenting the urinary water. It increases both the force and frequency of the pulse. Unlike tea, it tends to increase the action of the bowels. Coffee has been proved to be an important article in a soldier’s dietary, as a stimulant and restorative. Like tea, it acts as a nerve-excitant, without producing subsequent depression. It is serviceable against excessive variations of cold and heat, and its efficacy in these respects has been established in Antarctic expeditions, as well as in India and other hot climates. Dr. Parkes pointed out that coffee has a special recommendation in its protective influence against malaria. While admitting that the evidence on this point was not strong, he held it to be sufficient to authorise the large use of coffee in malarious districts. Coffee should be used as an

infusion. If coffee be boiled, its delicate aroma is dissipated. (*Brit. Med. Jour.*) Coffee has a slight value as a nutriment, and a very high value as a stimulant; when mixed with boiling milk in the form of *café-au-lait* it forms the ideal of breakfast foods for body workers and brain workers, and a very small quantity of black coffee taken after a full meal serves to stimulate the stomach to the necessary digestive effort, and to ward off that sleepiness which is often the attendant of satiety. Supposing all the dissolved matter to be available for the needs of the body, the dietetic value of a cup of coffee is more than twice that of a cup of tea, and if we assume that the stimulating power is due to the contained alkaloid, then *quâ stimulant* the cup of coffee has more than three times the value of the cup of tea. (Poore.)

Cocoa.—The theobromin of cocoa is, chemically, identical with the thein of tea, and the caffein of coffee. While tea and coffee are comparatively valueless as true foods, cocoa, by reason of the large quantity of fatty and albuminoid substances it contains, is very nourishing, and is of high dietetic value as a tissue-forming food. Compared with tea and coffee, it is a food rather than a stimulant, being akin to milk in its composition and place in the diet-scale. It is useful to sustain the weakly, and to support the strong in great exertion, as a readily assimilable and general form of nourishment. (*Brit. Med. Jour.*)

Malt Liquors.—The distinguishing characteristic of malt liquors as articles of diet is their feeding-power, and they owe this to the presence in the malt of diastase, by which the insoluble and innutritious starch—the largest fat and heat-producing element in our food—is converted into the soluble and easily

assimilable glucose sugar. The use of these beverages, then, in moderation—say 2 glasses a day, one at dinner and the other at supper—seems to be indicated, and would probably prove advantageous, in convalescence from wasting disease, extreme thinness, feeble digestion, or where there is difficulty in maintaining the animal heat. The following table, showing the composition and relative strength of representative malt liquors, may not be uninteresting to the reader:—

	Malt Extract.	Alcohol.	Carbonic Acid.	Water.
Burton ale	14·5	5·9	0	79·6
Edinburgh ale	10·9	8·5	0·15	80·45
Porter (Barclay and Perkins)	6·0	5·4	0·16	88·44
Bavarian beer	5·8	3·8	0·14	90·26

Malt extract has lately been brought into the market, and may be used where alcohol is for any reason considered undesirable. (Philip Foster, ‘Alcohol.’)

Smoking.—Though hardly a branch of dietetics, the habit of smoking is now so general (and to some people as necessary as their meals through long habit) as to deserve a few words of notice. Concerning its merits or demerits doctors are far from being agreed. One fact, however, is certain. Ptyalin, the active principle of the saliva or juice of the mouth, is identical in chemical composition with diastase, and has been supplied to us by nature for

the purpose of effecting the necessary change of starch into sugar. Now the expectoration which so often accompanies smoking, and is unduly increased by it, means the loss of large quantities of this invaluable fluid.

As to the actual effects of tobacco smoke, Dr. Zulinski has recently published in a Warsaw medical journal the results of a long series of experiments made by him both upon human beings and animals with a view of verifying the physiological effects. He found in the first place that it is a distinct poison even in small doses. Upon men its action is very slight when not inhaled in large quantities, but it would soon become powerful if the smoker got into the habit of "swallowing the smoke," and Dr. Zulinski ascertained that this toxical property is not due exclusively to the nicotine, but that tobacco smoke, even when disengaged of the nicotine, contains a second toxical principle called colidine, and also carbon oxide and hydrocyanic acid. The effects produced by tobacco depend, he says, to a great extent upon the nature of the tobacco and the way in which it is smoked. The cigar-smoker absorbs more poison than the cigarette-smoker, and the latter in turn than those who smoke pipes, while the smoker who takes the precaution of using a narghilie, or any other apparatus which conducts the smoke through water, reduces the deleterious effects of tobacco to a minimum. As a rule, the light-coloured tobaccos are supposed to be the mildest, but Dr. Zulinski says that a great many of the tobaccos are artificially lightened by the aid of chemical agents which are not always free from danger. He adds that several light tobaccos are also open to the objection of emitting a burning smoke, owing to the large proportion of wooden fibres

which they contain, notably the French “caporal” and the English “bird’s-eye,” and that the smoke from these tobaccos is of such a high temperature as often to cause slight inflammation of the tongue, which with people of mature age is not unlikely to lead to cancer. The dark tobaccos are often adulterated, too, but Dr. Zulinski thinks that upon the whole they are the less dangerous. If tobacconists would only introduce a very cheap stem for pipes, smokers could afford to use a new stem every time they lit up, and by this means most of the evils of smoking pipes would disappear.

On cigarette smoking Sir Henry Thompson lately communicated the following remarks to the *Lancet*. (*a*) The cigarette, without a mouthpiece, is really never smoked more than half-way through in the East, where cigarettes are very cheap. It is well understood there, as it is by all practised cigarette smokers, that every inhalation from a cigarette slightly deteriorates in quality from the first. A small deposit of the very offensive oil of tobacco is deposited in the finely cut leaf, which acts as a strainer, and intercepts the deposit as it passes. Very little of this arrives in the smoker’s mouth if he stops when half is consumed. Many Oriental smokers consume no more than a third. (*b*) If a cigarette with a card mouthpiece is employed, the noxious matter may be intercepted by always introducing a light plug of cotton wool into the tube. If now the cigarette is nearly consumed, a considerable quantity of brown and very offensive matter will be found in the cotton wool, from the evil of which the smoker is thus preserved. The wool requires renewal after half-a-dozen cigarettes. (*c*) The maximum pernicious influence which occurs through cigarette smoking is attained by the practice of inhaling the smoke largely

direct into the lungs, where it comes into immediate contact with the circulation, and the toxic effect is strongly perceptible after three or four consecutive inhalations, and felt by a sensitive person to the very tips of the fingers. Such smoking ought to be exceptional. All the fragrance, with a little only of the toxic effect, is obtained by admission of the smoke into the mouth only, still more by passing it through the passages of the pharynx and nose; but pulmonary inhalation, often associated with cigarette smoking, and rarely with the pipe, constitutes the great mischief of the cigarette.

Laying and Waiting at Table.—The following suggestions are condensed from a series of articles on the subject by H. Burleigh in the indispensable *Queen*, intended for households with 2 to 7 servants. Housewives with smaller establishments may still benefit much by the instructions given.

No table ought to be laid, no tablecloth brought into the room, until the hearth has been thoroughly swept up, and the mantelpiece and sideboard well dusted. The neglect of this spoils the look of a room. Then another most important item is the proper preparation in the pantry. Most half-taught servants, which means 19 out of 20, will be continually running backwards and forwards between the pantry and the dining room bringing things piecemeal, instead of first preparing every article and bringing up everything, and then shutting the door on themselves, and quietly laying the table, without the confusing scramble that the former want of method produces. Servants cannot know these things unless a mistress has it in her to teach and train them. It behoves good women to learn each one for herself how to do everything in her house, so that she may

teach those who enter her service.

For each meal—breakfast, luncheon, and dinner—there are different rules for laying the table and sideboard. We may call breakfast and luncheons movable feasts, for each day the laying of the table for these meals varies according to the food to be sent up, as at these meals everything is put on at once; whereas for dinner there is one invariable rule, whether there be many or few courses.

Breakfast.—Before you begin to lay your cloth, look to the fire, that it is not in a half-lighted and half-dying condition. If there is one time more than another in which we value a good clear fire, it is in the early morning, when the members of a family come down cold and hungry; but how miserable to descend to a hearth scattered over with half-burned wood and paper, and a cold fire with a hollow in the middle. A good stir, a little more coal, a good sweeping up of bars and hearth ought to be done before the cloth is laid.

The sideboard for breakfast in a small household of 2 or 3 servants ought to have a sideboard cloth, with a joint or a ham on it, with a pile of plates on it according to the number of the family; 2 knife rests, a carving knife and fork, and small knives and forks arranged in stiff rows on each side of the pile of plates, which at breakfast ought to be in the middle of the sideboard, in front of the joint. On the right side should stand the bread board, with white and brown bread, and a bread knife; and on the left side a silver tray, for handing letters when they arrive, and also if the bell has to be rung for anything needed or forgotten, the tray is there ready. In larger households there ought to be a side table, with different cold comestibles, of course a much larger

variety than in a smaller establishment; but the same rule holds good, that a sideboard and a side table ought to be straightly and stiffly laid for breakfast.

For the table it is quite absurd to put tablespoons at the corners with saltcellars. Put any tablespoons that are needed at the right side of the dish whose contents require one, or in front of the dish. For each person lay 2 small silver forks, 1 small steel knife, and 1 silver knife. It is a very slovenly way to put only 1 steel knife to each person, for after eating bacon or any meat with the steel knife, it is very nasty to use the same knife for marmalade or butter. Small second-hand silver knives are not expensive to buy for breakfast or for meat teas; keep them for that purpose, and for children's fruit at lunch, and it saves the nicer dessert knives and forks being used.

In laying your cloth take the greatest care that your tablecloth is exactly in the centre, if not your whole table is thrown out. The laundress ought to be taught to fold the cloths with 2 outside seams and 1 inside fold, not in half and in half again. The former way makes them set so much better. Measure with your apron the distance of the side folds from the edge of the table. The distances ought to be exact.

Be careful before arranging your table for every and any meal to think what will be the general effect on entering the room. Think of what it will look like from the door, which is almost without exception farthest from the head of the table, and therefore so arrange the articles of china and silver that the tallest are nearest to the hand, and thus the effect of each thing is seen as it slopes down to the bottom of the table.

One thing has always to be taught to a new servant, and that is to put knives, forks, and spoons

an inch on the table, I. e. to leave 1 in. between the edge of the table and the handles. It is wretched to see the handles over the edge, and the least touch in passing swings them round, to say nothing of the untidy effect. Do not leave a straggling space between the knives and forks for each person, only sufficient for the width of a plate, and let the prongs and handles be exactly and precisely together top and bottom. Care in these details makes such a very great difference in the whole look of a table. If there are flowers in the centre there will not be room for large casters. It is quite the proper thing to have casters on the table for breakfast and lunch, as at these meals every one waits on himself, except in a few uncomfortably grand houses, and, therefore, though it is a vulgarity to put the casters on a dinner table, it is quite right to put them on a breakfast or luncheon table.

After you have arranged your table so far, see that marmalade or honey, or both, rolled butter, sardines, and all cold things, are arranged on the table before you bring up the urn, or coffee or tea, or any hot things. Also have all your sideboard and side table arranged before any hot things come up. Then remember that it is very bad style to bring them in in a straggling and single way. After the urn or kettle and the coffee and tea have been placed on the table, wait until the cook has placed everything on your tray—eggs, muffins, or rolls or buttered toast, bacon, fish, hot milk, &c.—and bring it all up at once, and place them one after the other quickly on the table. In arranging your table take this simple rule—let nothing touch another, be able to pass your finger at least round each article, and place the coffee-pot, teapot, milkjugs, sugar basins, and slop basin so that each is seen, and has its clear and distinct place. Let

marmalade and butter correspond, and saltcellars occupy a rather central position at a breakfast table. If small casters are used, containing salt, pepper, and mustard, they can, of course, be placed at corners.

Have perfectly clean and freshly made mustard for each meal. Nothing is worse than to open the lid of a mustard-pot, and see the inside and the spoon clogged with old dry mustard. Cast your salt in an old wineglass, and turn it out in a shape. Place a toast-rack always on a large plate, or else the crumbs make the cloth untidy.

Put a table napkin to each person, and see that your moist-sugar spoon is not clogged with sugar, but thoroughly clean. If you place a knife and fork in front of a breakfast dish, or a spoon and fork, place them so that they meet top and bottom—i.e. let the bowl of the spoon meet the end of the handle of the fork, and the prongs of the fork meet the handle of the spoon; the same with a knife and fork. Do not put a spoon on the preserve glass, but at the side; the same with a butter knife.

To each person at the breakfast table there ought to be, in addition to the usual plate, an extra one, very small, for eggs. In buying a breakfast service, it is better to get more plates and dishes than are usually sold with a set, otherwise the cook is fond of sending up dinner plates and dishes, which make an ugly conglomeration. When it is time to remove the breakfast things, whether it is done by the cook, parlour-maid, or man-servant, it is a most painful ordeal to a methodical mistress unless she teaches them how to do it. A tin tray, not too clean underneath, popped down on the white damask cloth, and everything put upon it promiscuously, plates upon plates with forks and knives left in them,

others ditto on the top of that, silver mixed up with knives, delicate glass butter-dishes smashed in among bacon dishes, &c.

Now for the proper method—a much easier one in the end, both as regards the comfort of any one sitting in the room, and of the servant when she deposits the things in the pantry. First take away the silver; take the slop basin in your left hand, and go round the table and put into it each dirty teaspoon, fork, eggspoon, and tablespoon, and put the slop basin on the tray, which should be on a table outside the door. On the same tray put every other silver article except the urn, and carry down this tray and leave it, and bring up another. Then remove the urn; then on the tray take down bread, meat, and dirty dishes, and take the large plate that the toast rack has stood on, and place on it every dirty knife, placing the handles in the plate, which makes less rattling. Then collect plates neatly in piles, and all the saucers in piles, the cups two together, and you will see how much less room they occupy. When the last tray has been removed, bring up your dust shovel and brush, your hearth brush, crumb brush, or towel and a duster. Brush the cloth free from crumbs, and fold it up on the table; also the sideboard cloth, in their exact folds. Leave them on the table and brush up the hearth, brush up the crumbs under the table, and dust the top of the sideboard and mantelpiece, arrange the chairs, and, if allowed, open the window to get rid of the odours of breakfast, and you thus leave the room neat and ready for morning occupation.

A servant can be trained to do all this in ¼ hour from the time she enters the room until the dusting is finished. When she goes into the pantry to wash up,

instead of finding everything mixed up, and thus leading to a general washing up of greasy plates and silver spoons in one greasy water, she ought first to wipe the knives, and put them away ready for cleaning, and thus secure them from lying about getting splashed over and rusted. Then all the china should be washed up, first in warm water and soap—no soda, as soda eats away the glaze and the pattern—and then rinsed in cold water, and put away in their places. The eatables ought never to be taken into the pantry at all, but placed at once in the larder—the bread in the breadpan, and the meat on larder dishes, not dining-room dishes left in the larder. The silver ought to be washed up in a quite separate tub, and if servants would only wash up silver in a proper manner, very little plate cleaning would be required. It makes one shudder to see and hear heaps of silver being tumbled higgledy-piggledy into a tub, and when it has been roughly banged about and gloriously scratched, it is equally roughly tumbled out again and left to drain, the very thing that ought not to be done. In washing up silver, take each article singly, wash it well in hot water and plenty of soap; when it is washed leave it in the water, and go on in this way until all is washed. A very good mixture for washing silver in is a lump of soft soap and a lump of whiting put into hot water, and beaten up to a lather with an egg whisk. The great secret in making silver look well is the way in which you dry it. Take each thing out separately, leaving the others in the water; dry it as dry as a bone; dry it as if your glass cloth or plate cloth were a polishing leather, and do not put it down as finished until it is quite hot with friction. This simple rule is sufficient to make silver always ready for table.

You require two cloths, one for the first wet, the

other to finish with; but remember to finish off each thing thoroughly at once. If you leave silver to drain, or half finished, there is always a film and a stickiness about it. Before the servant commences any washing up, she ought to put the tablecloth and sideboard cloth in the screw press. If you leave any crumbs in a cloth, they stain it, and 2 or 3 washings will sometimes not remove the stain. In addition to your screw press, have 2 deal boards with spliced ends, and beautifully smooth, and a shade smaller than your press. Lay your cloths between these boards, and it keeps them clean. Take the boards out each time, and after breakfast put the breakfast cloth at the bottom, and the luncheon cloth at the top. Once a week have these boards scrubbed, and your cloths will always be clean.

A great addition to a breakfast table is stewed fruit; it not only looks pretty, and gives an air of refinement to the table, but it is really necessary for health. As the old Spanish proverb says: “Fruit is medicine in the morning, food at noon, and poison at night”; and another version says: “It is gold in the morning, silver at noon, and lead at night.” We do not eat half enough fruit in England, and fruit is much dearer than it ought to be. With proper management a lady can lay in every Saturday a week’s store of fruit—not, of course, the small summer fruits, which must be bought daily. But apples and pears for stewing will keep both before and after cooking, and there are prunes, oranges, melons, all of which are most excellent and wholesome if eaten early in the morning.

Luncheon.—The luncheon table is never 2 days alike, and it is a meal that perhaps is the prettiest of the 3, and certainly calls for taste and management.

The proper way to lay the different places for people and the way to arrange the silver and knives on the sideboard is always the same, but the disposition of dishes is almost each day different. For the sideboard, let it be stiffly laid, but of a different stiffness from a sideboard for breakfast. Instead of arranging small knives and forks tightly on each side of the plates as for breakfast, they must be spread out, but straight and stiff. Place in even rows a few tablespoons, dessert spoons and forks, also small knives. Knives ought never to appear on the sideboard for a late dinner, but for breakfast and lunch, because the family wait on themselves at these meals.

Some large and some small plates ought to be put in piles, the former separate from the latter. Sufficient small plates ought to be put for the different sweets and for cheese. The fashion that has of late prevailed of having only large plates, is better omitted than observed, like many other fashions; taste and suitability ought to be the guides and the reasons for fashions. Unfortunately, the only reasons for adopting many fashions is merely because some one with a title has done it.

On the sideboard at luncheon there ought to be the bread trencher, but it is quite wrong to put it for dinner. On the sideboard ought also to be any cold meat, for which there may not be room on the table. A butler’s tray and stand are not necessary or suitable for breakfast or luncheon, especially where there is a dinner waggon and side table.

The first thing in laying your lunch table, is to make it as pretty as you can; and sifted sugar in a coloured basket, wine, fruit, sweets, and rather fanciful glass, all being put on from the beginning,

make a lunch table a very pretty sight. With regard to the laying of the table; for lunch put for each person a large and small knife, and 2 large and 1 small forks, and a dessertspoon. You may either place the dessertspoon between the large knife and the small knife, and the small fork between the two large ones, taking care that the end of each handle is even, and an inch off the edge of the table, or you may put the dessert spoon and fork in front of each plate, making the handle of the spoon even with the prongs of the forks. It is quite wrong to put a dessert spoon and fork on the table for a late dinner, because at dinner we are properly waited on; and therefore where it would be bad style to place them for dinner, it is equally out of taste and common sense not to place them for luncheon. It is quite correct to place casters on the table for lunch, either in the middle, or, if small ones, at the corners, or on each side of the centre of the table. Flowers being generally in the middle, the table must be arranged accordingly.

With regard to the way of placing tablespoons, every servant and every mistress has a different way; but the best style, if you have the room, is to let the saltcellars be on a line with the top of the large silver forks, and as far from the edge of the table as the length of the handle of a large silver fork. Then place your tablespoons on each side of the saltcellar, so that the bowls of the spoons are clear of the saltcellar; and thus the handles can be closer together, for compactness in every detail is the very foundation of good service at table. It is not of any great moment if the tablespoons are put at cross corners or not; and sometimes to put them across the corner is a convenience, especially for a lunch table; but, if they are put across corners, then one spoon should be turned one way, and the other another

way. If they are arranged the first way, then the water bottles should stand just off the tip of the inside spoon, a little towards the inside of the table. The salt ought to be moulded out of a wineglass. If the spoons and salt are arranged the latter-mentioned way, then the water bottles should be placed in front of the middle part of the inside tablespoon. Meat and vegetables and cold sweets are all put on together at luncheon.

Sometimes servants do not wait at all at lunch, but the more general way is, after the bell or gong has sounded, to come in to remove the covers, and sometimes to hand round the first plates and vegetables; but, unless there are young children, the middle course is best—that the servant should follow the family into the room, remove the covers, and depart. Every one prefers waiting on himself at luncheon, as chatty gossip is more usual than at dinner; and besides, the servants cannot dine at 12.30, unless there is a full establishment, and the luncheon hour of the family is in 9 families out of 10 the dinner hour of the servants, and it is our bounden duty to them to give them peace and rest at their dinner-time.

Unless there is a hot pudding that will spoil, if not served just when it is wanted, there is no need to ring the bell until lunch is finished; and a thoughtful woman will order luncheon with a regard to her servants not having to be rung up.

For lunch, tumblers as well as wineglasses ought to be placed for each person. It is quite wrong to place tumblers for the late dinner on the table, but at lunch it is quite right, because there is no waiting. The wineglasses, either 2 or 3, should be grouped close together, the tallest a little from the right side of the

tip of the large knife, and the tumbler below the wineglasses.

The wine decanters for lunch ought to be quarts, and, if possible, placed on each side of the centre crease of the tablecloth, either behind the top dish or the bottom dish. If this is not possible on account of the varying rules for arranging the lunch table, then put them at the corners.

Sometimes for luncheon 2 water bottles are enough, and then cut cheese, or sifted sugar, or rolled butter, or preserves can be put at cross corners opposite the water bottles. Ale, either in a jug, or bottled ale, can be placed on the sideboard; and it is not at all the wrong thing to place it on the table, for ale jugs can be very ornamental, and, if it is bottled beer, the cork ought to be drawn if it is the habit of the family to drink beer; an ornamental cork should be put in, and the bottle placed in a silver hock-stand, either on the sideboard or the table. An ale bottle ought to be washed before drawing it, so should a claret bottle, or any other bottle that is not to be decanted, champagne included.

In pouring out bottled ale, if you will only rest it on the edge of the tumbler where the last rib of the neck of the bottle is, and keep it straight, not tilting it, except in the most gradual way, there would be a proper supply of drinkable ale in the tumbler, and not all froth.

Before laying the lunch table the servant ought to prepare the room, by making up the fire, sweeping up the hearth, and dusting the mantelpiece and sideboard. This ought to be done before the parlour-maid or man-servant dresses for lunch. There is a habit in many families of using the dining room in the morning, but it does look so unrefined to sit

down to meals with newspapers, books, workboxes, and writing materials scattered about on chairs and side tables. When luncheon time arrives all such things should be removed, either to a morning room or the back dining room, and put in their proper places.

After washing up the breakfast things the servant ought to prepare for lunch, by setting on a tray everything needed for the table, and also the knives ought to be cleaned, both for the early and late dinner. The French way of cleaning knives is excellent. Wipe the dirty knives clean, not by washing, but with a piece of paper, then lay the knife on a knifeboard, and take a cork and dip the end of it in emery powder, and rub it well up and down the blade with this, and then wipe clean.

Where there are young children whose dinner is at lunch time, the arrangements must of course be different. These arrangements depend so entirely on the numbers in the household, and the ages of the children, that no decided rules can be laid down. But in every case an early dinner ought always to be laid luncheon fashion, as otherwise it can never be laid prettily. What can be more bare and ungraceful than an early dinner laid in most respects as a dinner, yet with none of the accessories that make either lunch or dinner pretty. If the children are very young they require waiting on; but for older school-room children who, with their governess, have dinner at lunch time, unless there is a sufficient staff of servants, waiting is not necessary.

Sometimes it is necessary that hot puddings should come up after lunch has been half finished, and in bringing the pudding, and removing other things, of course a little rearrangement of the table is required.

Supposing, too, that the meat was to go down to the kitchen as soon as every one is helped, then the servant should not leave the place vacant that the meat has occupied, but rearrange the dishes so that some other fills its place before she leaves the room.

In taking away the things after lunch is finished, there should be a proper order observed. All silver articles should be kept separate, and the double basket should be brought in, to remove the knives and forks properly, putting each by themselves on each side of the division. After everything is removed, the crumbs ought to be swept up, the carving chairs pushed close up to the table, all the other chairs put in their places, and the window opened. A servant ought to be taught that it is disrespectful to keep a room in a disorderly and unfinished condition, by taking away in a dawdling and unmethodical fashion. Before the last trayful is taken down to the pantry, leave it outside, and return to sweep up the crumbs and finish the room.

It is very good for young people to wait on themselves and their elders at the early dinner, and this can be done without any undue disturbing of their hungry young selves. A good way is to let them take turns day by day to change the plates, and they should be taught not to put the plates upon each other without removing the knife and fork on each, and placing them gently, and without soiling their fingers, in the double basket, which ought to be in the room, as well as the basket for dirty plates.

A butler’s tray is not necessary for luncheon.

Fresh fruit is a great ornament on the lunch table, or on the sideboard, and the dessert plates should be placed there in a pile, or on the dinner waggon, with the silver knives and forks stiffly placed on each side

of the plates, and close together. No finger glasses or d'oyleys are used at lunch.

Dinner.—The dining room ought to be the right heat by attending to the fire at 4 o'clock in the afternoon through the winter, or by letting it out if the room is over the kitchen. The intelligent care of the dining-room fire evinced by so many servants in throwing some black coals on just as dinner is ready, is too delightful. If the under bar is well raked out at 4 o'clock in the afternoon, or 5 according to the dinner hour, and well but moderately made up with first a layer of coke, and then coal, the fire will be what it ought to be when the time comes to lay the cloth. Then before bringing in the cloth or anything else for the table, stir the fire, sweep the bars and grate, and dust the mantelpiece, sideboard, and dinner waggon. This is a rule very much neglected by servants, both before luncheon and dinner, but it is a most necessary one, for it is really a dirty trick to throw the tablecloth, sideboard cloth, &c., on a sideboard covered with dust, and an undusted mantelpiece and ornaments on it are unsightly.

The laying of the table for dinner should not be put off, as it so often is, until the servant has barely time to scramble through it; this applies also to all the meals, and there should always be a comfortable margin of time left, so that a servant can wash her hands, and change her apron and cuffs and collar, or a footman make a suitable freshening of himself for waiting at table. To prepare properly in the butler's pantry is the great secret for a methodical and well-trained manner of laying a dinner table. Not one tray, but two or three if necessary must first be prepared, so that every requisite for the table is brought up before the servant commences to lay the

cloth. Silver, knives, glass, cold plates, water bottles, cheese, butter, bread, dessert, finger glasses, &c., ought all to be prepared, and put into the dining room before commencing to lay the cloth. Either in laying a table or in cleaning a room, a well-bred servant ought to shut herself up in the room in which she is busy, surrounded with all her tools.

Before beginning to lay a cloth, a large clean apron ought to be tied on, whether it be a man or a woman servant, so that the dress does not soil the cloth. The thicker the under-cloth the better the white cloth looks. Have your white cloth most exactly in the centre, so that the side folds are at equal distances from the edge of the table, and smooth and stroke and pull your cloth well before you place anything on it. (Wash your hands well before beginning.) Then to each person put 2 large knives and 2 large silver forks, both to be an inch from the edge of the table, and the handles close together and perfectly even. At the top, just to the right of the end of the outside large knife, put your tallest and largest wineglass, and then group the others below, but always slanting a little towards the right, and close together. Unless you place them in this manner, it would inconvenience the person using them. Place sherry, hock, claret, and champagne glasses in this way. Of course this is an extreme of wineglasses, but these are the wines drunk during dinner. Generally for every-day use sherry and claret are sufficient, or sherry, hock, and claret, and if there is champagne, hock may not be needed. Do not put any tumblers on the table for a late dinner, nor any port-wine glasses. Unless there is a good staff of servants, you must lay your table for a dish of each course to be placed at the bottom o£ the table. To attempt to have everything carved at a side table, unless you can do

it properly, is simply vulgar pretension. The table can be laid prettily with fruit and flowers, and yet have the soup, then the fish, then the joint placed at the bottom.

If, when there is only one servant to wait at table, the carving is done by her at a side table, either the first person she helps must wait for vegetables, sauce, &c., while she is carving for others, or they must wait for their fish or meat. The sideboard for the late dinner must be laid fancifully and prettily, and with such a disposition of the tallest articles, that all the rest are shown to good effect. No knives should be seen, all should be silver and glass. Never turn a tumbler or a wineglass upside down in arranging a sideboard or a table—it is a vulgarity. At an hotel or restaurant it is reasonable to do so, where tables are really laid for hours, as it keeps out the dust; and on the washing-stand of a bedroom it is proper to turn medicine glasses and tumblers upside down for the same reason, but not in preparing meals in a private house, where the glasses are going to be immediately used. Neither should any spoon or fork be turned upside down, only saltspoons, because otherwise they would not lie on the top of the saltcellars. Arrange on the sideboard dessert spoons and forks, some large spoons and forks, sauce ladles, gravy spoon, fish slice—in short, all of silver that will be required during the different courses. Lay them out in a tasty manner, not too straggling, never in bundles as you would keep them in a plate basket. This is only admissible when there is a large dinner or ball supper, and then you must of course have a reserve in bundles, in addition to those you lay out ornamentally.

In laying the table do not place a soup ladle, a

gravy spoon, and a fish slice, or fish knife and fork altogether at the bottom of the table, as so many servants do. Keep the fish knife and the gravy spoon on the sideboard until they are wanted. It is quite right to place the carving knife and fork from the beginning at the bottom of the table, it is then ready, and yet does not make a confusion; in fact it would make more of a confusion if you were to place it only when it was wanted; but remember in laying them to let the bottom of their handles correspond exactly with the bottom of the handles of the two large knives, and let the ends lie on the knife rests. Put 4 saltcellars, one at each corner, or a small one to each person as the custom of the family may be. Place the tablespoons on each side of the saltcellars, so that the handles are in a line; and if you prefer to place your tablespoons straight, let the saltcellars be on a line with the ends of the large knives, but if you prefer to put your tablespoons at cross corners, they ought to be nearer to the edge of the table. If you place the tablespoons straight, the water bottles ought to stand off a little from the tip of the inside tablespoon. If the tablespoons are at cross corners the water bottles must stand across the middle of the inside tablespoon, and in this case you may turn the handle of one tablespoon one way, and that of the other spoon the other way; but when you place them straight, it is better style to have both handles in a row. You may either place 4 water bottles, or 2 water bottles and 2 pint decanters of dinner sherry, letting them correspond at cross corners. Pint decanters have gone very much out of fashion, in these days of handing everything, but they look pretty and cosy. As a guide how far apart you should place the knives and forks for each person, put a plate down between; the edges of a large plate

should go over the knives and forks, a small plate should not. Salt ought to be moulded in a little hillock, either out of a small china eggcup, or a wineglass that has lost its stem, and then turned out into the saltcellar. Remember to place knife rests. The butler's tray is a very ugly object unless a clean tray cloth is put over it; but it is a very necessary relief to the sideboard, as it holds the pudding and cheese plates, knives, and cheese, which ought all to be arranged there during the laying of the cloth, and room left for 2 vegetable dishes—if the family is small; if not, a large side table is needed. The dinner waggon should only be used for dessert plates, and such dessert dishes as cannot be put on the table until dinner is over. Wines for dessert ought also to be placed in the dinner waggon. Each dessert plate ought to be arranged quite ready for placing, with its d'oyley, finger glass, knife, fork, and spoon. The finger glass ought not to be even half full of water. If dessert plates are used without a d'oyley or a finger glass, then place your dessert knife and fork handles on the plates, and let the points go over the plate; this prevents their falling or straggling. The arrangement of the dessert ought always to be the care of the mistress, unless she has a housekeeper, and even then it requires her supervision. It is a thing that requires a lady's taste and touch. Each day the dishes require wiping, the papers rearranging; and once a week, at least, the dishes want washing. Nothing is worse than to see an old dessert from yesterday put on the table without to-day's restoration; better go without. Nothing is better than a pretty and fresh dessert paper. For strawberries or any of the small summer fruits that stain in the helping, it is better taste to place them on the bare dish, unless you use the leaves that belong to the

fruit; but do not use too many, and be sure to wash them. Never use artificial leaves or flowers to decorate dessert; in fact, never use flowers at all to decorate fruit, it is not true taste. For all winter and dried fruits dessert papers are best, also for biscuits and cake. Do not overload any dessert dish, and never put out ginger either wet or dry, or guava, &c., on a dessert dish, but on a small glass one, and place this on the dish, with a dessert paper under.

Small crystallised fruits are pretty arranged in ornamental paper cups especially made for dessert. Fill each with a different kind, and by leaning them against each other you can make a sort of pyramid. If only one dish of meat is put on at each course, a water dessert jug and goblets can be placed at the top of the table. It is impossible to give more detailed directions as to how the dessert dishes should be arranged on the table, only taking care there be not too many dishes. If the door of the dining room is farthest from the head of the table, let your tallest ornaments be near the head of the table. If you have occasion to bring in any odd chairs for a dinner or supper, do not put them on the side of the table opposite the door. If these two last hints are remembered, you do not spoil the general effect.

After removing the meat course, and all that belongs to it, remembering to turn out also the plates, so that the cook can be going on with her washing-up, return to the room, and shut the door.

If there is a tart, go to the sideboard, and place on a tray 2 clean knife rests, and a knife and fork—the latter, of course, to be silver. Place these to the right and left of your master, the handles an inch from the edge of the table; then put a tablespoon to the right of where the tart dish will be, *not* by the side of the

knife. Look round, and remove unsightly articles, such as tumblers that have been used for beer, and remove also any large knives that have not been used during the meat course; also put the saltcellars in their places, and water bottles. These little matters are easily and quickly done, and give a much more suitable and refined appearance to the dinner table for the serving of the sweets; for, naturally, the table gets a little disordered during the meat course from people using salt, mustard, cayenne, water, &c.

However small the article may be, always bring it to the table on a tray, or take it off in the same way. Now bring in and place before your master the tart or pudding and put the other sweets on the side table. Take in your right hand the sugar basin, and hold a pudding plate in your left. If your master puts the first helping on the plate that is before him, then the one you have in your hand does to replace it, and if there is only one servant waiting, of course this is the best way, but if two are waiting, then one can always hold a plate for a helping to be put on it. If two servants are waiting, the second follows with the sugar and sauce, if the latter be needed. When every one has had pudding or tart, remove it before handing the other sweets, or, if it is merely an every-day family dinner, you may hand the sweets to those that refuse pudding. As you remove a pudding plate that has been used, replace it with a clean one, with a fork upon it, with the handle on the plate and the prongs over the edge to keep it steady. Then hand the other sweets, holding the dishes with your hand underneath and very firm. If it should be jelly, blancmange, or cream, a tablespoon is sufficient, but for pastry a large fork as well as a spoon is needed. In handing entrées or sweets that require cutting, the first cutting should be done by the servant at the

sideboard before she hands the dish. In dishing sweets, never decorate them either with flowers or anything else, except their own cooking belongings. It is very bad taste simply because it is without any reason. A glass dish set in a silver one is the best, with a fringed d'oyley between, barely showing, but just enough to prevent a hard look. If there are not any silver dishes, then hand the glass dish by itself. Inexperienced servants commit the mistake of offering sweets to people who have already some of another kind on their plate. You must wait, and give a clean and separate plate for each sweet. Not only is it better taste and style, but your own sense will tell you that one sweet will spoil another, if eaten together. If there is game, it comes in before the sweets, and without any vegetables. In the case of a game course following the entrée and meat course, do not trouble to rearrange the table so exactly as before the sweet course, but still, a sharp natty servant will always give some touches before each. The bread-sauce ought to be in one tureen and the gravy in another, if it is game that requires gravy, and the breadcrumbs should be handed on a flat dish, as you would cut toast for soup. To all game hand cayenne pepper but no sauces, as the game flavour would be destroyed. If the game should be wild duck, it ought to be dished quite dry, and, as soon as you have placed it before your master, place by his side a cut lemon, cayenne pepper, and the sauce, which should be poured over the breast after it has been cut. In the same way, if, at the meat course the dish should be a fore-quarter of lamb, you must place by the side some butter, lemon, and cayenne pepper, and you must have ready in your hand a small dish on which to receive the shoulder when it is removed. The lemon, butter, and cayenne

should be put in between the shoulder and the ribs after it is cut and before removing the former.

Another hint for beefsteak puddings, if that dish should happen to represent the meat course. Have a hot-water jug, with boiling water; place it by the side on a little china stand. The pudding should be carved by cutting a round out of the top, and then pour plenty of the boiling water in; make an incision at the bottom of the pudding, and rich gravy will rush out; take a tablespoon, and ladle it into the pudding several times. This by no means impoverishes the pudding, but improves it, especially if there are kidneys in it.

To prepare for the cheese course. Remove everything belonging to the sweet course, and then return to the room, and shut the door. There is so much less rule observed nowadays, and so much more carelessness indulged in, that the proper rules will soon be lost sight of, and there is not one house in 20 where one sees the cheese course properly done. The proper rule is this—before cheese is brought in everything should be removed, except water and salt—because these are the only things that are required with cheese, so far as the things on the table are concerned. The port wine and ale are on the sideboard, and so are the tumblers and wineglasses in which they ought to be handed. As you remove the dirty pudding plates, replace them with cheese plates, with a small knife and fork on each, with the handles resting in the plate. Never place a cheese plate with only a knife. Half the reason why it is popularly supposed to be unladylike to eat cheese, is that it has been so generally eaten with only a knife, and this is done away with if a silver fork is used. In fact a fork is sufficient without

a knife. If two servants are waiting, the second holds the tray while the other places everything on it; but if there is only one, she has to use a smaller tray, and then it is a better method to remove all the silver together, and then all the glass. If any one has used a tumbler to drink water out of during dinner, do not remove it, but leave it for the same use during cheese. There are many ways of handing cheese, the most refined being to hand it, cut in squares from which the rind has been removed, on a round glass dish or small tazza, and some rolled butter on another; or it may be handed in a china dish with 3 divisions—for butter, for biscuits, and for cheese. This latter is the more convenient where there is only one servant. But many people like to have the cheese placed on the table when they are alone; and in that case you must place your cheese scoop or knife ready to the right before you place the cheese on the table, and remember to bring it on a tray. If the cheese is put on the table, you must stand at your master's left side with a spare cheese plate in your hand. Several squares of cheese are cut, and you must place on this a small silver fork, and hand it round to each person, as you would a dish, and each takes a piece on to their own plate with the fork. Then hand bread, or biscuits, or oat cake, or pulled bread, and butter. Then go to the sideboard and pour out, in a port-wine glass, some port wine, not to the brim, and 2 tumblers of ale. (This is supposing that there are 3 gentlemen at the table.) Hand these on a small round tray; if a gentleman takes the port wine, return to the sideboard with your tray and pour out another glass, and hand with the ale.

Now remove the cheese course, but if cheese straws or cheese pudding or cheese soufflé are eaten instead of plain cheese, you must observe the same

rules, the only thing you have to remember is to hand cayenne with these.

There is only one proper way to wait at table, and the foundation of good waiting is, that there is a reason and a suitableness in every rule, there is also a graceful simplicity in good waiting. And by clearing as you go, which is the key-note of all these directions, it is a help to every one. Firstly, the family comfort and refinement are more attended to, the cook gets her dishes and plates, and has not a general descent upon her of greasy things, muddled up with others, and the things can be taken to the butler's pantry in a more methodical manner.

Having a proper table in the hall for placing dishes on greatly facilitates their removal down stairs. A flap table with strong supports is the best for a narrow hall, or a trestle table, which should not be put out until the first course has begun.

Now, to prepare for dessert. Having followed the rules, you will find there is very little left to remove. Having cleared the table, remove the slip cloth from the bottom, and take all the crumbs away. A scraper with a handle is best, as a brush is not often enough washed; always use a pudding plate—a clean one, of course—to scrape the crumbs into. First bring a fork to take away the pieces of bread with, and then scrape the cloth very carefully, for nothing stains damask more than breadcrumbs, if the cloth is screwed down in a press with crumbs left in it. Never bring a dessert plate to the table until you have quite cleared it of crumbs. Spread out your dessert dishes, and fill up the spaces with others, that you have kept on the dinner waggon. After you have placed spoons to the right of each dish, place to each person the proper wineglasses, and lastly, the wine, before your

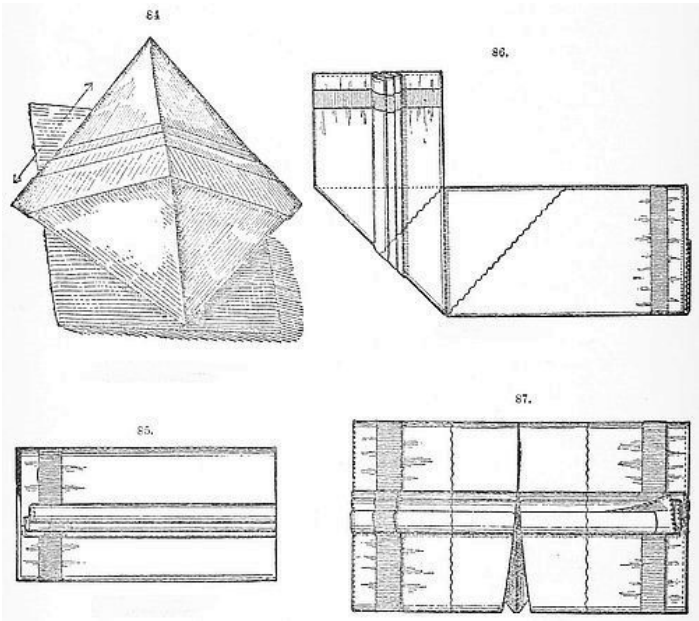
master, and if you have used other decanters during dinner, the dessert decanters are nice and bright. See that the sifted sugar basin that has been used at the pudding course is wiped, and the sifter clean before putting it on the table.

Where there is only a house and parlour maid, it is absurd to expect her to hand the dessert dishes; and even if two are waiting, it is rather a bore in every-day life. It is kinder to the servants to let them go to their washing-up, and pleasanter to oneself to be without them.

One of the untidy customs of nowadays is to leave the sideboard half-cleared, and for the servants to withdraw, leaving many things about there that have nothing to do with dessert, and which had much better be cleared away and put in their proper places, including the sideboard cloth, while the family are at dessert.

As soon as the servants have left the room, the fire in the drawing-room ought to be attended to if it is winter, and any little touches the room requires; and before the lady of the house leaves the dining room it is a good plan to ring the bell, as a hint to the cook to look to the coffee, which should either be brought in when the drawing-room bell rings, or at a regular hour. (II. Burleigh.)

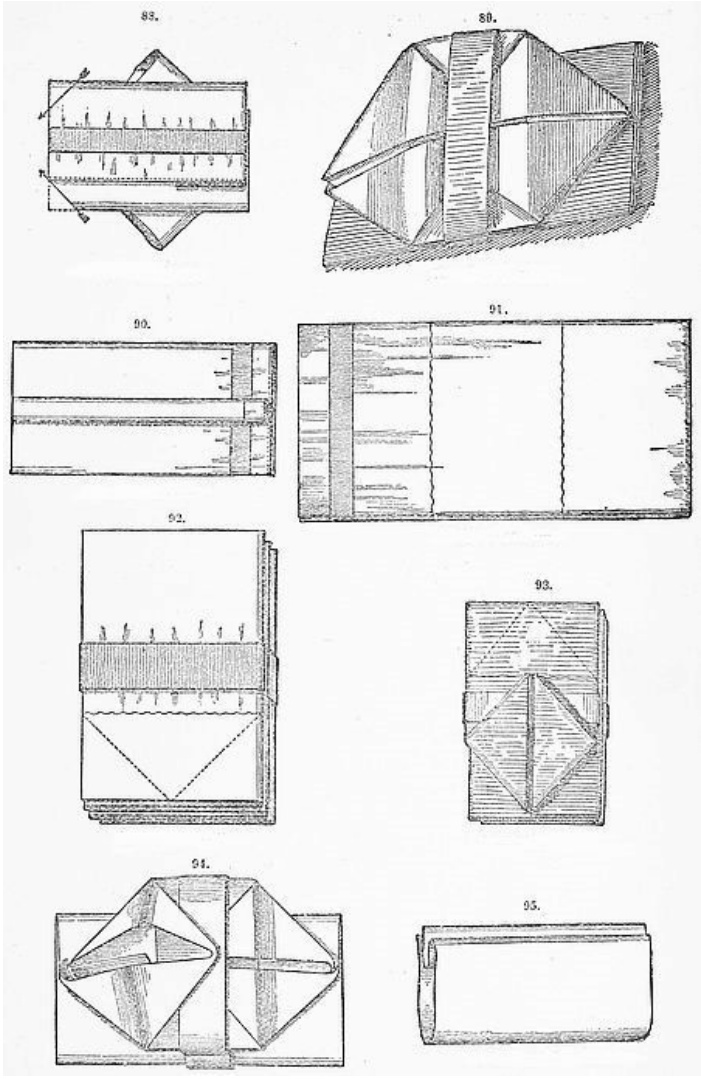
Folding Serviettes.—A few examples only are given. Those wishing for more are referred to the 'Book of Dinner Serviettes,' published at the *Queen* office.



84. Dinner Serviette. 86. Dinner Serviette.
85. Dinner Serviette. 87. Dinner Serviette.

The accompanying figures illustrate how to fold serviettes, and present details as to the manner of folding them. Fig. 84 is a dinner serviette (folded) with bread inside. Fig. 85 shows first detail of folding, half the length of serviette. Fold the serviette in 3 thicknesses lengthwise, and turn back one half of the top flap in 3 plaits along the centre line. Fig. 86 shows second detail of folding, whole length of serviette. Proceed by folding the serviette at right angles from the centre. Then trace the dotted line and the waved line which equally divides the triangle formed by the second folding. You will then have Fig. 87, third detail of folding. Trace the two waved lines shown, and fold from the outside

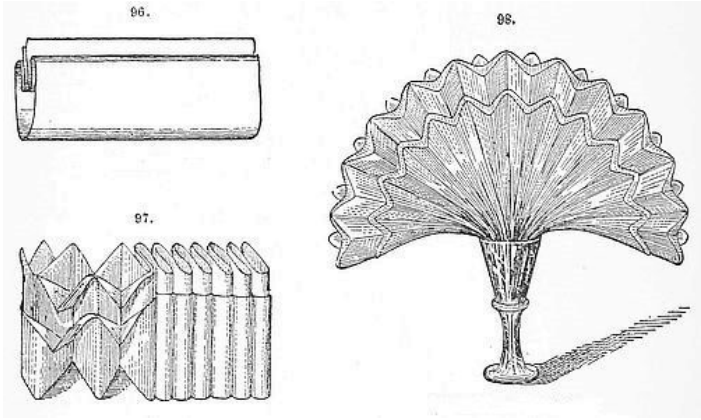
towards the centre to form a square underneath the triangle, as shown in Fig. 88, fourth detail of folding. Finish by folding back the corners as indicated by the arrows.



88. Dinner Serviette. 89. Breakfast Serviette.
90. Breakfast Serviette. 91. Breakfast Serviette.
92. Breakfast Serviette. 93. Breakfast Serviette.
94. Breakfast Serviette. 95. Marie Louise Serviette.

Fig. 89 is a breakfast serviette (folded), with bread inside. Fig. 90 shows first detail of folding, half the length of serviette. Commence by folding the serviette in 3 thicknesses, and form one half of the top flap into a centre plait. Fig. 91 shows second detail of folding. Turn over and fold the serviette in halves as shown in Fig. 91, and trace the waved lines. Then fold from right and left. You will then have Fig. 92, third detail of folding. Take up the top layer, and fold as indicated by the dotted lines of the triangle. Thus you come to Fig. 93, fourth detail of folding, and Fig. 94, fifth detail of folding. The same manipulation is repeated from the opposite side, and the corners placed under the centre plait. To arrive at a satisfactory result the folding must be done very carefully, and serviettes ought to be very slightly starched by the laundress.

The Marie Louise Serviette.—Open the serviette before you; fold it in half, with the edges at the top; plait 4-5 in. of the damask upwards to within 1 in. of the top, as described in Fig. 95; turn the serviette over, and make a similar plait on this side (see Fig. 96); plait this up crossways in the manner of a closed fan, and with the finger and thumb draw out the points between the folds, as described on the left-hand side of Fig. 97; place the lower part of the fan in a wineglass or serviette ring; it will then assume the appearance represented in Fig. 98.



96. Marie Louise Serviette. 98. Marie Louise Serviette.
97. Marie Louise Serviette.

Carving.—The following excellent instructions are summarised from a series of articles by D. Q. P., published in the *Queen* some time since.

Fish.—It is scarcely necessary to state that the duties of the carver do not commence until the fish is on the table; but, granting that fish may be easy to cut up, yet it is quite as possible to mangle and destroy its appearance as it is to destroy the look and flavour of a fowl. Fish requires in its way the same qualities and skill. There should be the same knowledge of the general anatomy, and of the choice and ordinary parts. Delicacies and tit-bits abound in all fish. A fish slice should always be used, and the best form for it may be likened to the sole of a Turkish slipper, the pointed toe turning a little upwards, and the handle springing from the centre of the heel. The fork usually accompanying the fish slice is not by some people considered an absolute necessity, an ordinary dinner fork doing such service as is required.

If a spoon or ladle has to be used, care must be taken never to spill, or make a mess, or heap up a great quantity of what is being helped upon a plate at a time. Avoid jerking, or the slipping of knife, fork, or slice, always keeping the elbows well into the sides, and letting the strength necessary to be exercised come from the hands and wrists. Never, either, grasp your carving implements too near the hilt; rather hold them, as well for the sake of appearance as for cleanliness and neatness, as much at the end of the handle as possible.

Cod.—With regard to codfish, the flaky system of apportionment should generally be adopted, though, under certain circumstances, what applies to the cutting up of salmon may be remembered, with the addition that the liver and the sound of cod, playing as they do very important parts, must be dispensed in fair quantities with each helping of the solid. Very requisite, in dealing with these little adjuncts, is it for the carver to calculate to a nicety the proportions which will allow a taste for everybody at the board.

Cod's head and shoulders is looked upon by some as a vulgar dish. After delicately slicing away in one or two unbroken flakes a small portion of the solid shoulder, a piece of the gelatinous flesh in and about the jowl should also be placed upon the plate, as this is a particularly nutritious and succulent substance. It is impossible to do much more than to dig out this rather unmanageable substance, clearing away the jaw and other bones, and leaving them upon the dish; though, despite the readiness with which the flesh comes away, it is not always easy to get rid of them entirely, and a few may inevitably adhere to the portions distributed. But, as the characteristic of these helpings must be a certain amount of

unsightliness, the bones are of little consequence, and must be expected.

Flounders.—Fried flounders are not by any means to be despised; but of course, like fillets, fried or stewed eels, flounder souchet, smelts, whitebait, and such small fry, need no carving; though “helping” must always be considered as a very material element in the carver’s art.

Gurnet.—The gurnet is not so common as either of the foregoing; it is treated with the fish slice precisely upon the same principles as those prescribed for the haddock.

Haddock.—The haddock, which is generally cooked and served in a curled posture, will best recommend itself to the carver who has an eye to excellence in quality and cookery; the flakes should fall right and left, with a creamy suffusion upon the slightest touch of the fish-knife’s point as it is run down the spine. The thickest or shoulder end of the fish is the best; and if there be a preference, the inner side is likely to be the more delicate, and, therefore, suited to the special or appreciative friend, for whom the carver should always have a thought.

Herring.—The last remark also applies to the fresh herring, when of too great dimensions to form one portion by himself; he, like the red mullet, is more delicate when small in size, just enough for one.

John Dory.—The John Dory is to be carved upon precisely the same principles as the turbot, with additional emphasis laid on the importance of the fin, whilst the skin is in itself an exquisite delicacy—never to be tampered with by the carver. The wart-like growths which mar to some extent the back of the turbot are absent in the John Dory, which may

be said to be always the better, the larger he is. His head, important as it looks, does not recommend itself, and, as a rule, being filled with parsley, should be left untouched upon the dish.

Mackerel.—Mackerel, though a simple dish for the carver to attack, must not be passed over without a word. When boiled, it should never be hacked by an attempt to divide it through and through; but the fish slice should be inserted from his tail upwards, to his gills, reserving for a special friend the tail quarter, and, if the fish be in roe, perhaps just a suggestion of an unfair share of the latter. The head and backbone are easily disengaged from the remaining underneath side upon the dish, and there is no question that it is better not to turn it over when this part is to be helped. A broiled mackerel, on the contrary, being split, should be cut through and through, bone and all.

Mullet.—The red mullet, again, makes very little demand upon dexterity, nothing being requisite beyond a fair division, longitudinally, into 2 parts, if the fish be too large for one. The so-called liver, usually just visible under the opening of the gill, is a most precious morsel, and must fairly be apportioned, whilst the head itself presents much pretty picking, the brain not being the least. Small red mullet, however, besides being superior in quality to the large, have the advantage of forming just sufficient for a single portion.

Salmon.—Salmon is a fish which offers very little difficulty to the carver, and so long as a due proportion of thick and thin be neatly cut—again in oblong squares—from the side lying uppermost, nothing remains to be attended to. The *thick*, however, must always predominate in quantity, and

it is better to begin cutting from the left, and also better, as in the case of the turbot, to raise the bone when the upper side is gone than to attempt to turn the fish over to get at the remaining lower side. The head and tail, though usually despised, and rarely seen at table, have nevertheless some very succulent picking on them, but do not offer much of a field for the carver to display his skill upon. He has but “to help” them as neatly as may be. Equally, this is pretty much all he has to do when the fish is brought to table in slices; he has usually but to make an equal division of the slice, taking care, of course, that each half is made up of thick and thin together.

Shell-fish.—Shell-fish likewise only generally has to be “helped,” being usually cut up before it is sent to table, and therefore does not need more than a word of recognition here; but it maybe permissible to add that the lobster has no part, not even the minutest tendril, that is unworthy of attention.

Sole, &c.—In speaking of the turbot and dory, nearly all has been said that is necessary to guide the carver in his handling of brill, large sole, and plaice.

Turbot.—Lying flat upon its back, plunge the point of the fish slice at once into its thickest folds just below the jowl, and run it down in an imaginary central line to the tail; then split the flesh into oblong squares, each terminating with a due proportion of fin; for remember the fin of the turbot is a delicacy which should never be overlooked. A careful eye should be had to the number of guests to be helped; for if recourse must be had to the under side of the fish, it is well to bear in mind that here the carver will find himself amongst a shoal of starry wart-like growths, by no means agreeable to the masticatory functions. Still, of course, when these are

eliminated, there is plenty of good eating on this under side or back of the waistcoat, and it is better to lift the bone away from it (in doing which there is no difficulty, if the fish be well cooked) than to attempt to turn him over when the white front has disappeared.

Whiting.—Fried whiting served in this same form should be very large to be so manipulated; but it is a fairer plan for the consumer than cutting the fish deliberately in half. Thus, both the haddock and the whiting should be helped in portions made up of the largest flakes obtainable, and, if the former be stuffed, naturally some of the stuffing must be placed on each plate.

Meat.—The edge of the knife must be of preternaturally dangerous sharpness, and the fork must not have been used too persistently as an instrument for the extraction of corks. Bright, straight, sharp-pointed prongs, and keen-edged flashing blades, are indispensable for good carving. The round form, slight curve, and rather rough surface common to buckhorn handles, afford a grip and purchase absent from the ordinary straight bevel-edged ones of ivory or bone. Remember that for carving joints the handles of the knife and fork are to be short and the blades and prongs long, and that for game and poultry the very reverse of this is necessary, greater firmness of blade and point in the latter case being requisite.

Beef.—First the sirloin. The fillet or under-cut, being always better when eaten hot than cold, should generally claim first attention. It must be cut transversely into thick slices, like a tongue; as also should be the fat at the thinner end, a portion of which should go with each slice of lean from the

thicker. The joint must be turned over, to enable the carver to get at it conveniently; and, according to the number of persons to be helped, he should cut so many slices at once, before setting the bone up in its proper position again. By this means he can, when helping from the main bulk of the joint, give a portion of the fillet to each, without having constantly to turn the joint from one side to the other. Some people prefer that both upper and under side of a sirloin should be cut alike—that is, transversely—and, though generally considered an extravagant way, it is not without its advantages; the chief of these notably being that each slice has an equalisation of brown and juicy meat—there being, so to speak, no outside cut, each help having, in a section, brown and underdone in the same slice. A piece of the fat from the flap or lower end of the joint must, of course, accompany every portion, as in the case of the fillet, and it should be remembered that these two sorts of fat are very different in quality; the under, or fillet, being of a far more juicy, delicate, and tender quality than the upper, especially when hot. The upper, however, accompanied as it is by the crackly edge of skin, is exceedingly toothsome, with a flavour peculiarly its own.

The ordinary plan of carving the sirloin, however, recommends itself to most housewives as the better, from the fact that lean and fat go together necessarily with each slice. It is generally advised that, before slices are cut, the point of the knife should be inserted a short distance between the meat and the bone, both of the chine (or short upright bone) and the rib (or long bone). Then the knife has but to be passed dexterously down the face of the meat, and each slice comes away easily and clean

from the edges. Only, of course, those who are helped first, in this instance, get the brown or well-done outside, and those later on the under-done or juicy. Therefore it is always necessary for the carver, as an act of common civility, to ask those whom he is helping whether their preference be for well or under done. Slices of roast beef from the upper side cannot well be cut too thin, when carved in the ordinary fashion, excepting perhaps the first or outside slice, which admits, from its crispness, of having a little more substance. The joint should be kept perfectly straight upon the dish—that is to say, at right angles with the line of sight of the carver—nothing looking worse or more awkward than for the meat to be twisted all awry; and in fact no real facility is afforded by doing so, for, if the carver does but stretch his arms out far enough to bring his right hand and wrist well above the joint, he will find that by holding the knife almost perpendicularly, and cutting downwards, he has, with the support from the fork, all the purchase necessary. On no account, either, may he stand up, set his arms akimbo, or bow his back; all the strength requisite can be exercised from his chair, by inclining the body sufficiently forward. The muscular exertion demanded is seldom greater than most ladies, with practice, can supply, and they should not be deterred by any slight sense of fatigue in the early days of their carving career, as it will prove a gentle exercise well calculated to strengthen their hands and wrists, without in any way disfiguring them.

During all pauses in the carving, the knife and fork should be placed on the knife rests, and never thrust and left under the joint; nor, while the carver adds the gravy to the plate of meat in front of him, with the spoon in his right hand, is it well for him to hold

both knife and fork in a bunch, as it were, in his left. To do this gives a slovenly, hasty, eating-house sort of effect to the process, especially if, at the same time, the dish be tilted with the left hand, for the easier filling of the spoon. This is always an inelegant proceeding, calculated to endanger the purity of the tablecloth, by the sluicing of the gravy over the edge of the dish, or, even worse, by the capsizing of the joint itself. A carver cannot be too careful never to make a mess; and if every meat dish has, as it should have, a well, there is no excuse for his doing so. A tiny crust of bread put under one end of the dish to cant it a little, in the absence of a gravy well, is at the most all that can be pardoned in the way of disturbing the equilibrium of the dish. If a portion of the garnish of horse-radish is to go with each helping, it must be dispensed with the points of the fork. The gravy spoon should always be put in a vessel of hot water, and placed at the right hand of the dish, up to the moment of using. So essential, too, are hot plates to a perfect condition of roast meat, that a second plate, for a second helping, is strongly to be advocated; and for the same reason, though a dignified calm should characterise the carver's behaviour, there should be, on the other hand, no approach to dawdling.

Attention to simple details like these distinguishes the good from the bad carver, and renders the execution of the task rather a graceful act than otherwise. In carving the sirloin and similar ribbed joints, a too pliant blade is not desirable. When, however, we are dealing with a round of beef lying flat before us, or the boiled silver side, or a piece of roast so-called boned beef, the knife cannot well be too yielding, nor, again, the slices cut too thin. Never either omit with this sort of joint, where one has to

cut directly towards the fork, to raise its finger guard, for, if the knife slip, it will run straight up over the bow of the prongs, to the imminent peril of the carver's hand. For, of course, in manipulating a piece of meat with the surface to be cut lying uppermost, the left or fork hand is higher than the right or knife hand—nearly the reverse of the position necessary in carving a joint standing upright. In this case the knife is held nearly perpendicularly, the fork nearly horizontally—just, indeed, the contrary to the manner of using the tools for a flat joint.

With the aitch-bone, as with the round of beef, it may be desirable to cut rather a thick slice from the outside before beginning to help; but the habit is wasteful, and should be adopted with judgment. These are not difficult joints to carve, if it be always remembered that a knife with a thin pliant blade is absolutely necessary. Of course a delicate morsel of the fat must go with each serving. The brisket of beef is not a joint very usually to be met with; but it has its merits, and has only to be cut neatly across the bones, to prevent its having a jagged, untidy look on its reappearance at table. What has been said concerning the carving of the sirloin of beef applies in all respects to the carving of the ribs, except that, these having no under-cut, the task is rendered less diversified. The beef tongue must likewise be carved precisely upon the same principles as the sirloin, when that joint is cut transversely, like its fillet; the fat at the root of the tongue, of course, not being overlooked.

Mutton.—All details about knife, fork, spoon, dish, position of joint, and of the body, arms, and hands of the carver—referred to when speaking of beef—are

equally necessary with regard to haunch and saddle of mutton. The first thing to be done in carving the former being to make at the knuckle end a deep cut across, down to the bone, with the point of the knife, this forms a basis for a well, into which the gravy will run from every succeeding cut, which ought to pass at right angles to the first incision—that is, all along, in continuous and thick (but not too thick) slices—the whole length of the joint. The moment room at the knuckle end, where the first cut was made, is obtained for the insertion of the spoon, a modicum of the gravy which has accumulated in the hollow should be distributed with each helping, as, of course, it is the richest, being absolutely pure essence of meat. Care too must be taken never to forget putting a little extra fat upon each plate, as the haunch of mutton fat is highly prized; and whoever is most expeditious in assisting the guests may be counted the best carver of mutton, for that it should be piping hot is indispensable.

Saddle should be cut very much upon the same principles as the haunch, and presents no great obstacles to the carver. If a preference be given to carving the slices obliquely instead of straight, the thin end of the saddle should then be on the right of the carver. Each side of the chine or backbone is to be dealt with alike, the first slice always taken from as close to the bone as possible. As the fat lying in the region of the kidneys is held in great estimation, a portion of it should go with every helping; and therefore it is advisable for the carver directly the cover is taken off the joint to tilt the saddle a little on one side, and cut away at once from underneath it as much of this same fat as will be required to go the whole round of the table. He should then slip it all into the gravy well, and thus it will be quite ready

for him to help from, otherwise, if this be not done at starting, and attempts are made to get at it after he has begun to cut into the joint, he will in all probability spill the rich gravy settling in the channel made by his first incisions—an unpardonable wasting of good stuff—or he will overlook the kidney fat altogether, to the disappointment of everybody concerned; and the fat is not nearly so good cold as hot.

The popular leg of mutton owes perhaps a great deal of its popularity to the ease with which it may be cut up. Little has to be done, save to pass the knife straight down at right angles with the bone, and not obliquely, as one would carve a ham. Then, according to the preference of the guests, tolerably thick slices from either the knuckle or the upper end may be distributed, the knuckle end being always the better done, though not always perhaps the choicest in flavour. Many little fancies and predilections for certain tit-bits will be met with: 2 quaint pieces of brownish, crisply-roasted fat, like ears or little wings, protruding from the upper end of the joint, being, with the Pope's-eye, notable instances. Some are fond of having this joint dished with the under side uppermost, so as to get at the finely grained meat lying under the Pope's-eye; but this is an extravagant fashion, and one that will hardly find favour in the eyes of economical housewives.

On the butcher's proper attention to the process known as "jointing" depends mainly the facility with which a loin of mutton is cut up, and we must not attribute blame to the carver who has to struggle against the neglect by that functionary of this important matter. If it has been rightly attended to, the carving knife can be made easily to find its way

between the chine bone, and can then, without any let or hindrance, be passed down through the ribs, separating them one after another, again reserving the outside chop for those who prefer the meat brown and well done. The fat and lean go together with each bone, in common sequence, demanding little or no thought from the carver, save perhaps here and there, where an ugly or rugged bit of skin requires to be trimmed off neatly.

Next to the loin of mutton comes the shoulder, as the joint offering the least difficulty to the carver. The knife has but to be passed from the outer edge of the shoulder across the meat towards the carver, until the bone is reached. Take away slice after slice in this direction, and then resorting to the meat lying on either side of the blade bone, according to the quantity required, in this instance cutting lengthways of the joint. When no more can be obtained from the upper side of the joint, it must be turned, and there are many people who do not consider that they have had the best of a shoulder of mutton until this side is attacked. It will now present almost the appearance of a new joint, being quite flat, and offering a succession of juicy slices along its entire length. These have to be dexterously removed, very much upon the principles recommended when flat joints were spoken of. These slices are preferred for hashing, however, by those who think that the quality of the grain of the meat from this part of the joint renders it inferior at the first cooking to the upper.

It is not necessary, with one exception, to say anything about joints of lamb, for they only have to be manipulated according to the rules laid down for mutton. The exception is a fore-quarter of lamb. In

removing the shoulder from the breast—the first point to which he directs his attention—hold the shoulder firmly with the fork, and proceed with the point of the knife to cut through the smoking crisp brown skin in a circular line, at the junction of the two joints. Following the same line for a second time, and now thrusting the knife farther into the meat, a very little exertion with the left hand makes it easy to raise the shoulder from the breast, whilst a pat of butter, a little cayenne pepper, some salt, and a good squeeze of lemon are placed between them by the carver. When, in a moment or two, these ingredients have assimilated with the gravy, it is sometimes, for the sake of convenience, thought desirable to place the shoulder upon another dish, hot, and standing ready at the carver's left hand, or held there by a servant. This done, inquiry is made of those about to be helped as to their preference for brisket, ribs, or a piece of the shoulder. The brisket should be separated from the ribs by one long cut from left to right, and then subdivided at the distance of one or two bones, by cuts at right angles with the line which separated the brisket from the ribs. These again, in like manner, are divided into chops by carving them similarly to the shorter bones of the brisket, and upon the same principle as when cutting up a loin of mutton.

Venison.—Those who have any experience in carving haunches or saddles of mutton have very little to learn with regard to venison; the principles which guide them in dealing with the former have only to be followed out in the latter. A haunch of venison is carved exactly like a haunch of mutton; but, being somewhat larger, it is advised by some authorities that the broad end of the haunch, instead of the side, should be turned towards the carver for

the purpose of giving him greater command over the joint. This system leads to an entire disturbance of the appearance and general arrangement of the table; and a skilled carver should be independent of such twistings to meet his convenience, except under great emergencies. Epicures pretend that there is a vast difference between the flavour of the slices cut close to the vertebræ and those farther removed, and the carver must make concessions to such notions, and give those whom he is helping their slice from the region which they prefer. Never either must he omit to give a dip of the rich gravy always accumulating in the channel whence the slices are taken, nor an ample portion of fat with the lean. Expedition, but without hurry, is essential in carving venison, as, like mutton, it chills very rapidly: but, as on the whole a haunch of venison is not a difficult dish to deal with, there never should be anything to complain of on the score of delay. As the shoulder of venison is usually sent to table stewed and rolled, the bone having been removed, it presents no difficulty whatever to the carver, and being, so to speak, a fat joint, has to be dealt with according to the principles already laid down. Sometimes, however, the shoulder is roasted, as is also the neck; but these—with braised brisket, fillets, and steaks—do not demand any special comment as to their carving; for what has been learned about cutting up sheep should prove sufficient for the comparatively rare occasions when the carver is called upon to discuss deer.

Veal.—The commonest form in which veal offers itself is perhaps a roast breast, and if a carver has had any experience in cutting up fore-quarter of lamb, he will at once recognise the similarity between a breast of veal and the aforesaid joint of lamb after the shoulder has been removed. Like it,

the veal is composed of ribs and brisket, and may be cut accordingly, that is, first, by separating in one long incision the ribs from the brisket, and then the rib bones one by one, after the manner of chops generally. The gristly brisket may be cut in squarish portions, inquiring of course always of the guests whether they prefer the latter or the former. The brown, well-cooked parts in veal are usually most esteemed; and if the sweetbread, as it sometimes is, be sent to table with the joint, it ought naturally to be fairly distributed. Once more, in manipulating the roast fillet of veal, the carver has only to remember what has been said respecting a round of beef, with the addition that a portion of the stuffing, which is inserted between the flap and the main bulk of the meat, be served with each helping, and that the brown outside, or first slice, is considered a very choice morsel.

A knuckle of veal, being in shape somewhat like the knuckle end of a leg of mutton when it has been divided, needs but few directions for carving. The slices from the thicker end are the best; that would be to the right of the first incision into the meat.

The butcher is mainly responsible for the good carving of a loin of veal, for if he have not done his jointing properly, it is hardly possible to cut it up decently; whereas, if he has done his work well, the carver has but to feel his way with the point of the knife, on lines already laid down, to be able to disengage the separate portions—never, by the way, overlooking the kidney, and the kidney fat, lying on the under side of the joint.

It is not very easy to describe the exact method of carving calf's head, but a little experience and examination of its organic development soon

suggests what has to be done. When upon the dish, the nose and mouth should be to the right of the carver, and the first incision should be made right down to the bone, and running all along from the back of the nearest ear down towards the nose, and slices be cut away in the same direction. With each of these should go a piece of what is called the sweetbread of the throat, a substance to be found under the ear, and, so to speak, at right angles with the line of the first incision, and it should be cut towards the carver in the direction in which it lies. Calf's head has a multitude of succulent morsels, to wit, the ears, the flesh round the eyes, and the eyes themselves. Also the palate, which, lying under the head, is to be got at when the jaw bone is removed; and where, likewise, some nice lean becomes accessible. On a separate dish, of course, the tongue and brains are served, of which every one is invited to partake.

Sheep's head is held to be a very vulgar dish, and a lamb's head, perhaps, only one degree less so. Still he who is unfortunate enough at any time to find himself with the responsibility of carving or helping such viands may take courage if he has any knowledge of what is demanded of him when similarly situated with a calf's head, the heads of the smaller animals being then very easy of manipulation.

Pork.—Like calf's head, a sucking pig seems at first sight to be rather an appalling dish, and undoubtedly a little experience is requisite before one becomes quite *au fait* with the business. But the whole substance is so tender, and yields so readily to the knife, that after a slight knowledge of the anatomy of the animal has been acquired, all difficulties vanish.

The little piglet generally appears upon the board divided into four parts; the head, like the body, being cloven in twain, a cheek being placed at either end of the carcase. In dealing with the latter, the shoulder has first to be removed by passing the knife circularly round its junction with the body, pretty much as one does with fore-quarter of lamb. The leg is then treated after the same fashion, when the ribs will be open to view, for gentle division. Each side of the animal is disposed of in the same way; the larger joints being considered, perhaps, the least delicate (if, where all is delicacy, there can be a "least") are usually offered to the robuster appetites at table. As in the case of all dishes abounding in choice morsels, the epicure is sure to have his fancies about sucking pig—one preferring the ribs, another the neck, and a third the meat from the shoulder.

Concerning leg of pork, really little or nothing additional has to be said. The knife only needs to be carried straight down through the crackling to the very bone; as each slice is taken away, such stuffing, gravy, &c., as accompany it, is distributed either from the joint itself or from sauceboats. Allowing for a slight difference in form, it has to be treated like most of the leg joints that come to table, and the same may be said of the loin. As you dispose of a loin of mutton, so do you of a loin of pork, the due value of the crackling, fat, and brown tit-bits being kept in mind. The butcher here again is responsible for the jointing, and the cook for the judicious scoring of the crackling.

Ham alone remains to be noticed in this part of our subject, and according as one wishes to have fine or economical slices, must it be carved. In the first case, the start is made upon the prime part at once;

in the second, from quite the lower end of the knuckle, advancing gradually at a gentle angle towards the thicker and prime part of the meat. A pliant, very sharp knife is indispensable, as the slices cannot well be too thin, or too evenly and smoothly cut. It is of little concern to the carver whether the ham be hot or cold, and the same may be said of joints generally.

Odd Dishes.—Very little need be said about "helping" dishes of meat, as part of the carver's duty, even where no actual knife and fork execution is required. A rump steak, for instance, hardly needs to be carved, but it has to be cut and helped very neatly, and not distributed in irregular mis-shapen hunks, but rather, as a rule, in oblong finger-shaped pieces, with a nice modicum of fat attached, if possible, but certainly going with each portion of lean. And because meat pies again have to be cut and helped, not carved, the carver, so called, must not look upon them as beneath his consideration.

If he thinks that hashes, curries, ragouts, what-not, do not give him a fair field for the display of his skill with knife and fork, and that, therefore, it does not signify how they are helped, he will be grievously mistaken.

Except where a great number of portions have to be served, avoid the use of the knife sharpener at table: it has always an eating-house effect about it. It is disagreeable to the ear and if executed with the flourish of dexterity, not unfrequently is likely to splash right and left; for unless the knife be wiped previously, and this is a very awkward and unsightly process, some of the juices of the meat inevitably cling to it, to be scraped off against the sharpener, which in its turn is made greasy, and therefore

jeopardises the purity of the tablecloth. If, however, a sharpener has to be brought into play, the simplest and most efficacious is the ordinary round butcher's steel, always supposing the power of using it properly in conjunction with the knife has been acquired. Short of this, the little contrivance consisting of a series of discs overlapping each other, so as to form a wedge-shaped socket with the finest of thin edges conceivable, into which the edge of the knife is dropped and then pushed gently backwards and forwards, is very useful, and may be recommended as fully answering its purpose, and if carefully manipulated entirely without risk. It also is cleaner, less unsightly, and creates less unpleasant noise than the common steel, whilst a child might manage it. At any rate, ladies should always use it in preference to any other sharpening instrument. The habit of feebly drawing the edge of the carving knife downwards, to and fro, against the back edge of another knife, should only be thought of under very pressing circumstances; it is an extremely inelegant action.

Poultry.—Once learn its anatomy and the best method of separating its limbs, and very little more knowledge will enable you to manipulate skilfully any of the feathered tribe. The chicken should lie upon its back at right angles with our line of sight, and its tail end to our left hand. The fine plump breast tempts naturally the insertion of the fork, which should be driven firmly, but delicately, and almost perpendicularly into it, a little to the left of the centre, a prong on either side of the ridge of the breast bone. Secure hold should be at once got by this process of the whole carcase, for if it be intended to cut up the entire fowl at once it may be, and should be all but done without once removing the

fork. The next process is to separate the wing, or both wings, and this is done by passing the knife sharply along the line of the breast, as far outside the breast bone as will leave a fair share of meat attached to it, and yet give an ample portion to the wing. Thus, cutting from left to right, and downwards, as we approach the right extremity of the bird, let the knife diverge a little farther outwards, so as to clear the merrythought, and strike the joint of the wing. Unless the creature be of preternatural antiquity, the junction is easily severed, and bone and flesh come away almost with a touch. Having removed both wings in this way, lower the fork hand so as to cant the chicken a little on to its side, and then pass the blade of the knife under the projecting elbow, as we may call it, of the leg, and, forcing it outwards, disengage it too from the body by severing with the point of the knife the joint by which it is still slightly held. Then turn the bird bodily over on to its other side, without removing the fork, and dispose of the second leg in a similar fashion. Restoring then the chicken to its original position, pass the knife transversely across the breast a little to the right of the highest point of the breast bone. Cut down gently, inclining the edge of the blade to the right, press outwards and upwards slightly, and the merrythought comes away. There must be no tearing of the skin; every incision of the knife must go clean through that, for nothing looks worse than to see one portion with the skin half torn away, and hanging in a long ribbon from another. The merrythought is now disposed of by just separating the little joints by which it is still attached when the upper end of its bone has been separated from the breast, and having a nice clean edged covering of skin. Again turn the carcase on to its

side, and by an action with the knife, similar to that by which you removed the legs, force away by an upward pressure the two side bones one after the other, that is the two bones which the removal of the merrythought has revealed. There is nothing now to prevent the knife being swept clean through the ribs, and so disengage breast and back. At this stage the fork is withdrawn from the breast, which has now become a trim, tempting, and oblong portion; the back only remains to be dealt with. Turning it over, press the knife firmly down upon the right end of it, and holding it so steadily, lift the left extremity with the fork, and the back is immediately dislocated near the centre; complete the separation by severing with the knife such portions of skin and flesh as may yet cause the joints still to adhere one to the other. Arrange then all these various portions neatly on the dish, and still assuming that the demolition of the whole bird was necessary, it will be ready to serve, remembering that a piece of the liver should go with that wing which has it not. On some occasions—carving for a large number of children to wit—it may be necessary to divide each leg into two portions by severing the thigh bone from the drumstick, as it is called.

Boiled or roast, such is the mode of cutting up a fowl. Supposing, however, that some special part alone is wanted, say the merrythought, it can hardly be got at without first cutting the wing, or wings; not perhaps disengaging them entirely, but certainly so far as to get at the particular joint required. It ensures neatness in the long run, and it is highly essential that a bird, if it reappears at table, should look neither hacked nor mangled. If a fowl approach the proportions of a capon, it will seldom be well to drive the fork into the breast at starting, because

then the first thing to be done is to make the breast yield the utmost number of slices; these should be cut, to begin with, from as close to the wing as possible, working upwards on either side till the breast bone be reached. Only when these, the choicest parts of the bird, are distributed, will it be necessary to go into the dissection of the carcase as aforesaid; and it must not be forgotten that under this method the wings are reduced to what may be called a mere picking.

Very special fancies are found to predominate amongst all who partake of poultry, and it is essential that the carver does not neglect to consult each individual's predilections. A very little experience, too, will show how indispensable it is to have poultry carving knife and fork in exquisite order. The knife must be firm and sharp-pointed, or it will never disengage anything like stubborn joints.

Duck.—The anatomy of the fowl once mastered, that of the duck or duckling becomes immediately patent to the most casual observer. The slight difference which exists in their general conformation, and which arises chiefly from the legs of the duck being set farther back on the body, is not sufficient to require much additional comment; but it may be said that, whereas the wing of the "flyer" is held in the highest repute, so is the leg of the "swimmer"; and when a very small and tender duckling is under the knife, one wing and leg taken off together, without division, will be no more than enough for one portion. The stuffing is got at by cutting open at its lower end, by a semicircular incision, the little apron of skin just below the breast. This should be done so neatly that it falls back into its place when the spoon is withdrawn, and must on no account be

left jagged. Nevertheless, the carver should never put any of the stuffing upon a plate without first asking whether it will be agreeable. Some housewives, when a pair of ducks or ducklings appear, allow only one of them to be stuffed, and this is perhaps wise. As with a large chicken, so with a large duck, the most must be made of its breast by cutting the utmost number of long and delicate slices that it will yield, commencing always as close to the wing as possible. Very marked will be the difference in the apparent amount of separate portions which will be got off a duck by a good and a bad carver; and it is only a little exaggeration to say that the good one will make the bird go twice as far as the bad. All sorts of odd out-of-the-way tit-bits can be got off the carcase by any one who has had the wit to keep a watchful eye on a dexterous knight of the carving knife and fork—for practical carving is learned more thoroughly by watching an expert than by any other means. Amongst the tit-bits of a duck some people look upon the feet as very pretty picking, and they should always appear at table, not only for the above reason, but as giving a character to the dish.

Turkey.—The turkey, though looked upon as the king of the poultry yard, is not by any means a subject that calls for a very unusual amount of skill on the part of the carver. Beyond the fact that care should be taken to cut neatly a succession of long slices from the breast, each with its nice little edge of untorn skin, there is really not much for the knife and fork to do. The cutting of slices from the breast should begin as close to the wing as possible, and proceed upwards on both sides, to the ridge of the breast bone. Some people prefer exactly to reverse this process; but it is not important. The stuffing under the breast is got at precisely as in the case of

duck. The severing of the wings and legs is only on rare occasions necessary at table, as the breast of the bird usually yields an ample supply for an average number of guests. But in the event of the carver being called on to disjoint a leg or wing, he will only have to draw upon his acquaintance with the anatomy of the chicken. When, on the following day, the remains of a turkey appear in the form of a grill or a devil, the cook should have made any carving of the dish unnecessary.

Goose.—Though the anatomy is similar again to that of the chicken, the greater size and strength of the bird give greater toughness to the joints, and call for the exercise of more force of wrist and hand in their separation. The point of the strong sharp blade must be made to find its way between the bones, as any attempt to cut through them will lead to disaster. Supposing the whole of the breast to be gone, then, and that the leg and wing bones have to be operated on, proceed upon the principles enunciated in the case of the chicken. Turn the bird on one side, and, after forcing with the blade of the knife the projecting angles or elbows of the bones back from the carcase, when coming to the leg, separate the thigh from its socket, which will be a less easy task than in the case of the pinion-bone of the wing. The merrythought, if comparatively a small item for so large a bird as a goose, must be disengaged. The dissection of the remainder of the bird, upon its reappearance as a hash or what-not, will generally devolve upon the cook; but, come in what guise it may, most excellent picking may be found in every quarter. Stuffing is an element of roast goose never to be overlooked; it is to be found and reached in the same way as in the duck. The skin of the apron and elsewhere is, as usual, on no

account to be torn off or left ragged, particularly as with this bird it is accounted very choice in flavour.

Guinea Fowl.—Guinea fowl, peahen, or peacock, and other such “strange fowl” as are on rare occasions put before a carver, being in their anatomy sufficiently similar to the turkey for all practical purposes, may be passed over here. Boiled or roast, they must be treated with the same discrimination.

Rabbit.—A rabbit for roasting is somewhat differently trussed to when it is intended for boiling; in the latter case the head is placed on the dish to the right of the carver, and in the former to the left. In both cases, however, the back is the chief point to operate upon. If roast, separate the back on either side from the legs and shoulders; then divide the back into two equal parts; then disengage leg and shoulder one from the other, jointing them according to the number of portions required. If boiled, a very similar process may be adopted; the knife’s point has but to be inserted where a joint appears, and it yields to the slightest pressure. Very seldom is the rabbit substantial enough to justify its treatment after the manner of the hare—that is, by taking slices out of the back, and so on, down to the limbs, without disengaging them; but where the bulk of the animal is sufficient to allow of this, it is certainly the more tempting, easy, and appetising method.

Pigeon.—Beyond bringing into play the strength and neatness which are demanded whenever actual bone has to be severed, there is little to be done with knife and fork. If the bird be divided cleanly into two equal parts by a sharp strong cut right through everything, as it were, from beak to tail, each portion must be further manipulated by those before whom it is placed; the carver has no further concern with it.

But should it be necessary to divide a pigeon into 3 portions, then 2 legs and 2 wings will make 2 out of the 3—if, in cutting them off, the carver is careful to leave enough meat on the breast to allow of that being presented as the third.

Game.—Woodcock.—When a woodcock is under the knife and fork, the carver will be very careful to examine the toast, to see that all the trail is upon it, or rather that the liver, which is the essential element of the trail, is not still left within the body. To do this he may with a slight touch of the knife, when he has secured the breast with the fork, force back the legs, and so, by disengaging the back, turn the bird as it were inside out; the liver will then fall upon the toast, and should be spread upon it evenly, with the addition of a little pat of butter, pepper, and salt, and a squeeze of lemon. As to cutting up the woodcock, the task is very simple. The bird may be divided into 2 or 3—the breast for one, and each leg and wing for the second and third portions; but, as the back is very small, and yet very choice, it had better be reserved for the special friend, seeing that there is not enough of it to divide; the thighs, however, are accounted almost equal *bonnes bouches*.

Snipe.—Perhaps the next amongst the “trail birds” to rank with the woodcock, who is the king of them all, is the snipe. He will generally, upon his modicum of toast, form not too large a portion for one good appetite; but he may be made to do for two less robust, by splitting him exactly in twain upon the usual plan. This is a bird that brooks no delay in the helping. He should be eaten hissing hot.

Plover.—The plover calls for no special directions. Larger than the snipe, but smaller than the woodcock, he may be treated according to the

appetites—halved, trebled, or presented upon one plate whole, with the toast as a matter of course. If for plover or snipe we read “quail,” what has been said above will be all that is necessary. The ortolan also might be included. The hints anent the disposal of the liver, &c., on the toast, under the woodcock, may be taken to apply, more or less, to all similar arrangements. The carver should be careful to eliminate the little sandbag or crop, which sometimes may be found in close proximity to the liver; otherwise, if spread upon the toast, its grit will render the whole entirely uneatable.

Wild fowl.—Like turkey or goose, wild duck (and indeed all wild fowl, including the teal and widgeon) offers to the carver the most tempting of breasts, whence to cut away a succession of delicate slices; but he may not remove these until he has inserted sparingly a sprinkling of cayenne pepper between the scorings he has made with his knife, and given an ample squeeze of lemon over them, to drive the pepper well into the interstices. The breast alone is held to be the choice portion of the bird, though there is pretty picking elsewhere, but further dissection of him, when necessary, for immediate or future purposes, such as hashes, &c., may be carried on upon the oft-referred-to chicken principles.

Landrail.—The landrail, not often met with at table, may be easily carved by treating him like a snipe; he is trussed in the same manner, but of course is trailless.

Hare.—The hare stands pre-eminent amongst game, and is so generally popular, and yields so much capital eating, that it should be looked upon as a very special dish for the carver. The head on the left of the carver and the body lying at right angles

to the line of sight, slices are cut out of the back all along its length from left to right. Clean, neat, and regular should they be, each with its nice little edge of brown skin; and when, from both sides of the spine, all the meat has been cut away, both the legs must be disengaged by a sharp incision, much after the manner in which the wing of a chicken is removed. Then the shoulders, by a semicircular cut round the joint, are displaced, the point of the knife feeling for the junction at the socket of the bone. Next, in the same way, let the knife travel to about the centre of the back, the carver feeling with its point for a favourable nick in the vertebræ through which, with some little exercise of strength, he may drive the blade, and so divide the body in two. The stuffing must be served in moderation with each portion; and, as the remnants of a hare are generally turned to good account, it is as well, except under extraordinary circumstances, not to serve any of the bones upon the plates, but to cut as neat-looking slices as may be from shoulders and legs. Plenty of gravy should also be helped from the dish by the carver, in addition to that served separately; otherwise the portions may look unattractively dry when first placed before the guest. All parts of a hare are so full of flavour, that, beyond the fact that the back is usually the most tender, there is little superiority in it. The ears and brain are amongst the extra little tit-bits affected by the connoisseur.

Partridge.—Roast partridge usually coming, as it does, at the close of the feast, a very small portion of bird should be served to each guest; in this case, cut him up precisely as you would a chicken, and all at once, without removing the fork; and, by thus making him go as far as possible, you do as much justice to the excellence of the bird as the vagaries of

custom will allow. Of course, the choicest morsels, the wings, the breast, and the merrythought, that is, should go to the more delicate appetites; but that is no reason why legs and back should be comparatively wasted, as they often are, when accompanied on the plate by more fleshy pieces, or be left neglected by the carver on the dish. He who knows anything of the flavour of game will be as well contented with the head and back, or leg of a young partridge in good condition as with any other part of it, if it come at the customary tail end of a dinner, and when a mere taste is all that is expected or desirable. But when the partridge appears as a very important element at a choice repast, then hand him over bodily one bird on a hot-water plate to each guest, and so evade all carving responsibilities; or, short of this, cleave him in twain, fairly from beak to tail, as a pigeon, and let no more than two discuss him; or, once again, at the most, cut him into three, as also directed with the pigeon.

Pheasant.—Treat the pheasant with similar deference; for, if young and in good condition, though one part may be better than another, there is no part open to disdain. According to the size of the bird so may you cut him up, but, as a rule, his breast will yield a sufficient number of slices to make it advisable to deal with him in the manner advocated for a turkey; otherwise he has to be dissected entirely as if he were a chicken, remembering at the same time that, according to the position he occupies in the menu, so should your helping be proportioned. If he represent in any way the *pièce de résistance*, be fairly bountiful, not giving a slice of the breast alone to one person, but some extra “snack” of picking with it, thus letting the choice, and the less choice, morsels be duly blended. On the other hand, if the

pheasant come up to table at the usual conventional time, the slices from the breast will be generally enough to go round, if the carver allows no slice to reach the magnitude of anything beyond a taste. He may know if a cock pheasant (cock pheasants are generally the better) be young or old by a glance at the spurs—the short and blunt indicating youth, sharp and long the reverse; and it is well for the carver to note this at starting, as it will prepare him for the amount of strength he will have to put forth in separating the joints. Bread sauce and gravy, as with the partridge, are served separately; but should there be a toast beneath the bird upon the dish, a piece of the toast must go with each portion, a search for the stuffing be entered on, and some of it dispensed.

Grouse.—Beyond putting a very strong emphasis on the value of the back of the grouse, we need only refer to what has been said of the partridge to know how to deal with him. He is worthy in every way of the same high consideration, either as one, two or three portions; but if cut up into this latter or more quantities, a piece of the back must go with each, if the carver regard justice as a leading element of his craft. The habit now of not sending up the bird's head is, some think, reprehensible; as, like that of the pheasant and partridge, the skull if split in two offers a delicate morsel in the shape of the brain. A piece of the toast, too, usually to be found beneath the grouse should find its way to everybody's plate.

Blackcock.—Being of the genus grouse, here will be the place to say what one has to say about the blackcock; and once more a knowledge of the chicken's anatomy will be the key to the whole position. The tenderness and delicacy of the flesh,

however, of game birds make them less favourable subjects for the young carver to experimentalise upon. The thigh of this bird is held by the epicure as the portion which attains the culminating flavour. Therefore, though slices may be cut from the breast to begin with in the usual fashion, they may not trench upon this tit-bit, which should be preserved intact for the special friend or friends, since there are two thighs. To decapitate this bird, and to send him to table headless, is to deprive some one of an exquisite *bonne bouche*. When cut in two, there is very pretty picking about the head; and whilst on the dish it serves at once to mark this distinguished member of the feathered community.

Capercailzie.—The capercailzie, though very seldom met with at the ordinary English dinner table, may not be overlooked here, for, though a very much larger bird than grouse or blackcock, it is yet to be ranked amongst the same species. In fact, it is a woodland grouse, and sometimes attains the size of a goodly turkey; which is as much as to say, from our point of view, that we should treat him accordingly.

Ptarmigan.—Ptarmigan, too, though less uncommon and smaller than the capercailzie, would not need any especial dissection, and has merely to be cut up according to his size; whilst of course the buttered toast on which he is served may, or may not, be partaken of; and it is just as well for the carver to inquire.

In dispensing any rare or unusual bird it is quite essential that the carver should point out to those at table who are unacquainted with its precise character what it is, and recommend this or that particular part to their consideration. Also in the matter of toast, when it may contain the trail of

game, the carver should be very careful not to give any of it to those who may happen to dislike it. There are many people who will only eat game when it is quite fresh, and who would shudder at the thought of consuming the trail.

Dinners.—To commence with the manner of eating soup. In olden days it was customary to "drink" it out of a basin. In these days no one "drinks" soup—it is "eaten"; whether it be mock turtle or the clearest Julienne, it is eaten out of a soup plate at dinner, and with a tablespoon. To use a dessertspoon for this purpose is not *comme il faut*. There is a reason in this: soup is nothing if not hot; and, as it is the custom to give but a very small help of soup—about half a ladleful to each person—it is eaten quicker and hotter with a large spoon. The reason for small helps of soup is that the various courses to follow do not render it expedient to commence with a plateful of soup. At ball suppers, when soup is served in soup plates, it is also eaten with a tablespoon; but when served in small cups a spoon is not used, and it is actually drunk, although fashion does not sanction the expression "I have drunk some soup."

For fish, the two dinner forks are now superseded by the little silver fish knife and fork. When oysters are given, however, they precede the soup, and are eaten with an ordinary dinner fork, and not with the fish fork. In eating oysters the shell is steadied on the plate with the fingers of the left hand; the oysters are not cut, but are eaten whole. Large dinners are ordered mainly with a view to please the palates of men with epicurean tastes; it is not expected that ladies should eat of the most highly seasoned and richest dishes, but should rather select the plainest.

This particularly applies to young ladies and young married ladies; and there are certain things that young ladies are not supposed to eat of at dinner, although handed to them in their turn—as, for instance, marrow patties, foie gras patties, snipe with trail, woodcock with trail, caviare, bloater cheese. Small helps of fish are always given.

Some entrées are eaten with a knife and fork, others with a fork only. All entrées that offer any resistance to a fork being passed through them require the aid of both knife and fork, such as cutlets, filet de bœuf, sweetbreads, &c.; but when rissoles, patties, quenelles, boneless curry, vol-au-vents, timbales, minces, &c., are eaten, the fork is used and the knife is discarded. In the case of the lighter entrées, the contact of the knife is supposed to militate against their delicate flavour, and with regard to the pastry of patties and vol-au-vents, it would be considered bad style were a knife to be used in addition to the fork.

When game is eaten, it is needless to say that the old licence for holding a bone delicately between the fingers and thumb has long since expired. The leg of a chicken, pheasant, duck, or wild duck is never given to a guest as a help, save on those occasions when there are more guests present than there are helps from breasts and wings to offer them. Under these circumstances the carver is reduced to the necessity of falling back upon the legs; but in this case only the upper part of the thigh is given, the drumstick being cut off—thus a guest has little difficulty in separating the meat from the bone. The wing of a bird, however, is a very usual help given to a lady. Formerly it was thought a correct thing to sever the wing at the joint, and then to cut the meat

from the bone; but this required a certain amount of strength in the wrist and dexterity of action, as, if the bird happened to be not of the youngest, there was a chance that a nervous or clumsy young lady would lodge one half of the wing on the tablecloth; so the fair recipients of a wing in the present day do not run this risk or take this trouble, but simply cut off from the bone the meat that is easily got at, leaving those morsels about which there is the slightest difficulty. An inexperienced carver occasionally gives the gizzard with the wing, and some inexperienced young ladies make an attempt to eat it; the gizzard should not be left in the wing by the carver. In the case of small pigeons, golden plovers, snipe, quails, larks, &c., a whole bird is given to each help, and the proper way to eat these birds is to cut the meat from the breast and wings, and to eat each morsel at the moment of cutting it; the bird should not be turned over and over on the plate, or cut in half, or otherwise dissected. The legs of Bordeaux pigeons are not as a rule eaten, and half a bird only is given, as there is sufficient meat on the wing and breast to satisfy an ordinary second-course appetite; when the legs of smaller birds are eaten, such as snipe or golden plover, the meat is cut off as from breast or wing. Young ladies, as a rule, do not eat these birds, or any second-course delicacy of this description; a help of chicken or pheasant, on the contrary, is usually accepted by them.

On the subject of vegetables there is but little to be said; when large potatoes are served in their skins, a salad plate is offered at the same time, so this difficulty is thus provided for. When asparagus first comes into season, it is often given in the second course instead of in the first, in which case it is eaten as a separate dish; when it is handed with meat or

poultry, it is eaten on the same plate containing either; and although served on toast, the toast is not meant to be eaten, and it is merely intended to receive the superfluous moisture from the asparagus. In eating asparagus, elderly gentlemen still hold the stalks in their fingers; the younger generation cut off the points of the asparagus with a knife and fork; but asparagus tongs render helping an easy matter. Seakale is often given in the second course when first in season; the toast on which this is served is also not eaten. When mushrooms are served on toast, this toast is generally eaten. Seakale is eaten with a knife and fork. Artichokes are an awkward and untidy vegetable to eat: they are only given in the second course as a separate vegetable. The outside leaves are removed with the knife and fork, and the inner leaves, which surround the heart or head of the artichoke, are conveyed to the mouth with the fingers, and sucked dry; epicures consider these a "dainty morsel," but at a dinner party young ladies would not attempt to eat them.

Savouries are not eaten by young ladies when they dine out, and seldom in the home circle. Savouries of the description of macaroni with cheese, cheese fondus, cheese straws, cheese soufflés, *choufleur au gratin*, olives, &c.—these things are not supposed to suit the palates of young ladies. In eating sweets, a dessertspoon is only used for compotes of fruit or fruit tarts, or those dishes where juice or syrup prevails to the extent of rendering a dessertspoon necessary. But whenever it is possible to use a fork in preference to a spoon, it is always better to do so; and jellies, creams, blancmanges, ice puddings, &c., are always eaten with a fork.

As a matter of course, young ladies do not eat

cheese at dinner parties. The usual mode of eating cheese is to cut it in small square pieces, and place it with the knife on a morsel of bread, and then convey the bread to the mouth with the fingers. When celery is given with cheese, it is cut into fair-sized mouthfuls, which are put in the mouth with the fingers, and bites are not taken from a stick of celery held between the fingers schoolboy fashion. Salad is always eaten with the joint, off small salad plates, placed on the left side of the dinner plate; it is eaten with the knife and fork.

To turn from dinner to dessert. Ices are eaten with a small gold ice spoon. Fruits that require peeling—such as peaches, apricots, nectarines, &c.—are peeled with a dessert knife and fork, and eaten with a spoon and fork, as are oranges. Pears and apples are peeled and eaten with a knife and fork, as is pine or melon; with the latter a spoon also is required. Strawberries are also eaten with a spoon and fork when cream is given with them, otherwise they are held by their stalks and dipped into powdered sugar. Cherries, gooseberries, grapes, and currants are also eaten with the fingers, and so on down the gamut of fruit. A slice of dessert cake is broken and eaten as bread would be, and is not cut with the knife into small pieces. The finger glasses are used after fruit has been eaten, and the tips of the fingers are then dipped into the water and dried on the serviette with as little parade as possible, always bearing in mind that the serviette is not a chamber towel or the finger glass a washhand basin, and also that, when the serviette is used for wiping the lips, it should be done quickly and deftly, attracting as little notice as possible, as it is not a pretty sight to see a person deliberately occupied in wiping their mouth or their moustache again and again during dinner; a lady

must be a very untidy eater who requires to wipe her mouth constantly during dinner.

When liqueurs are handed with the ices, young ladies are not expected to take them, and, as a rule, a young lady would not drink more than half a glass of sherry with soup or fish, one glass of champagne during dinner, or a glass of sherry if champagne is not given, and half a glass of sherry at dessert. A married lady would perhaps drink a glass and a half of champagne at dinner, in addition to a glass of sherry with fish or soup. Some ladies drink less than this, and others perhaps a little more, and if a lady does not intend drinking more wine than remains in her glass, she should make a little motion of dissent when the butler is about to replenish it. Otherwise a good glass of wine is sent away untasted; and in all cases when a lady only intends drinking half a glass of wine, it would be no breach of etiquette for her to say to the butler at the moment of his offering her wine, "Only half a glass, please;" good wine is a costly luxury, and should never be unnecessarily wasted, even by a guest at a dinner party.

Bills of Fare.—The following are selected from a very large number, which have been published from time to time in the *Queen*.

For 2.—(*a*) Brunoise. Sole au gratin. Filets de bœuf aux champignons. Pommes de terre sautés. Roast blackcock. Stuffed tomatoes. Tartelettes Piémontaises. (*b*) Potage à la Cussy. Perches sur le gril. Poule au riz à la Milanaise. Haricots verts en salade. Omelette au jambon. (*c*) Consommé au riz. Filets de soles à la Béchamel. Côtelettes du mouton panées aux tomates. Haricots verts à la Lyonnaise. Parmesan. Tourte de Reine-claudes. (*d*) Brunoise. Friture d'éperlans. Hachis de veau aux œufs pochés.

Cailles rôties. Salade de laitue et cresson. Gateau de pommes de terre.

For 2 or 3.—(*a*) Croûte au pot. Boiled salmon, fennel sauce. Roast quails. Watercress salad. Asparagus. Cream cheese. Gooseberry tartlets. (*b*) Bonne femme soup. Sole au gratin. Boiled mutton cutlets. Carrots à la maître d'hôtel. Rice soufflé. (*c*) Potage aux pointes d'asperges. Whitebait. Filet de bœuf rôti à la Française. New potatoes au beurre. Lettuce salad. Cheese fondue. (*d*) Spring soup. Red mullets in papers. Fricandeau with spinach. Asparagus. Macaroni cheese. Iced gooseberry fool. (*e*) Potage à la jardinière. Saumon grillé à la Tartare. Côtelettes de mouton aux concombres. Roast grouse. Watercress. Salad of French beans. Greengage tartlets. (*f*) Grouse soup. Fried eels. Stewed steak. Mashed potatoes. Vegetable marrow au gratin. Macaroni cheese. Apple tart. (*g*) Tomato soup. Grey Mullet. Sauce blanche. Braised loin of mutton. Potatoes à la Lyonnaise. Stuffed vegetable marrow. Cheese fritters. Plum tart. (*h*) Julienne. Fried fillets of sole, tartare sauce. Hashed venison. French beans au beurre. Macaroni au gratin. Apricot omelet. (*i*) Consommé aux haricots verts. Filets de maquereaux à l'Italienne. Croquettes de volaille. Côtelettes de mouton à la Nivernaise. Tomates farcies. Gruyère. Tourte aux abricots. (*j*) Consommé au riz. Truite saumonée grillée à la Tartare. Grenadins de bœuf à l'Espagnole. Salade de homard en aspic. Génoises. Compôte de framboises et groseilles. (*k*) Potage au vermicelle. Rougets sauce aux câpres. Rissoles de homard. Fricassée de poulet. Haricots verts à la Lyonnaise. Omelette au parmesan. Salade de fruits. (*l*) Potage au pauvre homme. Côtelettes de mouton, pommes de terre à la maître d'hôtel. Asperges, sauce poivrade. Omelette au jambon. (*m*) Croûte au pot.

Filets de sole à l'Italienne. Braised loin of mutton. Navets glacés. Salade de choufleurs. Cheese straws. Caramel custards. (*n*) Potage au macaroni. Saumon sauté au beurre. Cuisses de poulets au riz à la Turque. Broccoli sprout salad. Fondue au Parmesan. (*o*) Potage aux œufs pochés. Croustades de volaille à la suprême. Filets de bœuf grillés aux pommes de terre. Choufleurs au gratin. Chartreuse de pêches. (*p*) One dozen oysters. Consommé de volaille aux quenelles. Chartreuse de perdrix. Grenadins de bœuf à l'Espagnole. Petits soufflés au Parmesan. Salade d'oranges. (*q*) Purée of celery. Fried smelts. Lark, steak, and kidney pudding. Mashed potatoes. Spanish onions stuffed. Cheese. Apple fritters. (*r*) Purée of lentils. Boiled haddock and egg sauce. Hashed mutton. Mashed potatoes. Seakale. Cheese. Ginger pudding. (*s*) Potage au pauvre homme. Raie au beurre noir. Côtelettes de mouton au naturel. Purée de pommes de terre. Omelette au Parmesan. Tartelettes de pommes. (*t*) Julienne. Cabillaud à la crème. The legs of a turkey devilled, purée of chestnuts. Cauliflower salad. Mince pies. (*u*) Potage au macaroni. Sole au gratin. Civet de lièvre aux champignons. Choux de Bruxelles à la maître d'hôtel. Mirlitons aux confitures. (*v*) Onion soup. Broiled whiting. Stewed steak. Haricot bean salad. Fig pudding. (*w*) Chestnut soup. Mutton croquettes and cauliflower. Roast teal. Celery à la sauce blanche. Cheese. Sweet omelet. (*x*) Potage à la purée de laitues. Vol-au-vent of cod. Epigrammes de mouton aux tomates. Chartreuse de perdrix. Œufs au gratin. Biscuit au mocha. (*y*) Croûte au pot. Côtelettes de mouton en papillote. Stewed steak. Mashed potatoes. Vegetable marrow au gratin. New Forest cream cheese. Pommes au beurre. (*z*) Purée of endives. Slices of cod, Italian sauce. Quenelles of rabbit, with

minced olives. Roast partridges. Tomatoes stuffed with mushrooms. Fondue. Génoise pastry, with whipped cream.

For 3 in August.—Lazagne. Rougets en papillote. Côtelettes de mouton à la Soubise. Grenadins de chevreuil, sauce groseille. Artichauts, sauce blanche. Roast grouse. Croûte d'ananas.

For 3 in September.—Potage à la jardinière. Filets de soles à la cardinal. Cromesquis de perdreaux. Côtelettes de mouton à la Soubise. Haricots verts à la poulette. Grouse. Pouding soufflé purée de prunes.

For 3 or 4.—(*a*) Potage à la purée d'asperges. Whitebait. Côtelettes d'agneau aux concombres. Cailles rôties, salade de laitue. Macaroni au gratin. Gooseberry tartlets. (*b*) Potage à la jardinière. Sea bream, sauce piquante. Fricassée de poulets. Filet de bœuf rôti à la Française. New potatoes au beurre. Green artichokes à la sauce blanche. Petits soufflés au Parmesan. Compote d'oranges. (*c*) Purée de gibier Cabillaud à la crème. Aloyau rôti à l'Anglaise. Choux de Bruxelles au jus. Pommes de terre au naturel. Macaroni au gratin. Beignets de pommes. (*d*) Potage aux pâtés d'Italie. Filets de soles à la Orly. Fricandeau aux épinards. Wild ducks, bigarrade sauce. Salade pommes de terre. Stewed cheese. Rice soufflé. (*e*) Palestine soup. Fried whitings. Croquettes of beef, Brussels sprouts. Roast pheasant. Watercresses. Scolloped oysters. Omnibus pudding. (*f*) Brunoise. Sole à la ravigotte. Filets de bœuf à la jardinière. Plovers (3 or 4). Croustades aux huîtres. Beignets soufflés. (*g*) Oyster soup. Baked John Dory. Mutton cutlets en papillote. Roast pheasant. Cauliflower au gratin. Génoises au chocolat. (*h*) Croûte au pot. Rouget grondin au Madère. Côtelettes de mouton, purée de pommes de terre. Bécasses

rôties (3 or 4). Chouxfleur en salade. Pommes à la Condé. (*i*) Macaroni soup. Cod and oyster sauce. Roast goose, apple sauce, potatoes, Brussels sprouts. Cheese. Damson tart. Vanille custards. (*j*) Potage à la royale. Matelotte de harengs aux champignons. Croustades de volaille. Grenadins de veau à la macédoine. Filet de bœuf rôti à la Française. Salade de cresson. Tomates au gratin. Gruyère. Charlotte de pommes. Omelette au rhum. (*k*) Potage à la Sévigné. Oyster kromeskies. Côtelettes à la Maintenon. Roast capercailzie. Watercress salad. Peas (preserved) à la Française. Ramequins. Sir Watkin Wynn's pudding. (*l*) Consommé aux nouilles. Sea bream au Madère. Veal cutlets à la Milanaise. Braised fowls à la jardinière. Fondue au Parmesan. Bakewell pudding. Salad of oranges. (*m*) Celery soup. Haddock and egg sauce. Grenadins of beef à l'Espagnole. Cauliflowers à la crème. Potatoes sautées. Larks à la minute. Stewed cheese. Mirlitons au cassis. (*n*) Brunoise. Maquereaux grillés, à la maître d'hôtel. Fricandeau—New potatoes à la Lyonnaise. Boiled ham—Petits pois à l'Anglaise. Œufs au gratin. Beignets d'oranges. (*o*) Consommé aux pointes d'asperges. Fried fillet of soles, cold tartare sauce. Ris de veau aux champignons. Rumpsteak au beurre d'anchois. Pommes de terre sautées. Salade de laitue. York cream cheese. Soufflé à la vanille.

For 4 in August.—(*a*) Tortue claire. John Dory, sauce Hollandaise. Petits pâtés à la financière. Côtelettes d'agneau aux concombres. Roast neck of venison. French beans. Tartelettes d'abricots. Gelée au marasquin. (*b*) Consommé de volaille. Grilled trout, tartare sauce. Rissoles de volaille. Timbales de foie gras aux truffes. Côtelettes de mouton à la Réforme. Boiled chickens. Artichokes. Ices.

For 4-6.—(*a*) Spring soup. Broiled salmon, tartare sauce. Whitebait. Lamb cutlets, spinach. Rump steak, fried potatoes. Roast quails, salad. Asparagus. Macaroni cheese. Apple soufflé. (*b*) Clear mock turtle. Boiled salmon, Dutch sauce. Beef olives. Roast quarter of lamb, new potatoes, salad. Curried eggs. Cheese. Rhubarb Tartlets. Meringues with cream. (*c*) Consommé au pointes d'asperges. Codfish au gratin. Grenadins of beef à la macédoine. Braised capons, stuffed mushrooms. New potatoes. Seakale. Cheese. Watercress-butter. Mousseline pudding. Chartreuse of oranges. (*d*) Potage printanier. Fillets of mackerel, Italian sauce. Mutton cutlets, stewed peas. Wild duck, bigarrade sauce. Cheese fritters. Bakewell pudding. (*e*) Potage crecy au riz. Fried whitings. Filets de pigeons en caisses. Braised loin of mutton, Soubise sauce. Turnip-top salad. Stewed cheese. Orange fritters. (*f*) Consommé au céleri. Salmon grilled à la maître d'hôtel. Croquettes de volaille. Paupiettes de bœuf à l'Espagnole. Pintade rôtie au cresson. New potatoes sautées au beurre. Asperges, sauce blanche. Omelette au Parmesan. Bouchées aux confitures. Nougats à la crème.

For 6.—(*a*) Potage à la Sévigné. Brill au Madère. Mutton cutlets à la Maintenon. Braised fowls à la jardinière. Cheese tartlets. Fig pudding. Compote of oranges. (*b*) Potage aux nouilles. Vol-au-vent of cod and oysters. Roast haunch of mutton. Seakale. Potatoes. Canapés of anchovies. Cheese and celery. Rhubarb tart. Vanille custards. (*c*) Potage aux ravioli. Torbay whitings à la Hollandaise. Filets de pluviers aux truffes. Rump steak, potatoes sautés. Choux frisés à la flamandes. Watercress-butter and cheese. Beignets d'oranges. Caramel pudding. (*d*) Potage au macaroni. Baked gurnet. Quenelles of veal à la nivernaise. Grenadins of beef with peas. Roast

partridges. Neufchâtel cheese. Watercress-butter and celery. Mousseline pudding. Damson tartlets. (*e*) Tomato sauce. Grey mullet à la maître d'hôtel. Oyster kromeskies. Mutton cutlets sautées with French beans. Roast goose. Lettuce salad. Parmesan fondue. Tourte of greengages. Marmalade pudding. (*f*) Clear oxtail soup. Boiled salmon, sauce tartare, cucumber. Lamb cutlets with peas. Roast ducklings. Cherry tart, cream. Anchovy toast. Cream cheese and Gorgonzola, handed with brown biscuits. Strawberries and cherries. (*g*) Clear gravy soup with peas. Salmon cutlets with piquant sauce. Hashed duck. Roast loin of lamb boned and stuffed, mint sauce, French beans, potatoes, purée of peas. Fresh strawberry cream, apricot fritters. Cheese fondue, watercress sandwiches. Strawberries and melon. (*h*) Giblet soup. Fillets of sole à la maître d'hôtel. Rissoles of lamb. Roast chicken with watercress, purée of haricot beans, potatoes, stewed vegetable marrow. Currant and raspberry tart, whipped cream. Cheese canapés, tomato salad. Cherries and apricots. (*i*) Potage à la Duchesse. Potage à la purée de levraut. Sole à la Normande. Filets de rougets aux fines herbes. Mauviettes en caisses au gratin. Fricassée de poulet à la chevalière. Côtelettes de venaison aux haricots verts. Grouse. Madelienes. Pouding à la Nesselrode.

For 6-8.—(*a*) Potage aux pâtés d'Italie. Saumon, sauce aux câpres. Kromeskies de volaille. Tendrons de veau aux petits pois. Filets de bœuf à la Béarnaise. Cailles rôties. Haricots verts à la crème. Ramequins. Salade de fraises aux oranges. Boudin glacé à la vanille. (*b*) Bisque de homards. Petites croustades aux huîtres. Filets de soles à la Normande. Saumon, sauce au fenouil. Salade Russe. Œufs farcis à la royale. Soufflé de riz à la vanille. Mirlitons au

marasquin. Bouchées aux confitures. (*c*) Bouillabaisse. Friture d'éperlans. Turbot, sauce Hollandaise. Macaroni aux tomates. Fonds d'artichauts à la sauce blanche. Salade de choufleurs. Fondue au Parmesan. Charlotte de pommes. Petits choux à la crème. (*d*) Potage à l'oseille. Turbot, lobster sauce. Poulet sauté à l'estragon. Boudins de veau aux truffes. Filet de bœuf braisé à la jardinière. Haricots verts en salade. Fondue au Parmesan. Chartreuse à l'ananas. Compote de cerises. (*e*) Consommé de volaille aux quenelles. Paupiettes de soles à la crème. Kromeskies de homard. Côtelettes d'agneau aux tomates. Canetons rôtis. Petits pois au beurre. Vegetable marrow au gratin. Tartelettes de Reine Claudes. Boudin glacé au café.

For 8.—(*a*) Vermicelli soup. Trout à la Genevese, salmon cutlets. Lamb cutlets and peas. Fricasséed chicken. Roast ribs of beef. Calf's head, tongue, and brains; boiled ham; with vegetables. Roast ducks, compote of gooseberries, strawberry jelly, Italian pastry, iced pudding. Dessert and ices. (*b*) Julienne soup. Filleted soles, with shrimp sauce. Croquettes de veau. Ragout of kidneys and mushrooms. Roast turkey and sausages, with cauliflower and potatoes. Trifle and mince pies. Grapes, preserved ginger, &c.

For 8-10.—(*a*) Clear oxtail soup. Boiled turbot, lobster sauce. Stewed pigeons. Mutton cutlets, sharp sauce. Roast sirloin of beef. Broccoli, mashed potatoes, seakale. Wild ducks. Cheese, celery, anchovy toast. Sir Watkin Wynn's pudding. Maraschino jelly. Cheesecakes. Apple tartlets. (*b*) Clear game soup. Boiled salmon, fennel sauce. Fricassée of fowls with mushrooms. Grenadins of veal with spinach. Braised saddle of mutton, with carrots, turnips, and broccoli. Roast guinea-fowl

larded. Lettuce salads. Cauliflower with cheese. Orange jelly. Charlotte Russe. Génoise pastry. Apricot tartlets. Nesselrode pudding. (*c*) Croûte au pot. Two sea-breams stewed. Fried fillets of soles, tartare sauce. Larks in cases. Grenadins of beef with Brussels sprouts. Braised saddle of mutton. Stewed celery. Roast woodcocks. Endive salad. Macaroni au gratin. Charlotte Russe, mousseline pudding. Croûtes of pineapple. Génoises au chocolat. (*d*) Consommé aux quenelles. Boiled turbot. Lobster sauce. Croquettes of game. Mutton cutlets and spinach. Fresh silverside of beef à la Napolitaine. Cauliflowers à la crème, potato sautées. Roast wild ducks, bigarade sauce. Russian salad. Tartlettes Piémontaises. Nougats à la crème. Jam tartlets. Venus pudding. Garibaldi cream. (*e*) Potage à la Sévigné. Matelotte d'anguilles. Friture de merlans. Croustades de volaille. Salmis de perdreaux. Fricandeau aux tomates. Grouse rôties. Salade de cresson. Œufs farcis à la royale. Beignets de pêches. Génoises au chocolat. Boudin glacé aux fruits.

For 10.—(*a*) Clear consommé aux pointes d'asperges. White soup à la bonne femme. Small turbot, sauce tartare. Fried smelts. Larded sweetbreads, braised and served with rich brown gravy. Fillets of chicken à la poulette, with white button mushrooms and truffles. Saddle of mutton. Roast pheasants or partridges. Apple charlotte, meringues à la crème de vanille. Cheese soufflé. (*b*) Bouillabaisse. Quenelles truffled. Cutlets à la J'aidit. Quails and salad. Iced artichokes. Ham and green peas. Sardines on toast. Parmesan omelette. Ices.

For 10-12.—(*a*) Oyster soup. Red mullet. Stewed pigeons. Boiled capon and tongue (celery sauce). Curried mutton. Stewed pears and cream. Apple

jelly. (*b*) Tomato soup. John Dory. Oyster vol-au-vent. Braised beef. Partridges. Trifle. Apple fritters. (*c*) Julienne soup. Fillets of soles. Oyster patties. Mutton cutlets. Kromeskies. Roast beef. Boiled turkey. Guinea-fowls. Lemon soufflé. Cabinet pudding. Meringues. Apricot cream. Cheesecakes. (*d*) Spring soup. Turbot and lobster sauce. Sweetbreads. Mutton cutlets with Soubise sauce. Croquettes. Saddle of mutton. Chickens and tongue. Wild ducks. Soufflé. Castle pudding. Trifle. Orange jelly.

For 12-14.—(*a*) Mulligatawny; clear gravy soup. Braised salmon; stewed eels; fried smelts. Fricandeau of veal with spinach; pork cutlets with tomato sauce; croquettes of fowl with tartare sauce; curried lobster, rice. Boiled capon; tongue; saddle of mutton, laver, broccoli, potatoes. Woodcocks or wild ducks. Conservative pudding, raspberry cream, calf's foot jelly. Cheese fondue. (*b*) Bisque d'écrevisses. Petites croustades, purée de gibier. Filets de soles à la Russe. Gigot de chevreuil, sauce poivrade. Faisans à la Bohémienne. Timbales milanaises. Mousse à l'ananas. Dinde truffée. Salade Italienne. Cardons à l'Espagnole. Pâté de foie gras. Suprême de pêches. Plombière aux avelines. Dessert. (*c*) Potage velours. Caisses de volailles. Saumon-sauce crevettes. Suprême de poularde à la Maréchale. Salmis de bécasses. Aspic de foie gras au vert pré. Sorbets au Kirsch. Dinde truffée. Salade Russe. Cêpes à la Bordelaise. Homard, sauce remoulade. Croûte Parisienne à l'ananas. Corbeille de fruits glacés. Dessert.

Plain Dinners for a Week.—Sunday: White soup. Turbot, sauce Hollandaise. Braised loin of veal, potatoes and parsnips. Roast fowls. Swiss pudding. Orange sponge. Monday: Vegetable soup. Hashed

turbot. Burdoan stew, potatoes. Minced veal, calecannon. Coconut pudding. Caledonian cream. Boiled cheese. Tuesday: Soles. Rice and chicken cutlet. Leg of mutton, currant jelly, Spanish onions, brown potatoes. Sponge cake pudding. Dutch cream. Scotch woodcock. Wednesday: Crécy soup. Cod steaks, with mock oyster sauce. Reform cutlets, carrots. Stewed rabbit and risotto. Newcastle pudding. Jelly. Cheese and celery. Thursday: Italian soup. Mutton cutlets. Bouilli beef, potato and Brussels sprouts. Sir Watkin Wynn's pudding. Prune mould. Macaroni and cheese. Friday: Artichoke soup. Red mullet. Mutton cooked to imitate venison, cauliflower à l'Allemagne. Potato pears. Tapioca snow. Jelly. Anchovy toast. Saturday: Fish, dressed cold or hot. Indian curry. Beefsteak pudding. Brown bread pudding and jam sauce. Dutch flummery.

Lenten and Vegetarian Dinners.—(*a*) Bouillabaisse. Fried smelts. Turbot, Dutch sauce. Macaroni with tomatoes. Green artichokes, white sauce. Cauliflower salad. Parmesan fondue. Apple charlotte. Baked fritters and custard. (*b*) Haricot bean soup. Cod (Brandade de Morue). Fried soles. Turnip tops and poached eggs. Stewed potatoes. Savoury omelet. Cheese. Pancakes. (*c*) Oysters (au naturel) served with lemon. Potage maigre au lait. Fillets of sole fried, tartare sauce. Parsnip fritters. Purée of haricots. Boiled salmon, shrimp sauce. Potatoes mashed in shape. Lobster salad. Rhubarb fool. Rice meringue. Anchovy toast, with eggs. Gorgonzola cheese. Celery. Biscuits. Dessert. (*d*) Haricot bean soup. Lobster croquettes. Fillets of soles with mushrooms. Red mullet, Italian sauce. Turbot, Dutch sauce. Poached eggs with spinach. Cauliflower with cheese. Macaroni with tomatoes. Mousseline pudding. Jam tartlets. Pineapple toast. Chocolate

cream. (*e*) Green pease soup. Potato omelette, curried eggs. French beans stewed, cauliflowers and white sauce, new potatoes plain boiled. Gooseberry tart with custard, plain rice pudding. Cheese macaroni. Dessert. (*f*) Carrot soup. Mushroom pie, broccoli and buttered eggs. Colecannon, stuffed vegetable marrow, stewed green peas. Orange jelly, bread pudding. Cheese straws. Dessert. (*g*) Palestine soup. French bean omelette, eggs baked with parsley. Potatoes Italian fashion, baked tomatoes, green peas plain boiled. Cherry tart, blancmange. Cheese pudding. Dessert. (*h*) Vegetable marrow soup. Swiss omelette, stuffed eggs. Fried potatoes, broad beans and parsley sauce, mushrooms stewed in milk. Raspberry and currant tart, whipped cream; semolina pudding. Ramakins, cheese, celery, &c. Dessert. (*i*) Lentil soup. Macaroni omelette, savoury rice fritters. Potatoes baked, haricot beans, stewed carrots. Apple tart, tapioca pudding, cheese soufflé. Dessert. (*j*) Dried pease soup, vegetable pie (carrots, turnips, potatoes, celery, eggs, &c.). Boiled haricot beans, potato shape, winter greens. Mince pies, rice balls. Cheese omelette. Dessert. (*k*) Purée d'asperges, potage à la crème de riz. Œufs à l'Indienne, omelette au naturel, macaroni aux tomates. Pommes de terre à la maître d'hôtel, petits pois à la Française, salsifis à la crème, concombres à la poulette, céleri à la Chetwynd. Jelée de fraises, jelée à la Russe, crème d'amandes, beignets d'oranges. Kluskis au fromage, soufflé au Parmesan. Glaces—Crème de vanille, eau de fraises. Dessert. (*l*) Coconut soup, brown soup, asparagus omelette, cucumber pie, savoury eggs. New potatoes tossed in butter, celery fried in batter, stewed tomatoes, cauliflowers with grated cheese. Apple jelly, Charlotte Russe, Bakewell pudding (cold), almond puffs, iced pudding. Cheese fondue,

devilled biscuits. Ices—Strawberry cream, lemon water. Dessert. (*m*) Purée de tomates, potage à la Jenny Lind. Œufs farcis aux champignons, omelette aux fines herbes, riz à la Milanaise. Pointes d'esperges à la Colbert, artichauts à la Hollandaise, pomme de terre à l'Italienne, épinards au velouté. Crème au caramel, macédoine de fruits, meringues à la crème, gelée de cerises. Canapés au fromage, crème de fromage. Glaces—Crème de framboises, eau de mille fruits. Dessert. (*n*) Chestnut soup, curry soup. Raised savoury pie, carrot fritters, egg patties. Potato balls, braised celery, brown sauce, turnips with white sauce, stewed beetroot. Plum pudding, coffee cream, Punch jelly, lemon sponge. Cheese macaroni, savoury rice. Ices—Orange cream, Noyeau water. Dessert. (Eliot James.)

Christmas Dinners.—(*a*) Clear game soup. Boiled turbot, lobster sauce. Braised turkey. Roast sirloin of beef. Mashed potatoes. Brussels sprouts. Stewed celery. Plum pudding. Mince pies. Almond cheesecakes. Punch jelly. Scotch woodcock. Cheese straws. (*b*) Oxtail soup. Codfish, oyster sauce. Pork cutlets, sharp sauce. Beef olives. Roast turkey. Potatoes. Jerusalem artichokes. Broccoli. Plum pudding. Mince pies. Meringues. Charlotte Russe. Cheese. Celery. (*c*) Potage à la Nivernaise. Turbot, sauce Hollandaise. Kromeskies à la purée de gibier. Filets de bœuf à la Macédoine. Dinde truffé à la braise. Bécassines. Salade de cresson. Chouxfleurs au gratin. Ramequins. Plum pudding. Petits choux à la gelée. Nougats à la crème. Parfait au café. (*d*) Consommé de volaille. Boudins de merlan. Filets de soles à la Orly. Chartreuse de perdreaux. Côtelettes de mouton à la Soubise. Aloyau rôti à l'Anglaise. Pommes de terres soufflées. Choux de Bruxelles sautés. Bécasses rôties. Salade Russe. Fondue au

Parmesan. Plum pudding. Crème au chocolat. Gelée au Marasquin. Savarin au rhum. (*e*) Clear game soup. Turbot, tartare sauce. Stewed beef. Roast turkey. Boiled ham. Mashed potatoes. Brussels sprouts. Cheese. Plum pudding. Mince pies. Curaçoa jelly. Vanilla cream. Tipsy puddings. Charlotte Russe. (*f*) Gravy soup. Boiled turbot. Lobster and Dutch sauces. Fillets of rabbit. Larks in cases. Braised turkey. Roast sirloin of beef. Brussels sprouts. Mashed potatoes. Plum pudding. Chartreuse of oranges. Mince pies. Stewed pears. Cheese, biscuits, and dessert. (*g*) For Children. Clear soup with custard. Fillets of sole, béchamel sauce. Roast turkey. Boiled ham. Mashed potatoes, Brussels sprouts. Plum pudding. Mince pies. Orange jelly. Charlotte Russe. (*h*) Family Dinner. Gravy soup. Codfish, oyster sauce. Game Kromeskies. Stewed kidneys. Braised beef, with vegetables (à la jardinière). Roast turkey and sausages. Spinach. Jerusalem artichokes. Potato snow. Anchovy toast. Stilton cheese. Plum pudding. Mince pies. Pineapple jelly. Chocolate cream.

Wines.—The question of drinks is much debated. Generally 2, or at most 3, kinds, of wine should suffice. With soup, fish, and sweets, either sherry, chablis, sauterne, or hock; with the rest of the dinner, claret or Burgundy and champagne. It has become the fashion of late years to serve this last-named wine rather profusely, with more regard to quantity than quality, but mediocrity is not tolerable in the matter of champagne. To second or even third class clarets or Burgundies there can be no objection; they may not possess the bouquet of the finest brands, but they are quite drinkable of their kind, whereas inferior champagne is simply an abomination. The same, in a lesser degree, perhaps, applies to Madeira and port. It is a mistake to

suppose that first-rate port wine and Madeira are not to be had for love or money, but in many instances such wretched stuff is put on the table under those names that people have been scared by it, and there are but few who are bold enough to help themselves to either wine. There is, however, no particular obligation to have port wine at dessert. A bottle of first-class Burgundy can well take its place, and it is an easier matter to procure the latter than the former.

All wines, but more particularly clarets and Burgundies, require some care during their transit from the cellar to the dinner table, especially in cold weather. In the majority of private houses the wine cellars are no better than they should be, and more fitted to store coals than wine. Delicate wines are quite unfit to drink when they come out of most private cellars. To restore wines to their right condition many persons adopt such rough means as plunging the bottle in a bucket of hot water or putting it in front of the fire in the fender, proceedings which have the double effect of warming the wine and utterly spoiling it. The proper way to set to work is to bring up the day before or in the morning all the wine that is wanted for one day, and to place the bottles standing in a room in which there is a fire, but nowhere near the fire; the wine will then gradually recover its proper temperature and tone and be fit to drink. When bottles have stood for half a day or more there will be no difficulty in decanting the wine bright, whereas it is almost an impossibility to get wine otherwise than foul if it is decanted the moment it is taken from the bin.

Breakfasts.—There is an almost endless variety of dishes suited to the breakfast-table. The following

may be mentioned as examples:—

Trout or mackerel split open and broiled; scrambled eggs on anchovy toast; buttered eggs with tomato sauce; fried soles with cut lemon; kidneys stewed or fried; kidney toast; ham toast; omelets; kedgeree; kromeskies; curried fowl or rabbit; rissoles; potted meat; lobster or salmon cutlets; potted pig's head; poached eggs; boiled ham; hard-boiled eggs curried; wet devil; brawn; broiled chicken and mushrooms; stewed mushrooms; grilled kidney; savoury rice; sheep's brains; boiled pig's feet; baked eggs; fish pudding; fish cakes; fish scallops; Scotch woodcock; lobster toast; pressed beef; chicken pie; veal and ham pie; sardines on toast; potted meat; bloaters on toast; egg paste; Brighton toast; devilled eggs; veal cake; eel pie; sausage patties; bacon omelet; sweetbreads; fried ham and egg; salt-fish.

Luncheons.—Excepting in very rare and ceremonious cases, luncheon is a decidedly informal meal, and no long invitations are given. In the country it is a pleasant mode of seeing friends who live at too great a distance to drive over for a morning visit with the uncertainty of finding any one at home, or who do not like a long drive in the dark to dinner. In London many ladies give it to be understood by their intimate friends that they are always to be found at home at luncheon time; but this is of course a somewhat expensive mode of life, necessitating the daily preparation of a luncheon sufficient for an uncertain number of guests. It is an excellent method of seeing friends who may be merely passing through the town to invite them to luncheon, as their evening hours are frequently engaged. Also it is a convenient form of hospitality in small households, as, the meal being less formal, less

is expected in the way of preparation, decorations, and attendance. Soup is not customary at luncheon, and fish is not necessary; though there is no objection to its appearance in the form of an entrée. There may be cold dishes, both of meat and sweets, which of course economises labour where the kitchen establishment is small; and champagne is not offered, sherry, claret, and port being sufficient. The table is not elaborately decorated with flowers as it is for a dinner party; and though there is most frequently a little fruit, no great expense is incurred for dessert, and it is not customary to have ices or liqueurs. There is no necessity as at a dinner party to have an equal number of gentlemen and ladies, for it is not usual to go down to luncheon arm-in-arm—in fact, everything is calculated to make the gathering as little formal as possible. It is by no means necessary at an ordinary luncheon party that the master of the house should be at home; in his absence one of the daughters of the family would take the foot of the table and carve, the hostess of course taking the head of the table. If there are no grown-up daughters, the governess, if there is one, often carves, or the hostess asks any gentleman who may be present to do so. Some people profess to prefer a luncheon party where the servants are sent out of the room as soon as they have removed the covers, alleging that conversation is more unrestrained. This may be the case, but it generally results in the guests having to go without what they require. If they attempt to get up and help themselves there is always a fuss and a rush to get what they require for them; and generally they prefer doing without vegetables or the second glass of wine which they want rather than give trouble and disturb their entertainers. It is much better to let the servants

wait as they would at dinner; it is very disagreeable for the guests to have to change their own plates, and still more so to see the dirty plates either left on the table or piled up on dumb-waiters at the corners. Any dishes of hot meat should be removed when they are done with, as they are not appetising to look at when getting cold, and their places should be filled with whatever sweets there may be. Serviettes are quite as much needed at luncheon as at dinner; but finger-glasses and doyleys are not used, even when fruit and cake conclude the repast. The invitations to luncheon are generally either verbal or contained in friendly notes; formal cards are not used. The general hour is 1.30 or 2, the latter being most common in London, and the former in the country, more especially in winter. The guests usually arrive about ¼ hour before the time named, and the hostess always asks the ladies whether they will like to go upstairs and take off their hats and jackets. Sometimes they do so, but often prefer merely leaving any warm wraps in the drawing-room; elderly ladies especially often do not care to remove their bonnets. After luncheon is over the party returns to the drawing-room. There is no arbitrary rule as to when the guests take their leave, as it depends on intimacy and many other circumstances; but the average time is ¼-½ hour. Neither tea nor coffee is offered. These remarks, of course, apply only to private and informal luncheon parties. When there is any great state occasion, such, for instance, as a luncheon given on the opening of a church, the laying of a stone or anything else of a public character, the entertainment is more of the nature of a dinner partaken of at an early hour—ceremonious invitations are issued, each lady is escorted by a gentleman as at dinner, and

champagne is invariably given.

Teas.—Afternoon tea is not in fashionable circles regarded as a meal; but merely as a light refreshment, to break what would otherwise be a 6 hours' abstinence between a 2 o'clock luncheon, and an 8 o'clock dinner. Tea is served, or brought into the drawing-room at 4-5 o'clock, but not later than 5; it is not served in the dining-room, save when an "at home" or large 5 o'clock tea is given. The housekeeper, lady's maid, cook, or whoever may be acting as housekeeper, makes the tea, fills the hot-water kettle with boiling water, fills the sugar-basin and creamjug, and places the teacups on the tray, with teaspoons, a plate of thin bread and butter or cake, if not both. The footman, before taking in the tea, places a low table in front of his mistress, or of the seat usually occupied by her when pouring out tea, or he sees that the table near to her chair is clear of articles, that he may at once place the tray upon it. The small tea-table is not covered with a white cloth; but if covered with a smart drawing-room table cover it would not be taken off; the tables used for tea are chiefly small round tables, covered in velvet or embroidery, and trimmed with lace, or are square wicker-work tables; tea is not served on large tables, neither are chairs placed in order around the small tea-table, but remain in their usual position in the drawing room. Neither plates, doyleys, or serviettes are used at afternoon tea. The hot-water kettles in use are hanging silver kettles on stands, or silver or china kettles, about the size of a teapot, which do not require a stand. Teapot stands, or tea cosies, are not used, and are considered bad style. When the mistress pours out the tea, cups of tea are not handed by a servant.

When the mistress does not care to give herself the trouble of pouring out the tea for an indefinite number of callers, cups of tea according to the number of persons in the drawing-room are brought in on a salver, with cream and sugar, thin bread and butter and cake. If two servants are in attendance, one hands the tea, the other the cake and bread and butter; if only one servant is kept, all is placed on the same tray. The servant hands the tray first to his mistress, if no guests are present; but when guests are present tea is first handed to the lady of highest rank, and to the married ladies before the unmarried ladies. He then takes away the salver or tray, with its contents. He does not leave it in the drawing-room, or put it down while he is there. The tea is either brought in at the usual hour for having tea, or, if required earlier, the mistress of the house rings the bell, and orders it to be brought in. She does not mention how many cups of tea are required, as if she were giving an order at an hotel; but says vaguely, "Bring some tea, please." It is the servant's duty to notice how many persons are in the drawing-room, and how many cups of tea are consequently required. It is advisable to bring in an extra cup, in case another visitor should arrive in the meantime.

At small 5 o'clock teas, when the number of the guests does not warrant tea being served in dining-rooms—and the size of the drawing-rooms determine this matter—the tea is served in the back drawing-room. A good-sized square table is placed in a convenient corner of the back drawing-room, a white damask tablecloth is spread on the table, and as many cups and saucers are placed upon the table as there are guests expected. The cups include teacups and coffee-cups, but more teacups than coffee-cups are usually required; the cups are placed in rows.

The teacups are placed at one end or side of the table, and the coffee-cups at the opposite end or side. The urn occupies the centre of the table, 2 small teapots and 2 small coffee-pots are placed in the centre of the rows of cups. A silver jug of cream, and a basin to correspond of loaf sugar, a basin of crystallised sugar, and a jug of milk for the coffee. Slop-basins are not used on these occasions, neither are plates, doyleys, serviettes, or small knives. The sole eatables provided are thin bread and butter, biscuits, coffee-biscuits, macaroons, and pound cakes; sponge cakes are rather in favour at children's teas, but not much fancied at drawing-room teas. When tea is served in this fashion, in the drawing-room, the ladies of the house, or some intimate friend of its mistress, pours out the tea, with the assistance of some of the gentlemen present. The servants do not remain in the drawing-room after they have brought in the tea, and when anything extra is required in the way of additional cups, fresh tea, more bread and butter, &c., the mistress of the house would ring and give the necessary orders. The tea-table would be prepared in the drawing-room half an hour before the hour at which the guests had been invited. The tea and coffee would not be brought in until the hour named in the invitation, say, 4 or 5, either hour being considered equally fashionable. The tea-table is not cleared, or the things removed, until after the departure of the guests, when the parlour maid would perform that duty, and re-arrange the drawing-rooms. It is the footman's duty to prepare the table for tea, and to bring in the tea and coffee; the butler carries in the urn; he also announces the guests as they arrive.

At afternoon "at homes," or large 5 o'clock teas, tea is served in the dining-room; a buffet is formed of

the dining-table, which is placed at the upper end or side of the room, if the doing so affords greater space; thus the buffet extends the length of the room or the width of it; the buffet is covered with a white damask tablecloth, and the centre of it is occupied with plated urns containing tea and coffee, or silver teapots and coffee-pots, and an urn for hot water and jugs of iced coffee, dishes of fancy biscuits, cake, thin bread and butter, fruit, &c., are also placed the length of the buffet. Decanters of sherry and jugs of claret, champagne and hock cup are placed at distances in front of these, a space being left clear at the outer edge for the teacups when used. The cups and saucers are placed in rows behind the urns, and relays of the same on a small table, or butler's tray, stand close at hand; wine-glasses are placed near the decanters, that gentlemen may help themselves to wine. When claret-cup or champagne-cup is given, small thin tumblers are placed near the glass jugs. Jugs of cream and milk, and basins of sugar, are placed on the buffet at intervals. Small plates, doyleys, and serviettes are never used at this class of tea, unless strawberries and cream are given, when they are handed on a plate with a dessertspoon and small fork on each side of it, ready for use. When ices are given at afternoon teas, they are handed on a small glass plate, with an ice spoon on the side of the plate; tall ice-glasses are not good style; a fashionable way of serving ices is in small paper cups placed on ice plates.

The tea is always poured out on these occasions by the lady's maids and upper female servants, but never by the men servants. These women servants stand behind the buffet, and pour out the tea and coffee, and hand it across the buffet when asked for.

Ices are not usually under the charge of the servants who pour out the tea, but under that of the still-room maid or cook, and are served from a side-table at the back of the buffet, and are handed to the servants at the buffet when asked for. Piles of ice plates, paper cups, and spoons are in readiness on the side-table for immediate use. The guests help themselves to cake and biscuits, or anything they may require, from the buffet, but the ice wafers are placed on the ice plates when the ices are served in paper cups, otherwise a dish of wafers is handed to the lady by the gentleman who has asked for the ice for her, or she takes it herself. The men servants are constantly engaged in taking away the glasses that have been used, and the teacups and saucers. The former are taken to the pantry to be washed, and the latter to the housekeeper's room or still room, and sufficient quantity of glass and china is always provided, so as to avoid a shadow of inconvenience from the want of either. The decanters of wine and the jugs of claret and other cups are replenished by the butler, who replaces empty decanters and jugs with full ones. When the dishes of cake, &c., show signs of their being exhausted, the footman replaces them with fresh dishes, which he procures from the housekeeper's room. Dessert dishes and glass dishes are used for this purpose. Where only one man servant is kept and small "at homes" are given, one of the women servants attends to this duty, as the men servants would be engaged in opening the door to the visitors on their arrival and for them on their departure, and in announcing them in the drawing-room.

Rows of seats are not placed in the dining-room for the guests, and the room is cleared as far as possible of all movable furniture to allow all available space.

The much-increasing fashion of giving invitations to high tea has been adopted by many hostesses, especially by those who, with limited establishments, find it difficult, if not impossible, to undertake the requirements of a modern dinner without the objectionable alternative of hiring assistance. So late a meal as supper may not be expedient for many reasons, and many a young hostess finds her difficulties vanish before the less formal appellation "high tea," which, if well managed, may be a comfortable repast, but otherwise, a most uncomfortable substitute for dinner.

Various are the modes of arranging this meal. At the "highest" of "high teas" the principal dishes consist of hot poultry, game, and small entrées, which, if placed at once on the table, must be kept covered while a light fish course is handed round, with which sherry or other light wines are offered.

Vegetables are not necessary, except where they form part of a dish, such as stewed pigeons and peas, cutlets with tomatoes, sweetbreads with mushrooms in white sauce, or stuffed vegetable marrow. Large mushrooms may be served *au gratin*, and roast fowls on watercress. Potatoes may always be handed round, either mashed and browned, or, better still, beaten up with egg and cream, seasoned with pepper and salt, rolled into dainty little shapes, breadcrumbed and fried.

Should macaroni cheese, a *fondue*, or any such preparation, usually most welcome to the men of the party, be included, it must be brought in hot, after the removal of the substantial dishes.

The table is of course tastefully arranged with growing plants and cut flowers; and at this season bright hedgerow leaves and berries make charming

decorations. Small dishes of fresh or preserved fruits, bonbons, &c., are placed amongst the creams, jellies, and dishes of light pastry, also cake, plain and fancy biscuits.

If the hostess be an accomplished tea maker, she will probably prefer to undertake this important duty herself, having (unless the table be very large) a small tray by her side with the necessary paraphernalia, a kettle over a small spirit lamp, and coffee percolator.

Sometimes tea and coffee are dispensed from the sideboard, but the person entrusted must be competent, as nothing will tend more to spoil the enjoyment of the repast for some guests than lukewarm or weak tea, or muddy coffee. In each case let the cream, hot milk, and sugar (which must be broken into small pieces) be handed round, as it is impossible for one person to suit the varied tastes of others in these items. It may be found more convenient to serve all the eatables cold, such as cold game, chaud froid of chicken, lobster or prawn salad, pigeons or other small birds in aspic jelly, mayonnaise of turbot or salmon, prettily arranged moulds of minced veal and ham, with sliced eggs, &c.; pies of game or poultry, boiled turkey sauced with oysters, and many other preparations in cold-meat cookery, too numerous to be here mentioned. Here also will fruits, sweets, creams, &c., find their appropriate places, and plates of thinly cut white and brown bread and butter must either be conveniently placed or constantly handed round; also plain and fancy bread. Small glass or china tubs should hold butter made into tiny balls or shapes, and enough saltcellars be provided to prevent the continual passing and repassing of them. Inattention to these

apparent trifles often create discomfort in a large party.

Hot buttered toast, tea cakes, and scones frequently appear at a repast of this description, especially in Scotland, where the variety of home-made tea cakes is so great.

Then there is the high tea, where the party includes but 4-6—actually a small dinner, but without the name—the soup, heavier dishes and their adjuncts, a succession of small dishes (from fish to miniature light puddings) being served *à la Russe*, accompanied perhaps by wine, the tea or coffee tray being only introduced near the termination of the repast. Happily, sitting over wine is not now essential to the enjoyment of most men. Well-managed high teas are often better appreciated than the more formal, and probably imperfect, so-called dinner. (M. M.)

Suppers.—The essentials of supper are not only lightness and wholesomeness of material, but grace and elegance of service. It is possible to make off a single dish one of the wholesomest, as well as completest, of suppers that can be devised, viz. oysters. Fish of most sorts, however, is well fitted to take its place amongst the ingredients of supper, only be warned against salmon in any shape, and specially in that most dangerous of all, the pickled state. At supper there is not, nor ought to be, any regularly constituted succession of “courses,” and the several dishes, whether hot or cold, should be in their places on the table at the same time. As regards the question between hot and cold. There are plenty of hot dishes to be had most easy of digestion, and to the palate of many people more agreeable than cold;

but exclude all manner of soups. Of the better kind of hot food, the following specimens may suffice: Chickens (spatchcocked, grilled, roast, and fricasséed), larded capon, salmis of game, roast partridge or grouse (but not roast hare), mutton cutlets of different sorts, grills or broils, patties (oyster for preference), rissoles, and croquettes. Of the more solid cold articles of food, the greater part will probably already have appeared at breakfast or luncheon,—boar's head and brawn, cold game, round of beef, and chickens with ham or tongue; there remain mayonnaises (but not of lobster), macédoines, aspic, and other savoury jellies, galantine, and raised pies in their abundant varieties. Adjuncts to the feast, such as sandwiches (the best are of tongue, ham, and potted meat), will never be out of place. Plovers' eggs too, if they have no other merit, it cannot be denied are of very extensive popularity. The dishes mentioned will require to be supplemented by a certain variety of sweet things.

Miscellaneous.—*Wedding Breakfast.*—(*a*) Clear soup and hot cutlets, croquettes, or some other suitable entrée may first be handed round, but it is not *de rigueur*, and all the rest should be cold and on the table. Cold salmon, mayonnaise of soles, prawns, lobster, or any other fish liked. Chicken, tongue, ham, galantines, raised pies, cold cutlets in aspic, savoury jellies; in fact, anything that can be served at a supper, and the more easy the dishes are to serve, the better. For instance, the fowls cut up, the tongue in slices, and all prettily garnished and decorated with lettuce, endive, beetroot, cucumber, aspic jelly, and eggs. For sweets, jellies, cream, pastries, trifle, meringues; ices, if liked, and, of course, the wedding cake. Coffee must be handed round afterwards.

(*b*) In May mayonnaises de saumon, mayonnaises de homard, crevettes au naturel, aspics aux œufs de pluviers. Chapons à la Béchamel, pintades piquées, poulets et langue, jambons glacés, galantines de bœuf, pâtés froids variés. Poulardes rôties, salades à l'Italienne. Gelées et crèmes, blancmanges, corbeilles aux meringues, corbeilles de pâtisseries, gateaux Napolitains, gâteau de Savoie glacé. Glaces: fraises à la crème, oranges à l'eau. Bride cake. Dessert. All cold.

(*c*) Wines: Moselle, champagne, hock, sherry, claret. Botage: à la reine, à la printanière. Croquettes d'huîtres, escallopes de ris de veau aux champignons, cotelettes d'agneau aux petits pois. Dinde farçi à la Périgord, pâté de gibier à l'Anglaise, langues glacées, jambons glacés, poulets rôtis aux cresson, ptarmigans rôtis, pâté de foies gras aux truffes, boudins de homard à la Belle Vue, aspic de crevettes à la Russe, mayonnaise de saumon. Salades de homards: Gelée à la Lorne, gelée à l'Eugénie, gelée à la Macédoine, crème à la Sicilienne, crème de fraises, bavarois d'ananas, gâteau de millefeuilles, meringue à la Christophe, petites meringues à la Chantilly. Glaces: Crème d'ananas, eau de cerises.

(*d*) Consommé à la d'Esclignac; purée de perdreaux à la crème. Côtelettes d'Agneau aux concombres; suprême de poulets aux truffes. Langue de bœuf garnie d'Ecrevisses; pâté de coq de bruyère; balotines d'Agneau; poulets rôtis aux cresson; galantines de volaille; mayonnaise de homard; jambon en salade. Petits gateaux à la Génoise; macédoine de fruit à la gelée; pain d'Abricots au noyau; Charlottes à la Bohémienne; pâtisseries meringuées. Eau d'Ananas; crème framboise; crème de vanille.

Afternoon Dance.—The refreshments usually

provided for an afternoon dance would be brown and white bread and butter, pound and plum cakes, sponge fingers, and biscuits. Sandwiches of various kinds are also much appreciated, particularly by guests coming from a distance, and of these perhaps the following are as nice as any: ham and tongue, lettuce and anchovy (a little of the latter), or delicate slices of hard-boiled egg and lettuce, with a touch of anchovy added. Fruit knives and forks should be laid in each plate ready for using for peaches, pineapples, &c. Grapes should be among the fruit provided. Ices, iced coffee, and various "cups" are generally seen at afternoon dances, such as champagne or claret. There should be 2 or 3 dishes of each kind of refreshment at intervals down the table. (F. Lilian.)

Lawn Party.—It is usual to have hot tea, coffee, cakes, brown bread and butter, fruit and cream, at a lawn party. Iced coffee is not necessary, but much liked in hot weather. It is made as follows. To 1 qt. very strong coffee add 1 pint cream and ½ pint milk, and sugar to taste. Put all into a freezing tin, and freeze until a little thick; serve in a silver kettle or soup tureen. (A. H.)

Cinderella Supper.—(*a*) Watercress sandwiches, sardine sandwiches, anchovy sandwiches, devilled eggs, salad, coffee jelly, orange cream, sweet biscuits, sponge cakes, claret cup, lemonade soup. (*b*) Boned turkeys, lobster salads, chicken sandwiches, shrimp sandwiches, tongue sandwiches, veal croquettes, oyster patties. Ices, jellies, and creams, claret cup, claret, and a good lemonade; also some fruit and a selection of fancy confectionery such as will not soil the glove; candied walnuts, plums, &c., are much liked. (*c*) The great points to aim at in giving a Cinderella supper, as a sequel to the fashionable

Cinderella dances, are elegance and lightness, combined with economy.

SUPPLEMENTARY LITERATURE.

Edward Smith: 'Foods.' London, 1880. 5*s.*

Mrs. Loftie: 'The Dining Room.' London, 1878. 2*s.* 6*d.*

John Perkins: 'Floral Designs for the Table.' London, 1877. 5*s.*

'The Book of Dinner Serviettes.' London, 1876.

THE DRAWING-ROOM.

The drawing-room is the scene of almost all social gatherings, whether dancing, theatricals, games, or other amusements be provided.

Etiquette.—This chapter cannot commence more appropriately than with a few remarks on the customs observed in society and the rules which regulate visits and parties. To enter fully into all these matters would occupy a very large amount of space. Those requiring more detail cannot do better than consult the weekly pages of the *Queen*, in which excellent journal often appear articles on the latest fashionable customs, and where an inquiry from one

in doubt is sure to meet with a polite reply giving the necessary information.

Styles and Titles.—It seems difficult to make it clear to the understandings of many persons that it is incorrect, in speaking of an earl's, marquis's, or duke's daughter, to omit her Christian name. They must know that she is habitually styled Lady Clara Vere, yet they persist in calling her Lady Vere, as if she were a peeress or a baronet's wife, instead of a "lady in her own right." Another equally common blunder is to speak of a baronet's wife as Lady Emma Jones; if for purposes of identification it is necessary to mention her Christian name at all, it should be as Emma Lady Jones, as nothing but being the daughter of a peer higher in rank than a viscount gives the right to be called Lady Emma. Again, it is impossible to persuade some people that it is the sons of dukes and marquises only who are called lords; they persist in imagining that because earls' daughters are styled lady, it is impossible that their younger brothers should be only Hon. Mr. The title of dowager is another great stumbling-block. In propriety it should only be borne by the mother of the reigning peer or baronet. Should, therefore, a peer (let us call him Earl of Brighton) succeed his father, his mother, the widowed countess, should be styled the Countess Dowager of Brighton. Should he, however, succeed to his uncle, brother, or cousin, that relative's widow would have no claim to the title of dowager, but should be addressed as Mary, Countess of Brighton. It is a very common saying that a woman may rise in rank, but can never lose what she has once possessed; but, like many common sayings, this, though the general rule, is not strictly accurate. A duke's daughter takes precedence far before the wife of a baron. Yet if she marry a baron who is a peer in

his own right (not merely a title of courtesy, such as are borne by peers' eldest sons), she at once, on becoming his wife, loses her own rank, and has no precedence, save that of her husband.

Shaking hands.—You would not shake hands on being casually introduced to a person altogether a stranger to you, but yet there are so many occasions when it is both proper and correct to shake hands on first being introduced, and the rule on this head is a very elastic one. For instance, a host and hostess invariably shake hands with every stranger introduced to them at their house. You would shake hands on being introduced to the relatives of your relations by marriage, such as your sister-in-law's sister or your sister-in-law's mother; with your brother-in-law's brother or father; with your future husband's uncle and aunt or cousins; with a brother or sister or mother of an intimate friend; or under any similar circumstances. If you do not shake hands on being introduced, ought you to do so on departure? That depends. There are occasions when to shake hands would be polite; and there are occasions when your hand would be *de trop*. If you had enjoyed conversation to any extent with some one to whom you had been introduced, and found you were getting on very well, and had a good deal in common, you would naturally shake hands in taking leave of each other; but if you had only exchanged a few common-place sentences, a bow would be all that is necessary. The lady usually takes the initiative, as she does with regard to bowing; but in reality it is a spontaneous movement made by both at the same moment, as the hand ought not to be extended or the bow given unless expected and instantaneously reciprocated. For a young lady suddenly to offer her hand in farewell greeting to

one not prepared for the honour leads to an abrupt movement on the one part, and to a little confusion on the other. Shaking hands on taking leave is with some few people a graceful and pleasant fashion of saying good-bye. About shaking hands with acquaintances at a dinner party, or at an evening party, many are in doubt. If the dinner party is a small one, and there is time to quietly shake hands with those you know, it would be correct to do so; but if there were little time before dinner, and no good opportunity for shaking hands, bows to acquaintances at distant parts of the room, or when seated at the dinner table, would be sufficient for the time being; while at an evening party it depends upon your being able to get near enough to your friends to enable you to do so. Having once shaken hands with a person, you are of course at liberty to repeat the civility whenever you may happen to meet, unless a decided coolness of manner warns you that a bow would be more acceptable than a shake of the hand.

Letter Writing.—To commence a letter to a comparative stranger, or to a person with whom the writer is but slightly acquainted, on any matter of interest, is the first difficulty to be got over. In all communications with strangers, or almost strangers, it would be correct to write in the third person. A very slight acquaintance, however, or a faint personal knowledge, would authorise a letter being written in the first person if it were to be of any length. Notes are principally confined to the briefest of communications, as, when they are lengthy, the repetition of the pronoun “she” and “her,” “he” and “him,” become wearisome if not involved, to say nothing of the possessive pronouns which are frequently brought into use, with the addition of

surnames. When it is imperative to write in the third person, it is most desirable to construct each sentence with care and with due regard to an extravagant use of pronouns, and never at any time to resort to the vulgar expedient of attempting a sort of compromise by making the initial letter of the writer, and of the person written to, do duty for their respective surnames. To frame a note without introducing "compliments" at its commencement is the received mode of writing one. The subject under discussion does not require this preliminary introduction, and it is best to embody it in the opening sentence. There are few people careless or ignorant enough to lapse from the third person into the first in the course of a short note; but still it is worth guarding against. To turn from notes to letters, again it is observable that a cramped style, or a small Italian handwriting, are no longer in vogue, and, when seen, appear very much out of date. The prevailing style of writing is bold and free, the characters very upright, and tall toppling "l's" and long-tailed "g's" have quite disappeared from letters in general; a free use of capitals is also indulged in, which gives a dash of originality and spirit to a letter when not overdone. Many gentlemen and a few ladies affect a literary style of letter writing—that is to say, a margin ¾-1 in. wide is left on the near side of the sheet of paper, which gives rather an imposing look to it; but this is only done when the letter is almost a note in the matter of length. A strictly business habit, adopted for the convenience of being copied by letter-press, by no means a fashionable one, is to write on the first and third pages of a sheet of note paper, leaving the second and fourth pages blank, or to write on the first and fourth pages, leaving the other two; but some people fall into the

mistake of doing this under the impression that it is rather fine, whereas it is very much the reverse. Some little care should be taken in paragraphing a letter to avoid incoherency. Thus, a fresh line and a capital should be allowed to each new subject. As much variety is introduced into the letters of the present day as possible; thus, should a sentence or a remark require to be referred to, the eye can at once light upon it without re-reading the whole epistle. It used to be an idea that to underline words in a letter was "missish" in the extreme, and rather bad style than not: but now, if a writer wishes to be very emphatic, or to call particular attention to any remark, an additional stroke of the pen is not objected to; but it is a liberty not to be taken when writing to those with whom one is on ceremony. Another practice of the past, which is now happily discarded, is that of crossing letters. Many people experience a certain difficulty in the choice of a conventional term with which to conclude a ceremonious letter, and it must be admitted that there is not much variety at command, "yours truly," "yours sincerely," "yours faithfully," with the addition perhaps of the adverb "very," being the principal formulas in use; and it is on the whole immaterial whether "truly" or "sincerely" is employed when writing to friends. The affectionate expressions addressed to still dearer friends and relations are beside the question, and yet many devoted husbands make use of the words "yours truly" when writing to their wives, in preference to any more affectionate phrase. By way of not concluding a letter too abruptly, it is usual, before the words "yours truly," to add one or other of such phrases as these: "Believe me, dear Mrs. Jones," or "I remain, dear Mrs. Jones," or "Believe me, dear Mrs.

Jones, with kind regards," and this gives a certain finish and completeness to a letter which would otherwise be wanting.

A few words as to the actual composition of a letter. It should always be borne in mind that if a letter has a purpose, a reason, or an object for being written, this fact should not be lost sight of, or overweighted with a mass of extraneous matter. Again, it is idle to devote the first page of a letter to trivial excuses for not having written sooner, when no particular reason existed why a still longer delay in writing might not have been allowed to elapse, if it suited the convenience of the writer. Of course, when a letter requires an immediate answer, it is then a matter of politeness to give the reason for the omission, but this should be explained without circumlocution, and other matters should at once be referred to. A want of punctuation in a letter will often cause a sentence or paragraph to be misunderstood, and made to convey the reverse of what was intended. Notes of interrogation should not be omitted from a letter when questions are asked, though many consider it a waste of time to make use of them. Notes of exclamation, when required, materially assist the clearer understanding of a passage, which, without them, might have a vague meaning. It is not the fashion in these days to accuse oneself of writing a stupid letter, a dull letter, or an uninteresting letter, one's friends are only too likely to take one at one's own valuation, and to endorse the written verdict; while the solecism of laying the blame of bad writing on pens, ink, and paper is confined to the servants' hall, where writing materials are perhaps not always of the best quality, and seldom ready to hand. In answering a letter, it is a great proof of a poor imagination, besides being

extremely tedious, when each paragraph of the letter under treatment is minutely paraphrased. Questions naturally demand answers, and important facts call for comment; but trivial remarks and observations, perhaps pleasantly put, were never expected to be returned to their author with poor platitudes attached to them.

A postscript was formerly supposed to convey the pith or gist of a lady's letter—a poor compliment, it must be confessed, to her intelligence; it is now considered a vulgarism to put P.S. at the bottom of a letter containing the few last words, if something is remembered when the letter is concluded that should have been said, it is added without apology.

Answering Invitations.—The extremely rude habit of not answering notes as soon as they are received is generally done from idleness and a habit of shirking trouble, though, as the answer must ultimately be written, it is hard to see what exertion is saved by not writing it at the proper time. Of the inconvenience to the sender from not receiving the answer required, no one seems to think, and there are some who labour under the delusion that it is "fine," and increases their importance, to keep people waiting. The inconvenience to a hostess can hardly be exaggerated. Rooms are not elastic, and having asked the proper number of people, she can ask no more until she knows that some of those invited, as is generally the case in most parties, cannot come. Every day she is kept waiting lessens the time for inviting others; and then only those with whom she is sufficiently intimate to give a very short invitation. Politeness requires that an invitation to dinner should be answered *at once*; if the servant waits, it should be returned by him; if it is left, an

answer should be sent at the earliest moment; if it is sent by post, the reply should be sent by the next one. It is no more trouble to write the answer at once than to wait for the next day. The only valid reason that a lady can have for delay is when her husband is out, and she is not quite sure about his engagements. Of course, if he is only out for a short time it is permissible to wait till he comes in; but if, as is sometimes the case, he is away from home for a day or two, she should answer at once to that effect, and write decisively on hearing his determination. Answers to At Homes, even when they bear the request "R.S.V.P.," need not be sent so promptly; but as soon as it is quite clear to a lady that she cannot go, it is courteous to say so. Answers to invitations to concerts, private theatricals, or *any entertainment where the guests are to be seated*, should be sent *immediately*, as it is necessary for a hostess to know the number of chairs at her disposal. Answers to wedding invitations should also be returned immediately.

The art of making excuses is one which people much in society find it absolutely necessary to cultivate if they wish to retain any command over their own time, movements, and even property. Tact, or *savoir vivre*, is the key to this art, while frankness might certainly be termed the lock in which to place the key when making polite excuses. Frankness appeals both to the good sense and to the common sense of the one to whom it is addressed; it softens the refusal, of whatever character it may be; it gives the assurance that no slight is intended. There is one stereotyped excuse, a "previous engagement"; but between friends, and by those with whom frankness is practised, this explanation is carried a step further, and the nature of the previous engagement is

mentioned, and the name of him or her with whom it is made. A downright refusal savours of ungraciousness and discourtesy; whereas a polite excuse is compassed by a little judicious temporising, which in a way breaks the force of a refusal. The difficulty of making polite excuses is sometimes increased when a verbal invitation is given to a husband and wife, and they are not able to consult as to whether they are unanimous in refusing it. The way of extrication is for the one to refer to the engagements of the other, and leave it in doubt for the moment.

Various excuses are permissible in answer to all save invitations to dinner; this must be accepted, unless a bonâ fide engagement or illness can be pleaded in excuse. Polite excuses to unwelcome requests demand even more readiness of thought and speech, as refusals to such, if not guardedly conveyed, are likely to give offence, or to create an unpleasant feeling of annoyance.

Dancing.—*Preparing Floors.*—(*a*) A good plan is to use a little beeswax in preparing the floor for dancing. Unless it be perfectly even, a carpenter must be called in to plane away any little roughnesses, or to fill up interstices between boards with little slips of wood. When quite smooth, some beeswax must be rubbed on to one of the weighted brooms sold on purpose, and it must in this way be thoroughly worked into the boards over every part of the room, adding a little more wax when needed, but remembering that the less wax and the more labour bestowed on the floor the better it will be. When the desired polish is attained, sprinkle the floor all over with finely powdered French chalk. Cover the waxed broom by tying a piece of strong baize over it, and

with this go up and down the room over and over again, until the French chalk has been well rubbed over every part; this will make the floor just right for dancing, and prevent the possibility of any slight stickiness there might be from the beeswax. As this process with the powdered chalk occasions a good deal of dust, it should be all finished some hours before the room is wanted, so as to give the dust time to settle. The room will require thorough dusting, not forgetting the upper ledges of doors, mirrors, &c., which are sometimes neglected, thereby causing a great clouding of the atmosphere as soon as dancing begins. If the room be a large one, it will take 2 men quite 2 days to polish the floor for the first time, apart from any carpentering which may be necessary. Once done, however, one day will suffice on any future occasion to put it in good dancing order; going over every part just once, first with the wax, and then with the chalk, will be quite sufficient.

(*b*) Powdered spermaceti answers well for polishing a floor, being clean and easily used; it should be sprinkled over, then rubbed, or, better still, is glided over by some one wearing thin shoes, each board being taken separately.

(*c*) Wash the boards with milk, and when dry lay on French chalk thinly but evenly all over the floor; then let 2 men scrub it hard with brushes until all signs of the chalk disappear: ½ lb. chalk will do for a large room, as if put on too thick it will soil the ladies' dresses.

(*d*) The floor must first be planed as smooth as possible, all nail heads hammered down, well sand-papered with coarse and then fine paper, washed with new milk, and 6 hours after, dusted slightly with French chalk. A rough floor may be transformed

in an hour by scraping up a common composite candle very finely, scattering it on the floor, rubbing it into the wood with your boots, and then dusting it with French chalk out of a flour dredger. White wax, and then French chalk, is best treatment for a well-stretched drugget, and the chalk will make an over-waxed parquet perfect.

Scenting Rooms.—(*a*) When the roses fade, spread the leaves to dry, taking away those which are decayed or discoloured; then, in a jar, place alternate layers of rose leaves, lavender, scented marjoram, lemon plant, or any perfumed plant, sprinkling each layer with crushed bay salt, and pressing down very tightly. In the autumn, when there is nothing more to add, strain away any moisture, turn all out, and mix well; keep in a wide-mouthed jar with a lid, and during the winter sprinkle occasionally with eau de Cologne or other perfume; and, when wishing to scent the room, take off the lid.

(*b*) 1 lb. bay salt, 2 oz. saltpetre, both in the finest powder, a handful of sweet bay leaves cut as small as possible; the same of myrtle leaves, rosemary, lavender leaves, and lemon thyme in flower, the rinds of 4 lemons cut as fine as possible, ½ oz. cinnamon, ½ oz. cloves, ½ oz. allspice, a large nutmeg in the finest powder, 1 oz. storax, 1 oz. bergamot, 1 oz. spirit of lavender, 1 oz. essence of lemon, 1 dr. musk, 6 oz. powdered orris root. Put all these ingredients into a jar with a lid that shuts very close, then add the following flowers as you gather them: 3 handfuls orange flowers, 3 of clove pinks, 2 of rosemary, 2 of lavender flowers, 2 of jessamine, 6 of rose leaves, and leaves of Aloysia citriodora. Stir it each time fresh flowers are added. Gather 4 rosebuds early in the morning, and put them at once into your

jar. Do not leave any two leaves sticking together, and pick out every piece of green. Syringa flowers are a good substitute for orange flowers. If the pot-pourri becomes too moist, add orris root powder and spices; if too dry, add bay salt and saltpetre, only let every powder be as fine as possible, and well mixed. It cannot be too much stirred at first, and, if well made, will keep its perfume for many years.

Old-Fashioned Dances.—The Triumph: The ladies and gentlemen stand in lines opposite to each other; the top gentleman dances down the centre with the second lady, pursued by her own partner; she dances back between the two, and the next couple begin, until all the dancers are engaged. *Cottagers*: 4 people stand for this as in the quadrille; they cross hands in the centre, and make the half-turn backwards and forwards; then the second couple hold up their hands, and the first couple pass beneath and begin again. *Square Eights*: Ladies and gentlemen in two lines, hands across, then first polka round, and then galop, and begin again. *Morgiana in Iceland*: The dancers stand opposite each other in two lines. The top couple go outside the lines, back again, down the middle, and up again; the couple at the top holding up their hands, they pass under, and the next couple begin. *Miss Lunsdam's Fancy*: The first couple set to the second lady, hands 3 round, the gentlemen do the same, lead down the middle and up again, right and left at top. *Lady Doran Strathspey*: Set and hands across and back again, down the middle and up again allemand; turn corners, lead outsides. *The Jubilees*: First and second couple hand across, back again, lead down the middle and up again; swing corners. *The Quadrille Mazurka*, danced face to face, in 4, 6, or 8 couples, up to 32. Fig. 1. The 2 couples facing each other make the complete right and left;

the 2 gentlemen, advancing with their partners, give each other their left elbows, make a demi tour, change their partners, make the tour sur place forward, and repeat the figure to bring them back to places. Fig. 2. Wait 8 bars. The 2 opposite gentlemen, holding their partners by the hand, advance and fall back, cross by right and change places, make the tour sur place forward, and repeat the figure to bring themselves back to their places. Fig. 3. Wait 8 bars. The 2 opposite ladies cross by their right, and re-cross, giving the left hand; the gentlemen give them the right hand, turning them; their left hand round the waist. Thus the ladies, still holding each other by the left hand, make a half round to change places. The gentlemen, still holding their partners by the waist, make the tour sur place forward. They cross hands in centre, and make an entire round. The gentlemen, having changed sides, take their partners' hand, and fall back with them, and repeat the figure to regain their places, omitting the cross hands in centre. Fig. 4. Wait 8 bars. The first gentleman promenades with his partner round to his place, advances forward and backwards. The gentleman again advances, and his partner crosses to left; without quitting her hands, he takes the lady from the opposite couple with his other hand, who takes the hand of the other lady behind the gentleman; thus all three advance and retire without turning. The gentleman then stoops, and passes under the arms of the two ladies united behind, with which his own are then found crossed. The three go round to the right; the gentleman then leaves the lady with her partner, and makes a promenade to his place with his own partner; both then advance and retire. Fig. 5. Wait 8 bars. Right and left; the gentlemen, still holding their partners, make a demi tour, and

pass the right arm under the left of their partners, and, taking them by the waist, thus make the tour sur place backwards. Half hand round, and petit tour, to return to their places. Then join 4 hands round, and make a demi tour to the left. A tour forward, and demi tour round to the left, tour forward; double right and left, and return to their places. Tour sur place forwards and backwards, and finish by a grand chain as in Lancers. This is a graceful and telling dance. *The Spanish Dance* is danced in 3 time with the waltz step, and is very graceful. The dancers stand in line as for a country dance, the sexes divided except that the top gentleman stands on the lady's side, and the top lady on that of the gentleman, and every fourth lady and gentleman change places in like manner; first gentleman and second lady, and first lady and second gentleman of each set of 4; set to each other and change places; repeat; then first gentleman and second lady set to their partners, change, and resume their original places; all four join hands in centre, advance, retire, and change places; ladies passing to left four times; next the couples waltz round each other, the second couple taking the top; while the top couple repeat the figure till the whole line is completed. *The Swedish Dance* is as follows: Arrange the company in lines of 3, a gentleman and 2 ladies, or a lady and two gentlemen, vis-à-vis, as many sets as can be formed to dance at once; all forward and back join hands; gentlemen set to opposite lady on the right and turn, and set to lady on the left, turn, and back to places; all forward and back, forward again, and pass through to next set; all forward and back twice; the two top ladies and opposite gentleman all three join hands round, and back again to places; all forward and back, forward again, and

pass through to the next set; all forward twice; four ladies cross right, hands round and back again to places; hands all round and back to places; all forward and back, forward again, and pass through into next set. (A. H.)

Amateur Theatricals.—These form an excellent amusement for winter evenings, and may be made highly instructive to young members of the family, besides aiding in developing a degree of culture in manner and speech with proper guidance. A moderate amount of ingenuity, with some pasteboard, paper and paste, will suffice to extemporise a stage and scenery. A few hints on "making up" may be useful.

Making up.—Given a clean shaven face, the features of which are not specially prominent, and it is comparatively easy for an artist in make up to transform it into a fair likeness of any type of character he wishes to represent, or even to imitate a particular individual. Of course the actor cannot remould his features, but by putting on different coloured paints he can present an effect which, viewed from a little distance, has all the appearance of having been remoulded. The great secret underlying all the triumphs of this art is that white brings into prominence and black depresses. For instance, take a nose that is reasonably straight. Suppose it is desired to make it a pug. Put a little dark brown on the bridge and make the end lighter than all the rest of the face. The gradations have to be nicely shaded, and there comes in the art. To reverse the process, and produce a marked aquiline, hook, or Jewish nose, put white on the bridge and darken down the tip a little. That will bring forth an aristocratic nose that would do credit to any duke in

the British peerage.

Grease paints can now be purchased. These are colours mixed with a hard grease, a little of which is rubbed on the face and then smoothly spread over with the finger. One of its most valuable properties is that it is not affected by perspiration, and requires grease or soap and water to remove it. Generally the actor rubs a little vaseline or cold cream over his face and wipes this off with a rag before washing, thus removing most of the paint and getting the soap to lather more easily. It does not seem to injure the skin when it is properly washed off at night, but persons who are careless may let it block up the pores of the skin or remain in the roots of the hair or eyebrows. The number of shades in which grease paint is now made is very great, and every actor who takes pride in his make up will have from a dozen to twenty kinds. Even in flesh tint alone there are six varieties, from the very delicate creamy white of youth to the leaden sallowness of extreme old age. Besides these there are shades for Chinamen, and for every gradation of Indian and negro blood. Then there are whites for “high lights” and for whitening mustaches or eyebrows, browns for shading, blues for veins and hollows, reds, blacks, and yellows. You must not think they are all used in one make up, though often seven or eight colours are combined in an elaborate one. The first thing to do in making up is to select the proper flesh tint. This having been chosen and applied, the next thing is generally the rouge. Except in the case of very old characters, some red must be put on the faces, or the yellow glare of the footlights will make them look perfectly ghastly. But where the red is to be put and how much of it and what shade to use, depend entirely upon the age of the person to be represented. The

younger the person the more delicate the tint of rouge should be and the higher it should be upon the face. Thus, for a very young man, the rouge is put on in a half-moon shape, one horn beginning at the inner corner of the eye and the other extending well up the temple as high as the eyebrow. As the age increases we cease to run the colour up so high on the outer side, until for mature years it settles down into the hollow below the cheek bone.

The rouge being properly applied, we next go to work upon the wrinkles or hollows. In representing age the principal lines to be emphasised are those from the nose to the corners of the mouth, from the corners of the mouth to the chin, from the inner corners of the eyes to the hollows of the cheeks, and those on the forehead. Some actors make the wrinkles in blue, others in brown, and others in grey. It is a matter of taste. The lines are made with thin sticks of the paint cut to a point, or with a pointed leather stub upon which the paint has been rubbed. After the wrinkles have been put on it may be necessary to accentuate them by a line of white or light colour on the edges, and these lines must be graduated into each other so as not to seem too hard or abrupt. In representing old men the strong muscle above the line from the nose to the mouth must be brought out very strongly with white. The cheek bones under the eyes must be treated in the same way. Then the eyelids require darkening for age, and crows' feet are carefully drawn with a number of thin irregular lines at the outer comers of the eyes. Where youth is shown, the upper eyelids and skin under the eyebrow are delicately rouged. If hollows in the cheeks, temples, or neck are wanted, these are the next things to be done, and the outlines of the cheeks may be rounded out with light shades or made to

assume eccentric shaped with darker ones. The muscles of the neck may need bringing out, and hollows put under each side of the chin. Lips require rouging for youth, and blueing or darkening for age. Large mouths are made small by putting rouge only in the centre of the lips, and small ones made large by rouging all the way, and even extending the corners with a line of red. Where toothlessness is desirable the teeth are covered with a thin coating of black wax, which renders them quite invisible. The process is technically called “stopping out.” The face being now coloured, rouged, lined, wrinkled, and hollowed, the next things to be attended to are the eyebrows, and hair or beard if any are required.

Very few people are aware how important a part the eyebrows play in forming the expression of the face. Bringing them very close together will cause a look of meanness or villainy; a high arch will ensure surprise or vacancy of expression. A slight upward turn of the inner corner makes some faces very handsome. Eyebrows are often painted; but if very heavy ones are needed they are stuck on over the true ones. If the actor is going to wear his own eyebrows or mustache, he colours them to match his wig with grease paint, which, after being rubbed on, is combed so that each hair is coloured and there is no matted appearance. The use of mustaches and beards made on wire and hung from the ears has almost entirely gone out except among supers and utility people, as, being independent of the skin of the face, they did not move with it, and consequently never appeared natural. The best mustaches and beards are now made upon a thin foundation of silk, each hair being drawn through separately and knotted. The foundation is fastened to the face with spirit gum, another modern invention of great value

to actors. It consists of gum dissolved in collodion and alcohol. This mixture dries immediately it is exposed to the air, is impervious to moisture, and can only be removed by spirits or grease. When the actor had to depend upon plain glue or gum, he was always in fear of losing his false beard, and many are the funny stories told of swallowing mustaches or transferring them to the faces of ladies who have had to be embraced in the course of the action of the piece.

Many actors prefer to make their own beards or whiskers nightly, as they do not like the feeling of the solid foundation on the skin, and, indeed, an all-round beard is apt to restrict the easy working of the jaws. Whiskers or beards are made from wool or crape hair, both of which can be obtained of any desired shade of the theatrical wig makers. The hair or wool is drawn through a coarse comb to a little longer than the length desired. It is then cut close to the teeth on the under or more solid side. An even mass is thus obtained which is readily fixed to the gummed cheek. The real art is in the subsequent trimming, with very sharp scissors, to the shape desired. Wool is more easily handled, but hair which comes in short lengths, plaited, is the most realistic. It is this that detectives use for disguises, and when well put on it is almost impossible to detect its falsity, as each hair seems to grow out of the skin.

Almost the last stage is the putting on of the wig. If this is not a bald one, the hair is brought down so that the junction with the forehead is not seen. Many foreign actors prefer to have their wigs made with a forehead piece, painted to match the face. Bald wigs are, of course, made in this way, and the edges are hidden with a thick dressing of grease paint, or, as it

is sometimes called, joining paste. This being done, a coat of powder of the proper colour is delicately dusted on the face. Powder is prepared in every shade from white to orange. It has the effect of deadening the shininess of the grease paint, of softening the lines and blending the work into one harmonious whole.

Be careful, too, to make up your hands, a thing which many a good actor forgets. Yet how absurd it is to see an old, wrinkled face accompanied by young, plump hands. For an old man, the knuckles should be whitened, the hollows between them darkened, and the veins marked with white blue.

Actresses very seldom use grease paint, and, in fact, it is not necessary for them, as they rarely consent to line their faces. They generally use a liquid white, which has some mineral basis, and is in the end hurtful. The safest compound is a preparation of oxide of zinc, rose-water, and a few drops of glycerine. A little rouge, the darkening of the eyebrows, and a touch of red on the lips complete a lady's make up. Most of them line below and above the eyelashes with black, which gives brilliancy to the eyes. They are very apt to overdo this, and then their eyes look like burnt holes in a blanket.

Stage Illusions.—Many of the peculiar effects which are produced upon the stage, imitating moonlight, sunlight, thunder, wind, rain, and other natural phenomena, are a puzzle to those outside of the business. How such realistic representations of these things as are often witnessed upon the stage can be made is a question that often enters the mind of the spectator, and is seldom answered in a satisfactory manner. It is always the ambition of scene painters

and stage carpenters to devise improved methods of imitating these things, and hence the stage may be said to try to hold the mirror up to nature in a material as well as a moral sense. Years of experience have tended to bring these imitations to a high state of excellence; but the limits do not yet seem to be reached, and new contrivances are continually appearing. The electric light is not yet used, but as its pale blueish tint would be serviceable in particular effects, stage machinists are now deliberating how it can best be employed. All of the operations mentioned, together with some which will be described, are classed under the general term, "stage effects." Authors, in writing plays, are always on the look-out for an opportunity to produce a telling effect. The amount of work bestowed upon their production in a theatre is simply astonishing to those unacquainted with that mysterious realm known as "behind the scenes."

Thunder is a common stage effect, and is used with great advantage in many plays. In former days it was produced by shaking a large piece of sheet iron immediately above the prompter's desk. This contrivance produced a good imitation of sharp, rattling thunder, but failed to give the dull roar which is always heard in storms. A contrivance for this purpose was soon invented. A heavy box frame is made, and over it is tightly drawn a calf skin. Upon this the prompter operates with a stick, one end of which is padded and covered with chamois skin. A flash of lightning, produced with magnesium, and a sharp crack of the sheet iron, followed by a long decreasing roll upon the "thunder drum," produce an effect which is startlingly realistic. Travelling companies are compelled to be satisfied with the sheet iron alone; and the tragedian who

enters a theatre provided with a complete thunder apparatus always is happy to think that his battle with the elements in “King Lear” will be worth fighting.

The rain machine in large theatres is a fixture placed high up in the “flies.” A cylinder is made of “half-inch” wood. It is usually 5 ft. in circumference, and 4 ft. in length. Upon the inside are placed rows of small wooden teeth. A lot of dried peas is placed in the cylinder, a rope belt is run around one end of it and down to the prompter’s desk, and it is ready for a drenching shower. By turning the cylinder, the peas roll down between the teeth, and the noise produced by them makes a good imitation of rain falling upon a roof. A sudden pull of the rope, accompanied by a gust on the “wind machine,” gives the sound of the sweep of a blast of wind during a storm. Travelling companies often meet with theatres where there is no rain machine. A sufficiently good one, however, is easily produced. A common child’s hoop is obtained, and a sheet of heavy brown paper is pasted upon it after the manner of a circus rider’s balloon. A handful of birdshot is placed upon the paper. The “machine” is canted from one side to the other, and the shot rolls around the paper, producing a fairly good rain effect.

Wind is an item that is very useful in heightening the effect of stage storms. It is often dispensed with in theatres where strict attention is not paid to details, but not without a loss of “realism.” It has, moreover, a great influence over the feelings of spectators. The blind *Louise* in the “Two Orphans” is much more pitied when the audience can hear the pitiless blast that makes her shiver. Hence in every large theatre the wind machine plays an important

part. It is not a stationary apparatus, but can be moved to any quarter of the compass from which it is desired that wind should blow. In the last act of "Ours," every time the door of the hut opens snow flies in and a shriek of wind is heard. The wind machine in that instance is placed just outside the door, and the property man works it, while his assistant amuses himself by trying to throw his paper snow down *Lord Shendryn's* back. The wind machine is constructed in this manner: A heavy frame is made, in which is set a cylinder provided with paddles and resembling very much the stern wheels seen on Ohio River towboats. Across the top of this cylinder is stretched as tightly as possible a piece of heavy gros-grain silk. This silk remains stationary while the wheel is turned by a crank. The rapid passage of the paddles across the surface of the silk produces the noise of wind. Often travelling companies are in theatres where there is no wind machine. Then the property man groans audibly and proceeds to do what, in theatrical parlance, is called "faking" the wind. He selects a heavy piece of gas hose, called by stage gasmen "flexible," and, finding a quiet corner where there is sufficient space to swing a cat without danger—to the cat—he whirls it around his head with the greatest possible rapidity. This method produces very satisfactory results—to every one but the property man. He is a long-suffering person; but the extraction of wind from "flexible" causes him to find life tedious.

Every one has heard the startling crash that is produced when the hero kicks the villain through a four-inch oaken door. One would think that not only the door but the villain must be completely shattered. This noise is produced by the crash machine, one of the oldest implements of imitation

still used on the stage. It is similar to the wind machine in construction. A wheel with paddles set at an angle of about forty-five degrees to the radii is the main part of the machine. Upon the top of the wheel one end of a stout piece of wood is pressed down by fastening the other end to a portion of the framework. When the wheel is turned, the slats passing under the stationary piece produce a rattling crash. The principle of the machine is illustrated by the small boy who runs a stick along a paling fence and is gratified by introducing into the world an additional morsel of hubbub.

There is nothing that can be so well counterfeited on the stage as moonlight scenery. And yet there is nothing which requires more work. The artist begins the task by painting a moonlight scene. In daylight such a scene is a ghastly sight. It is done in cold greys and greens, in which Prussian blue and burnt umber play an important part, and the lights are put in with white slightly tinged with emerald green. The strong moonlight of the foreground is produced by a calcium light thrown through a green glass. The fainter light upon the scenery at the back of the stage is obtained from “green mediums,” a row of Argand burners with green chimneys. These are placed upon the stage just in front of the main scene, and are “masked in” from the view of the audience a “ground piece.” A row of them is often suspended from the “flies,” in order to light the top of the scene. This upper row is masked in by “sky borders.” Thus a soft green light is thrown over the entire distance, while its source does not meet the view of the spectator. A usual feature of stage moonlight scenes is water, because it affords an opportunity for the introduction of the “ripple”—a charmingly natural stage effect. The main scene in a moonlight view is always

painted on a “drop”—that is, a scene made like the curtain let down between the acts. The position of the moon being determined, immediately under it, beginning at the horizon, a number of small irregular holes is cut in the drop. These are then covered on the back with muslin and painted over on the front to match the rest of the water. Behind these holes is placed an endless towel, about 8 ft. in height, running around two cylinders, one at the top and one at the bottom. The lower cylinder has a crank by which the towel is turned. In this towel is cut a number of holes similar to those cut in the drop. A strong gas burner is placed between the two sides of the towel. When the machine is turned the flashing of the light from the passing holes in the towel through the stationary ones in the drop produce a fine ripple. It is always better to turn the towel so that the holes pass upward, as that helps to make the mimic wavelets seem to dance up toward the sky. Instead of a towel a large tin cylinder has been used, but it is cumbersome and noisy. It is necessary to turn this towel with great steadiness, otherwise the ripples will go by fits and starts, and entirely lose their natural appearance. Stars are easily put into the sky. Each twinkling orb consists of a spangle hung upon a pin bent into a double hook. The slightest motion of the drop causes these stars to shake and the flashing of the light upon them produces the twinkle.

One of the most beautiful effects produced upon the stage is the change from day to night or from night to day. Of these the former is the more striking, and a description of it will serve to explain the principle of both. In order to produce the proper effect the back drop is made nearly double the height of the usual scenes. The upper half of it is painted to

represent a sunset sky, and the lower half to represent moonlight. It is hung so that the upper half alone is visible. The scenery of the distance is then painted upon a separate piece, which is “profiled”; that is, the irregular line of the horizon made by trees, mountains, or houses, is sharply cut out with a circular saw. This piece is placed immediately in front of the sky drop. A few feet further in front is hung what is known as a cut gauze drop. This has sides and top of canvas painted as the case requires; while the centre is filled with fine gauze, which lends an aerial effect to the distance. Red “mediums” are employed to give a soft, sunset glow to the scene. At the proper moment, the back drop is very slowly and steadily hauled up, while the red “mediums” are slowly turned off and green ones turned on. The moon is made in the night half of the sky drop, and rises with it. When it rises above the distant horizon the green “mediums” are turned on to their full power and the green calcium light is brought into play. The effect of this change, when carefully managed, is always very beautiful, and is sure to draw forth applause from the audience.

Moonrise, in a scene where there is no change from daylight to darkness, is often produced with a muslin drop and a “moon box.” The muslin drop is painted to represent the sky, the clouds being painted on strips of canvas cut in the required shape and sewn on. The moon is made with a box on one side of which a circular hole is cut. Over this hole is pasted a piece of white muslin. A couple of wires serve to draw the moon upward. Of course the white illuminated circle shows plainly through the muslin sky, but disappears when passing behind the canvas clouds. By having another piece of muslin painted red and imperceptibly fading to white, placed at the

back of the drop in the moon's path, the orb of night can be made to appear red at the horizon and gradually change to pale yellow as it sails slowly upward. Floating clouds are easily imitated by hanging in front of the sky drop a gauze drop upon which are sewn muslin or canvas clouds, and moving the whole slowly.

An ocean of heaving waters is made in this way: Each bounding wave is cut out separately. The first row is set up with a distance of three or four feet between each billow; and the second row is set so as to show in the openings left by the first. Small boys furnish the motive power. The waves are rocked back and forth, not from side to side; and the effect is very good. The noise of water rolling upon a beach is well imitated in a simple manner. A box of light wood is lined with tin. By putting two or three ounces of bird-shot into this and causing it to roll around, the desired sound is produced.

Fire scenes are sometimes dangerous; but with proper care they may be rendered comparatively safe. That they are not so hazardous as is generally supposed by the uninitiated beholder may be learned from the following description:—One of the most familiar fire scenes is that which occurs in the "Streets of New York," in which a three-story house burns down, the roof caving in, the shutters falling, and the walls breaking with a wonderful appearance of realism. The house is painted on three separate pieces, the top one of which is swung from the flies; this constitutes the roof. Upon the second is painted half the wall, and it is joined to the bottom piece in an irregular zigzag line. The simple dropping in succession of these pieces to the stage produces the falling of roof and wall. The fire itself is represented

by chemical red fire and powdered lycopodium used separately, the former to give a red glow and the latter to represent flames. The shutters, which are to fall, are fastened to the scene with a preparation called “quick watch.” This is made of powder, alcohol, and a lamp wick. The window frames and sashes are made of sheet iron, covered with oakum soaked in alcohol or naphtha. These sashes and frames are not fastened to the canvas scene at all, but are placed a short distance behind it on platforms. The quickest possible touch of flame ignites the oakum, and, in a moment, the fire runs round the sash, and nothing apparently is left but the blackened and charred wood. Steam is used to represent the smoke that issues from the crannies in the walls of the burning building; and an occasional crash, followed by the ignition of a little powder to produce a sudden puff of smoke, gives the spectator the idea of a falling rafter. Behind the entire scene is placed a very large endless towel, upon which is painted a mass of flames. This is kept in constant upward motion, and, when viewed through an open window in the house, gives a good idea of the supposed furnace raging within.

Selecting a Play.—The following excellent list of plays adapted for amateurs was published in the *Queen* some years since.

In 3 or More Acts.	M.	F.	Remarks.
Babes in the Wood	7	4	
Don Cæsar de Bazan	9	2	Drama.
Game of Speculation	9	4	
Heir at Law	10	3	
Jealous Wife	12	5	
John Bull	14	3	
Ladies' Battle	5	2	Robertson's translation.
Love Chase	10	7	
New Men and Old Acres	11	5	
Palace of Truth	6	5	
Plot and Passion	7	2	Drama.
Pygmalion and Galatea	5	4	
Rivals	8	4	Five acts.
Society	11	5	
Still Waters Run Deep	9	3	Can be acted in a drawing-room.

Most of the above are beyond the talent and stage resources of any but the strongest amateur companies.

In 2 Acts.	M.	F.	Remarks.
Bachelor of Arts	8	2	Good comedy.
Charles XII.	7	2	Very good dress piece.
Charles II.	4	2	Popular comedy and dress piece.
Court Cards	5	4	
Follies of a Night	6	2	
House and the Home	3	3	
Jacobite	3	3	
Liar	4	3	
Little Treasure	5	3	Very pathetic.
My Heart's Idol	7	3	
Not a Bad Judge	9	2	Capital for amateurs.
Our Wife	7	2	Good dress piece.
Paul Pry	7	2	
Secret Agent	8	3	The best dress piece for amateurs.
Sweet Hearts	2	2	
Time Tries All	6	2	
Who Killed Cock Robin?	2	2	
Wonderful Woman	6	3	Very popular.
Woodcock's Little Game	4	3	Capital light comedy.

IN 1 ACT.

Area Belle	3	2	
As Like as Two Peas	3	2	A little vulgar.
A.S.S.	3	2	
B.B.	4	2	
Bamboozling	6	3	
Betsy Baker	2	2	
Birthplace of Podgers	7	3	
Boots at the Swan	4	4	Very sparkling.
Book the Third	2	1	French *Proverbe.*
Box and Cox	2	1	
Box and Cox Married	3	3	
Brown and the Brahmins	4	7	Burlesque.
Comical Countess	3	1	
Conjugal Lesson	1	1	A little vulgar.
Cool as a Cucumber	3	2	
Cozy Couple	2	2	
Creatures of Impulse	4	3	Burlesque.
Cup of Tea	4	1	French *Proverbe.*
Cut off with a Shilling	2	1	
Day After the Wedding	3	2	
Dead Shot	5	2	
Deaf as a Post	4	4	
Dearest Mama	4	3	

Delicate Ground	2	1	Light comedy.
Diamond Cut Diamond	7	1	
Done on Both Sides	3	2	Acts well in a drawing-room.
Double Bedded Room	3	3	
Doubtful Victory	3	2	
Dumb Belle	3	2	
Eclipsing the Sun	3	2	
Eton Boy	3	2	
Faint Heart Never Won Fair Lady	6	2	Pretty dress piece.
Fitz Smyth	6	2	Funny.
Give a Dog a Bad Name	2	2	
Grimshaw Bradshaw Bagshawe	4	2	Funny.
Happy Pair	1	1	Sparkling *Proverbe*.
He Lies Like Truth	5	2	Very funny.
He's a Lunatic	3	2	Very amusing.
His Excellency	4	2	
Household Fairy	1	1	*Proverbe.*
Ici on Parle Français	3	4	Popular, but difficult.
Irish Tutor	4	2	
John Dobbs	5	2	Capital for amateurs.
Lend me Five Shillings	5	2	Funny.

Little Toddlekins	3	8	Almost the best farce for amateurs.
Loan of a Lover	4	2	
Love and Rain	1	1	Pretty *Proverbe*.
Love Laughs at Locksmiths	6	6	
Mad as a Hatter	5	2	
Morning Call	1	1	*Proverbe.*
Mummy	6	2	
My Heart's Idol	7	3	
My Preserver	5	5	
Nice Firm	8	2	
Nice Quiet Day	5	3	
Night at Notting Hill	3	2	Funny.
Nine Points of the Law	4	3	
No. 1 round the Corner	2	0	Good two-character piece.
Only a Halfpenny	2	2	Funny.
Our Clerks	8	4	
Pacha of Pimlico	6	2	Funny extravaganza.
Perfection	3	2	Easy and pretty little piece.
Phenomenon in a Smock Frock	4	2	Mathews' piece.
Pipkin's Rustic Retreat	5	3	
Poor Pillicoddy	2	3	Very funny.
Pork Chops	3	1	Extravaganza.
Quiet Family	4	4	
Raising the Wind	6	3	Capital old farce.

Regular Fix	6	4	Very good light comedy.
Retained for the Defence	5	1	Difficult.
Rifle, and How to Use it	4	3	
Rough Diamond	4	2	Popular farce.
School for Coquettes	3	3	
Sheep in Wolf's Clothing	7	4	Pretty drama.
Slasher and Crasher	5	2	
Slowtop's Engagements	2	2	Light comedy.
Spectre Bridegroom	7	2	One of the most telling of farces.
Spitalfields Weaver	4	1	Telling.
Taming a Tiger	3	0	
Thumping Legacy	7	1	Very funny.
To Oblige Benson	3	2	
To Parents and Guardians	17	3	
To Paris and Back for £5	9	7	Funny, but a little vulgar.
Too Much for Good Nature	4	7	
Trying it On	3	3	Very good indeed for a drawing-room.
Turkish Bath	5	2	
Turn Him Out	3	2	

Tweedleton's Tail Coat	4	2	
Twice Killed	6	3	
Two Bonnycastles	3	3	
Two Flats and a Sharp	1	2	Pretty comedy.
Two in the Morning	2	0	Best farce for two males.
Uncle's Will	2	1	Very sparkling.
Unwarrantable Intrusion	2	0	
Under the Rose	2	2	Good.
Vandyke Brown	3	3	Good farce.
Whitebait at Greenwich	3	2	Popular, but difficult.
Who Speaks First?	3	2	
Your Life's in Danger	3	3	

First catch your actors, then choose your play. In other words, fit your available square men into a square piece, and do not try and pare them down to the exigencies of a round one. As a rule dramatic talent and ambition is more common among the emotional than among the sterner sex. Women, too, adapt themselves more easily to any part. Also, their range of parts is narrower. It is easier to make people laugh than to cry, and they also prefer being amused to being harrowed. Of course low comedy is just as difficult as a higher line, but a feeble imitation passes muster better than in the serious parts. Englishmen are less averse to playing the fool in a fool's part than risking an exhibition of deeper feeling. It is

easy, therefore, to group your lesser lights round the central low comedy man, reflecting his genial glow, more or less, according to their several abilities, and to graft upon the whole a farce. A farce need not be vulgar. A farce, too, like charity, covers a multitude of sins in the way of dress, properties, or scenery. Almost any incongruity of the former is allowable, and any makeshift or hitch in the latter can be carried off by a ready wit. But supposing comic talent to be altogether absent in your company, you will probably find the "old man" element predominating. The younger, better looking, and more stalwart the individual the more convinced he will be that his strong point is the impersonation of old men. Yet old men's parts are difficult. The very make up in anything but the broadest farce is a work of art in itself, and the gait, the tone of voice, the laugh, the down sitting, and the up-rising must never be lost sight of for a moment. Usually, too, the old man character is an adjunct rather than the central figure in a piece, and does not bear upon his shoulders the burden and heat of the day. Yet in skilful hands it is capable of unlimited expansion, and with weaker vessels can, at worst, but sink to the level of low comedy.

Of all the parts most difficult to fill that of the lover is the worst. Like good tenors, there are not enough stage lovers brought into the world. Englishmen are so shy, so afraid of making themselves ridiculous by exhibiting sentiment and emotion. They are not given to making love particularly prettily in real life, much less upon the boards. The result in amateur circles is generally a stick. All the same, the lover is an absolute necessity in most plays, and must be procured somehow or

other.

A judicious weighing of the strong points of each member of your company, and a nice balancing of their weak ones, must decide you finally in the choice of the piece to be acted. Take into consideration which characters have much to do together, and whether the weaker one can be pulled through by the stronger. The performance is sure to hang fire if a pair of feeble knees have the stage all to themselves for long, making each other and the audience nervous. On the other hand, if your company is much of a muchness, choose a “level” piece in which the parts are fairly equally divided. If the opposite is the case, give your best actors the strong parts, and subordinate the others to them.

Make up your mind from the beginning that some one is sure to consider him or herself ill-suited and ill-used. Women are greater sinners in this respect than men—more vain, more jealous. But if a piece, however small, is to “go,” each one must subordinate his own importance and his own part to the general effect. The cleverer the actor the more he will make of the smallest part. Nevertheless, the fact remains that private theatricals are productive of more quarrelling and bad blood than any other known form of social amusement. For this reason a stage manager, pure and simple, is absolutely essential. His word must be law and his rule of iron. He must give an eye to the general effect; he must order the sitting down and the getting up, and the crossing, and especially see that there is plenty of the former. He must see that when several characters are on the stage together they group well, do not get behind each other, and balance on the stage. At full rehearsals he should see that, if it is not practicable

to rehearse on the stage itself, they take place on a square as large as the stage, and with each piece of furniture and property in its right place; also that the correct exits and entries are adhered to. This prevents amateurs feeling strange when they come to a final dress rehearsal on the stage itself. Any special little scenes between two characters can be gone over and over again privately.

Finally, having got your ingredients together, do not aim too high. The more plot, the more action in a piece, the easier it is to act. Beware of plays which read well, are full of smart dialogue—they require very finished acting.

A “dressed” or costume piece, though more trouble to get up, is more attractive than one of modern time. But when feasible, evening dress refines a modern play very much. Powder must be carefully put on, or after much heat and action, the performer assumes merely a grizzled aspect. In a dressed piece do not neglect the smallest details, and take care the female and male characters are dressed in the same period. In an outdoor scene, avoid an open parasol or umbrella as you would poison. It shades the face unless very dexterously manipulated. Let ladies look well to their “chaussure,” and the length, and especially the hang of the short skirts. These ought to be round, nothing looks so bad as a dab behind, showing the lining from the front.

“Making up” is a very delicate matter in a room where the audience is so near. It is generally overdone. Rouge is usually put on too low, it ought never to come below the cheek bone. Many people do not need to pencil their eyebrows at all, and a mere dab of black on the lower lid is better than a continuous line. When this latter is used, however, it

is becoming to continue it a very little beyond the junction of the two lids towards the temples. For a bucolic part of either sex, a nice fat rosy cheek can be made by adding a little cotton wool judiciously rouged. Remember an “old man” does not want his eyes blacked at all.

Now, to touch on a few faults of amateurs.

Firstly, there is a tendency to play too much to the front of the stage. Do not be afraid of the stage; use it all. Do not come on and stand front face to the audience, addressing your remarks to them instead of to the character with whom you are conversing. Turn well away for your asides, or they sound ridiculous, and give the other a similar chance of making his. Remember, it is no crime to take a turn up the stage, with your back to the audience, and say a sentence, with your head well thrown back over your shoulder.

A second most important point is not to run your sentences together. Divide them well, giving each its particular character and its full value. Pause between them. Each word tells, and is put there for a purpose. And here let me beseech the amateur prompter to have some mercy on his victims, and not to hound them on, if they stop a moment, as if their lives depended on their getting the words out.

This brings me to a vital point, that of playing slowly enough. Amateurs can hardly do “business” of any kind—such, for instance, as writing a letter—too slowly.

Do not be ashamed of over-acting; it is better than under-acting a part. Learn your cues with your part, and insist on getting them correctly. Amateurs cannot take too much trouble.

One word as to elocution. Find out the pitch of your voice which carries best, and which is at the same time the most natural and the least exertion to you. You cannot fail then to be heard, always providing you remember not to drop your voice at the end of a sentence, and not to clip the final consonants of words.

A few practical hints, to close, as to stage and scenery. Do not attempt to put a piece with much action and several characters on to a small stage. The result is simply ridiculous. The stage *must* be raised, but a foot or so is enough in any ordinary-sized drawing-room. If it is too high, the players' heads appear too near the ceiling. If possible, keep the front row of audience at least five feet from the footlights. Take care these latter are not too strong, but have plenty of lamps fixed on the back of the front wings and over the curtain inside. For this reason wings, though more trouble to set up, are preferable to a box scene. They also obviate the necessity of practicable doors, which do not shut or open properly, and never look real. It looks better to cut off the corners of the stage at the back, or, at any rate, to make the side narrow towards the back. Any trouble devoted to details of furnishing and setting the stage is well repaid by the effect; but of course the size and quantity of furniture must be ruled by the size of the stage. In an evening room scene, take care the lamps or candles are in the centre of the stage. Outdoor scenes are very difficult to manage on a temporary stage. A back painted scene is necessary, and in a room painted scenes look so coarse.

Any carpenter can run up a temporary stage in a drawing room, from a slight sketch, in a day, without doing any damage to the walls. The curtain ought to

be rehearsed as much as the play, till it goes up and down or pulls aside without a hitch. (E. E. C.)

Tricks and Illusions.—Much amusement may be derived from the practice of conjuring tricks and illusions, and such entertainments are not without an educational value, as they excite curiosity and develop a desire in young minds to acquire knowledge, and induce an exercise of the reasoning faculties in endeavouring to learn how they are performed.

Sleight of Hand.—The following notes on sleight of hand tricks are taken from a chapter in *A Curious Company*, by that entertaining writer, Max Adeler.

"Before beginning to explain the *modus operandi* of the impromptu illusionist, let me just tabulate eight golden rules, which you must always bear in mind if you hope for anything like success.

"1. Never look at your hands, unless to attract attention to one of them.

"2. Cultivate the art of chattering freely, with as much original wit as you can invent, or plagiarise without fear of detection.

"3. Never tell a lie that you cannot stick to, and illustrate if necessary. You can always ward off an explanation for a few instants whilst you remove the chances of discovery, and you will find as you get on that you can boldly do the most outrageously transparent things *coram populo*, without being found out or observed.

"4. Your hands must always work *together*, never be easy with one hand and constrained with the other; unless you can by no other means distract the

attention of some horribly sharp person from one hand, when an awkward movement of the other will often divert his undesired watchfulness.

"5. Cultivate the art of scoring off rude people, who ask awkward questions. If any one *thinks* he has discovered 'the way it's done' (but not the right way), *let* him think so, and swagger his astuteness, and his desire to slip through to New Zealand will be all the greater when you prove him wrong. *Sæpe interereunt aliis meditantes necem.* If you are really found out beyond recovery, don't try to carry it off; throw yourself at *once* on the generosity of the discoverer or discoverers, and ask him or her not to expose you; remember you are only an amateur, and not getting your living.

"6. *Never* go on an instant after you detect the least signs among the audience of 'having had enough of it.'

"7. When doing anything quite harmless, make a great *unostentatious* parade of your innocence; your audience will be all the more ready to take you on trust when you are taking them in.

"8. Never perform a trick in public which you have not amply rehearsed in private.

"Your dress will of course, as a rule, be the ordinary evening dress, and unless you have a great reputation as a prestidigitateur, no alteration is required. However, a little pocket an inch deep, contrived in and hidden by the seam of the trousers just where the tips of the fingers fall when the hand is naturally lowered to the side is a great convenience for getting rid of small articles when palmed, or for producing them suddenly by the same means. Otherwise, the natural movement of getting

at one's handkerchief, &c., will answer the same purpose, if neatly and unostentatiously done. It is as well to turn up the coat-sleeves, for though they are *never* used in legerdemain, it is impossible to disabuse people of the notion that they are.

"These maxims (which are, after all, the chief art to be acquired by the amateur conjuror) having been digested, let us turn to the considerations of the principles and practice of the science of legerdemain. These may be summed up thus: Every conjuring trick or illusion, not involving the use of a stage, apparatus, and accomplices, is performed in, and has for its foundation one of three proceedings; these are, (1) The Palm, (2) The Pass, (3) The Slip, and the motive power of the trio is the same, and is expressed in one word, viz. 'cheek.'

"1. *Palming*, is the art of holding in one hand any article (coin, card, &c.) unknown and unseen by the spectators, or of retaining in one hand anything which, by the 'pass' has apparently left it.

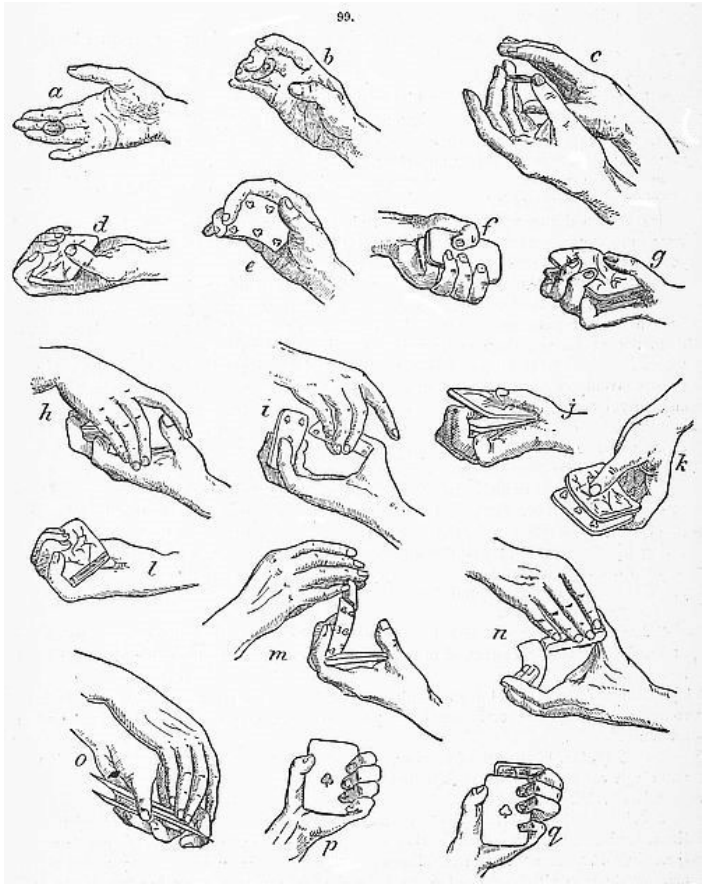
"2. *Passing*, is the art of so palming any article that it is *apparently* transferred to some other receptacle, or altering the position of the cards in a pack unseen by the audience.

"3. *Slipping*, is the art of moving, altering the position of, or getting possession of any *single* card without being detected, and,

"4. *Cheek* is—[3].

"Coin Sleights.—Palming.—1. Place a penny or florin across the middle joints of the second and third fingers of either hand, as at *a*, Fig. 99, reproduced from illustrations by Miss Dora Noyes; on slightly bending the hand in an easy and natural manner, the coin will be clipped, as at *b*, by the

fleshy part of the other two joints, and the hand may be turned over, and in fact placed in any position, so long as the back of the hand is presented to the audience. This is a useful palm on an emergency, as when people suspect that the coin is in the palm of the hand it may be shown empty, the top joints of the fingers hiding the coin thus held.



99. Coin and Card Sleights.

"2. Place the coin between the joint of the thumb

and the hand, and on slightly bending the thumb the coin will be held flat. This is most useful for changing, described further on, but as an ordinary concealment of a coin it is too dangerous except for small coins which the thumb is large enough to hide.

"3. The principal palm (from which the manipulation derives its name) is as follows: Place the coin so that one edge just touches the highest of the three marked lines that cross the palm of the hand, rather towards the thumb. On slightly bending the hand the coin will be retained; you will find it difficult at first, but practice will show you the exact spot, where the difficulty is reduced to a minimum. If you take the coin flatwise between the thumb, the tips of the second and third fingers, by naturally closing the fingers over and clasping them tight in the palm of the hand, the coin will be brought into the exact position, so that if you pick up a coin, by a sudden outward sweep you can cover this movement, and on recovering the hand the coin will be palmed and the hand apparently empty.

"Other means of holding a coin *en cache* will naturally present themselves when these have been thoroughly mastered.

"Passing.—1. Take the coin edgeways, between the thumb and the tips of the second and third fingers of the right hand, having the palm of the hand upwards, therefore the backs of the fingers presented to the audience, as at *c*. Approach the left hand to the right, with back of the hand upwards, and as soon as the left hand hides the tips of the fingers of the right hand, loosen the thumb so as to drop the coin on to the second and third fingers, as at *d*. Immediately close the left hand as if taking the coin out of the right hand and raise it up; meanwhile

bend the fingers of the right hand so as to effect palm No. 1, and lower it steadily to the side *or* holding the coin as in palm No. 1, and hidden by the bend of the little finger raise the right hand to the mouth and cough slightly before lowering it, this shows the audience (apparently) that the right hand is empty. Meanwhile you play about with the left hand, in which the audience thinks is the coin, and when you have diverted their attention and disposed of the coin you can imitate the motion with the left hand of throwing the (imaginary) coin into the air or rubbing it away to nothing, or any other fanciful way of (apparently) disposing of it, or if you have safely got rid of the coin, suddenly rub your hands together and gradually display the two hands both empty. This is one of the most effective and easy passes.

"2. Lay the coin on the left hand, approach the right to it, take the coin between the fingers and thumb of the right, carry the right hand smartly back, performing palm No. 3. Holding the left hand open jerk the right hand close to it, really holding the penny in the right palm, but apparently throwing it into the left; as you do it shut the fingers of the left hand smartly over the palm so as to produce a slap which people think is the slap of the coin falling into the hand, hold up the left hand so that people look at it, and lower the right with the coin palmed (No. 3); if any one is suspicious shift the coin to palm No. 1, and apparently show the hand empty in some artful manner. Then do what you like with the imaginary coin in the left hand.

"3. To pass several coins, let them all be (if possible) of the same size and hold them tight in the palm of the right hand, then perform pass No. 2, in exactly the same manner as with a single coin,

except that instead of holding them in the palm they fall with a clink into the bend of the fingers where they must at once be secured by the thumb beyond fear of further rattle. The chink thus produced, the audience thinks is produced by the coins falling into the other hand, which being immediately closed apparently holds the coins. It is a ticklish trick to perform well, owing to the necessarily constrained position of the right hand, but when got well into control is very effective indeed.

"There are many other palms and passes, but with these all sleight-of-hand tricks may be done, and out of them the amateur can invent a quantity of simple little impromptu experiments.

"Card Sleights.—These are far more extensive than coin tricks, for the cards in themselves are in a way apparatus, the active principles of which are, as with coin, the palm, the pass, and cheek, to which are added last, but not least, the slip and the turnover. You must constantly 'Ruffle' the cards, i.e. holding the pack in one hand draw the fingers or thumb of the other across the edges at one end so as to rattle them all together. It conceals any manipulation which may have startled the audience, and should therefore be done in a quick or *degagé* manner after every sleight or whenever needed, and as the audience do not understand it, they think that this movement is the actual operation by which the wonders are performed.

"Palming.—This is done as follows: Hold the pack as at *d*, Fig. 99, in the left hand, and covering the pack lengthways with the right, so that the top joint of the fingers touches the top edge of the top card, slide the top card forward, and press down the tips of the fingers; the card will be thus pressed into the

hand and lie curled up in it as in *e*, if thin small cards are used, a card (or even two or three) thus held will be completely hidden by the hand, and may be curled up tight without injury to the card. In this sleight, it is difficult to avoid a constrained position of the hand, but it is very useful as hereinafter described for changing cards.

"Passing.—This is the great stumbling-block of the amateur miracle-monger, and will require most practice, for when you begin it will seem impossible to do it *en cache*. Its object is to reverse the two halves of the pack (in fact, a sort of automatic *cut*; in fact the French term is '*sauter la coupe*,' for by its means the demoralising effect of a cut may be avoided), and when properly practised and perfected it is done noiselessly, in a manner incomprehensible to the conjuror himself. Often, practising the pass before a looking-glass, I have wondered myself at my own performance, so completely does the automatic and sympathetic movement of the hands deceive the eye. The pack being divided into two halves, it is held in the left hand as at *f*, i.e. as seen from the front there is no division, but really whilst three fingers clasp it, it is divided (above or below any given card, or, as the case may be) by the little finger. Now cover the pack lengthways with the right hand, slip the first finger in also as at *g*, so that the upper half of the pack is held as it were in a hinge formed by the fingers of the left hand. Now seize the lower half between the thumb and fingers and the right hand, and press it sideways into the lower joint of the thumb as at *h*. Now by means of the fingers of the left hand raise the upper half hinge-wise, and with the fingers and thumb of the right, lift the lower half till it is just clear of the top half as at *i*, when on pressing down the thumb the lower half will be

pressed over the top half as at *j*. The fingers may then be removed, and your purpose is accomplished; i.e. the top and bottom halves of the pack have changed places. As you acquire practice it will only be necessary to insert the little finger of the left hand, instead of two. It is well to lower the hands sharply as you perform this sleight, to cover the movement, which, however, by practice is reduced to a minimum. It is also well, if you feel that some one is suspicious, to ruffle the cards immediately afterwards to divert suspicion. This sleight requires much private rehearsal, but is the mainspring of a great many tricks, and its practice gives the hands a suppleness and sympathy not to be acquired in any other way.

"The *turnover* is a sleight, practised when it is desired to present the backs of the cards whichever way the pack is presented. It is performed as follows: Beginning exactly as with the pass, except that when *i* is reached instead of pressing the lower half over the top, the movement is continued to *k*, so that the two halves of the pack face one another, and now whether the top or bottom half be uppermost, the backs of the cards will be visible. You can now deal off cards from either half, and when you want to cease, and begin from the other, hold the cards as in *d*, but the thumb instead of being over the pack it is underneath as at *l*, so that the attention of the audience being diverted (by counting the cards already dealt, or otherwise) by an upward pressure of the thumb the pack is completely reversed, and the heretofore undermost card is now at the top. This is the principle of most tricks involving counting off cards.

"Slips.—These are the most useful and frequently

required sleights practised by the amateur conjuror, and consist of the knack of drawing a card from the top, middle, or bottom of the pack, and placing it in any position in the pack which may be required by the trick.

"1. The pack being held in the ordinary manner in the left hand, with a chosen card on the top (either placed there by the chooser, or by the pass, or one of the subjoined slips), lift off the top half, raising it rather hingewise, so that the *top* card being retained by the fingers of the left hand it is left on the top of the half retained in the left hand, as in *m*.

"2. The chosen card being on the top of the pack, being held as at *d*, and covered lengthwise by the right hand, by a sudden contraction of the fingers of the left hand, the top card is drawn off (under the right hand) as at *n*, with a 'flip,' caused by the bending of the card as it bends and straightens out at the bottom of the pack. The cards are immediately 'ruffled' to disguise the flip. In the same manner a card may be sprung from the bottom to the top, or from the top to the centre, in the latter case the pack being opened a little in the left hand, and the top half slightly raised by the thumb and fingers of the right hand. The elasticity of the card will cause it to spring, in the instant it finds an opening.

"3. A card having been chosen, the pack is presented, just raising the top half to make a place for it, but not looking at the place, or indeed at the hands at all. The card being inserted, before replacing the top half the two middle fingers are inserted just over it, and directly the two halves join, the card is flipped out by the two fingers as in *n*, and brought to the bottom. The cards are immediately 'ruffled,' and your point is gained, i.e. you know the

exact card chosen. If the chooser demurs to re-inserting the card at the opening you make—

"4. Spread out the pack fanwise before him, spreading them *to your right*, and letting the fingers of your two hands meet underneath the fan. By this means wherever he pushes in his card, you can feel it, and in collapsing the fan into pack form, the fingers are slipped in over the top as in slip No. 3, and the card is flipped out as there set down.

"These demonstrate the active principles of slips, which your own ingenuity will multiply *ad infinitum*. It will be seen that by their means any card chosen and returned to the pack may be at once secured and ascertained, which is the prime object of the card trickster, in whatsoever experiment he may be engaged. Simply a 'slip,' combined with any of the following 'exposures,' will constitute a trick in itself, far above the comprehension of any one not himself a master of the art.

"Exposures.—These are the methods of 'exposing' a card chosen, and returned to the pack. Your own fancy will suggest any quantity of methods, but the following are a few for a start. In fact, almost all card-tricks consist of one sleight, and a more or less complicated exposure.

"1. Slip the chosen card to the top. Let the pack be held by any one (say the chooser of the card) with the face upwards, i.e. so that his card is at the bottom. See that the pack is held well into the hand of the holder, secured by the thumb set rather near the edge of the pack. Now, with your own hand, or let any one else, strike the pack smartly downwards, and all the cards will be knocked out of his hand except the bottom one (his own) which remains staring him in the face, retained by adhesion to his

own fingers. Result, natural, but extraordinary.

"2. Slip the chosen card to the top. Take the pack in the right hand, and cover it with the left, as you do so sliding the top (chosen) card sideways till it projects nearly half over the side of the pack. This state of things will be hidden by the left hand, holding the pack endways. On dropping the pack bodily from the left hand at an elevation of about 1½ feet from floor or table, the top (chosen) card will turn as it falls, and lie face upwards on the top of the pack. Result, simple, but startling.

"3. Slip the chosen card to the top. Give the chooser a paper knife, and, holding the pack as at *d*, tell him to cut the pack with it where he likes. Where he cuts, divide the pack, and lift off the top half, doing at the same time slip No. 1, which will bring his card to the top of the lower half. Put down the top half, and observing that you in no way influenced his cut, tell him to take the (now) top card. He will be surprised to find it his own. Result, easy but supernatural.

"Space forbids me to suggest any others, which you can easily work out for yourself. If time and space would allow, it would be easy to fill a volume with card tricks requiring no preparation, apparatus, or accomplices; but as they are all based upon the above sleights, mere repetition would be useless.

"The following selection are very telling and are easily performed.

"1. To tell any card by looking at its back. This is founded on a manipulation, which I have not described above, and which is called the 'drawback.' The pack is held in the left hand as at *p*, with the faces downwards. Look at the bottom card, and as

you turn the pack down draw down the bottom card with the little finger as at *q*. Asking some one to tell you when to stop, commence drawing back the cards on the top as at *o*. When told to stop, name the bottom card (looked at and drawn back) and drawing out all the intermediate cards, inform the teller that that is the card he stopped at, and in effect on turning up the remaining cards, the card drawn back and named will be at the bottom, and apparently the one at which he stopped. I have done this trick twenty times running without being detected.

"2. Let any one choose a card and get it to the bottom of the pack by slips Nos. 3 or 4. Put down the cards haphazard in three packs, noting at the bottom of which the chosen card is. Ask the chooser in which pack he would imagine his card to be; if he chooses the right one (which is lucky) throw away the other two; if not, place the one he chooses *on* the right one and throw away the *other* wrong one. Redivide the cards left into three packs and proceed as before, always retaining the pack *at the bottom of which* his card is, until only three cards are left, including the right one. If he now chooses the right one it is exceptional luck, though it often so happens: if not, appear to hesitate a moment, and then retaining his own and the one he chooses, throw away the third, and mixing the two left but remembering his own yourself, throw them down, and the chances are even he will choose his own card. If he doesn't, boldly throw down the one he chooses and turn up the other, which is his own. Casually observe that you in no way influenced his choice, and leave him astonished.

"3. Pass or slip the chosen card to the top and

make a great show of a false shuffle, i.e. shuffle all the cards, but retain or manipulate the top card so that it is shuffled to the bottom and thence back to the top. Then have the cards cut, and taking them up yourself, slip out the card by slip Nos. 3 or 4, and re-slip it to the top, or avoid the entire cut by means of the pass. Having *convinced* him that his card is lost *in gurgite vasto* of the pack, let him count off 8 cards from the top and spread them in any order in a row, face downwards, *but* keep your eye on and note the position of the first or top card, which is his own. Put away the rest of the pack, and tell him to touch four out of the eight. If he touches his own amongst them, take up and throw away the four untouched, or if he does not touch his own, take up those he touches. Then let him touch two of the four left, and throw away as before, leaving his own one of the two left. Then let him touch one of the two left, and as before leave his own solus. Turn it up, and his astonishment will be unbounded. Your victim will often enable you *always* to throw away the ones touched, and of course this improves the trick, otherwise it is twenty to one against his noticing that you do not always throw away the same set. If he does, you must trust to providence and let the best liar win.

"4. Choose out the four kings (or any other four similar cards) and divide the pack into two halves, place the cards, a black on the top and a red on the bottom of one half, and a red on the top and a black on the bottom of the other half, so that when the halves are united the two blacks will be in the middle and the two reds on the top, as you reunite them slip in the little finger as at *f*. Make the victim recite aloud the position of the reds and that of the blacks, and repeat it after him so that there is *no* doubt. Freely expose the faces fanwise (keeping the

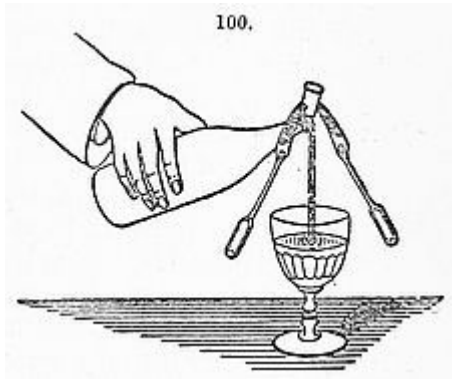
place) to let him be certain. When this is accomplished make the ‘pass’ so as to reverse the order of things. Expose the pack as reversed, and begging him to be more careful in future repeat the experiment to his utter mystification. If you are really good at ‘passing,’ this trick may be repeated over and over again with great effect.

“5. To change a card without the help of the pack proceed thus: Slip the chosen card to the top, and make a false shuffle. Then take off, apparently only the top one, but really the top two, and hold them up by the edges, so that the top (right) one is completely hidden by the second (wrong) one. Putting the pack quite away behind at some distance from you, bring forward your (double) card in the left hand and show it to the chooser, asking if it is his own. As he will say no, appear confused and let him be quite positive and assertive that it is not his own. Take the (double) card lengthwise and face downwards in the right hand, walk back towards the pack, as you do so draw off the (right) card, leaving the wrong one palmed in the right hand as at *d*. Bring it forward again in the right hand (which in holding, the right will conceal the wrong card), as if to make quite sure, when the chooser will find it to be changed into his own card.

“6. This trick is somewhat similar to the last. Take out the four kings, and spread them out fanwise, *but* let the second have concealed behind it as in the last trick, two other court cards (court cards are best as being not so noticeable in case of accident). Hold them up, saying, ‘You see I have here the four kings,’ close them up smartly and lay them face downwards on the top of the pack, so that the order is now, 1 king, 2 false ditto, 3 false ditto, 4, 5 and 6 kings. Take off the first (which is real) and apparently

unintentionally show its face and place it at the bottom of the pack. Take off the next (false one) *without* showing it, and place it *into* the pack near the bottom. Place the next (false one) similarly *into* the pack near the top. Take off the fourth (real) and apparently unintentionally exposing its face, *commence* to put it into the middle; when half way, however, change your mind and place it on the top of the pack. Say, 'Well, these kings are all well separated now, to mix them still further will you kindly cut the pack;' this operation will of course join all four again in the middle. 'Ruffle' the pack and spreading it out fanwise expose them *en masse* in the centre. If neatly done this is an excellent illusion."

Physical Experiments.—There are many illustrations of physical laws which admit of exhibition without the aid of any special apparatus, and which may be made highly instructive. Most of the following examples are borrowed from Max Adeler's *Curious Company*.



100. Equilibrium Trick.

(*a*) Equilibrium.—Stick 2 forks into a cork, and place the cork on the brim of the neck of a bottle (Fig. 100). The forks and the cork form a whole, of

which the centre of gravity is fixed over the point of support. You can tip the bottle, empty it even, if it contains fluid, without the little construction over its mouth being in the least disturbed from its balance. The vertical line of the centre of gravity passes through the point of support, and the forks oscillate with the cork, which serves as their support, thus forming a movable structure, but much more stable than one is inclined to suppose. This curious experiment is often performed by conjurors, who inform their audience that they will undertake to empty the bottle without disturbing the cork. (*b*) If a woodcock has been served for dinner, or any other bird with a long beak, take off the head at the extreme end of the neck; then split a cork so that you can insert into it the neck of the bird, which must be tightly clipped to keep it in place; two forks are then fixed into the cork, exactly as in the preceding example, and into the bottom of the cork a pin is inserted. This little contrivance is next placed on a piece of money, which has been put on the opening of the neck of the bottle, and when it is fairly balanced, give it a rotatory movement, by pushing one of the forks as rapidly as you please, but as much as possible without any jerk. You will then see the two forks, and the cork surmounted by the woodcock's head, turning on the slender pivot of a pin. Nothing can be more comical than to witness the long beak of the bird turning round and round, successively facing all the company assembled round the table, sometimes with a little oscillation, which gives it an almost lifelike appearance. (*c*) Lifting a glass bottle full of water by means of a simple wisp of straw. The straw is bent before being passed into the bottle of water, so that, when it is lifted, the centre of gravity is displaced, and brought directly

under the point of suspension. It is well to have at hand several pieces of straw perfectly intact and free from cracks, in case the experiment does not succeed with the first attempt. (*d*) The next experiment, though apparently very difficult, will be found easy enough in practice if the hand be steady. Take a key, and by means of a crooked nail, or "holdfast," attach it to a bar of wood by a string tied tightly round the bar. To the other extremity of the bar attach a weight, and then drive a large-headed nail into the table. It will be found that the key will balance and even move upon the head of the nail, without falling. The weight is under the table, and the centre of gravity is exactly beneath the point of suspension. Inertia.—(*e*) Take a broomstick, and place it horizontally, passing the ends through two paper rings. Then ask two children to hold the paper rings by means of two razors, so that the rings rest on the blades. This done, take a stout stick, and, with all your strength, strike the broomstick in the centre; it will be broken into shivers, but the paper rings will not be torn in the least, or even cut by the razors! (*f*) A modification of *e*. A needle is fixed at each end of the broomstick, and these needles are made to rest on two glasses, placed on chairs; the needles alone must be in contact with the glasses. If the broomstick is then struck violently with another stout stick, the former will be broken, but the glasses will remain intact. The experiment answers all the better the more energetic the action. (*g*) A wooden ball is suspended from the ceiling by a rather slender thread, and a similar thread is attached to the lower end of the ball. If the lower thread is pulled forcibly it will break with the force of the pull; the movement communicated to it has not time to pass into the ball; if, on the contrary, it is pulled very gradually, and

without any shock, the upper thread instead will break, because in this case it supports the weight of the ball. Motion is not imparted simultaneously to all parts of a body, but only to the particles first exposed to a blow, for instance. One might multiply examples of this. If a bullet be shot from a gun, it will make a round hole in a piece of wood or glass, whilst if thrown by the hand—that is to say, with much less force—it will shiver the wood or the pane of glass to pieces. When the celerity of the motive force is very great, the particles directly affected are disturbed so quickly that they separate from the adjacent particles before there is time for the movement to be communicated to the latter. (*h*) It is possible, for the same reason, to extract from a pile of money a piece placed in the middle of the pile without overturning the others. It suffices to move them forcibly and quickly with a flat wooden ruler. The experiment succeeds very well also if performed with draughtsmen piled up on the draught-board. (*i*) Take a strip of paper, and upon it place a coin, on a marble chimney-piece. If, holding the paper in the left hand, you strike it rapidly and forcibly, you will be enabled to draw away the paper without causing the coin (say a five-shilling piece) to fall down. (*j*) It is not impossible to draw away a napkin laid as a tablecloth for one person's dinner, without disturbing the various articles laid upon it. A quick motion is all that is necessary, keeping the napkin tightly extended by the hands at the same time. This latter experiment, however, is not recommended to boys home for the holidays.

Pressure of Air.—(*k*) The force of air can be shown as acting with considerable pressure upon an egg in a glass. By blowing in a claret glass containing a hard-boiled egg, it is possible to cause the egg to jump out

of the glass; and with practice and strength of lungs it is not impossible to make it pass from one glass to another. (*l*) The force of heated air ascending can also be ascertained by cutting up a card into a spiral, and holding it above the flame of a lamp. The spiral, if lightly poised, will turn round rapidly. (*m*) A wine glass, a plate, and water will serve for the next experiment. Pour some water on the plate, light a piece of paper resting on a cork, and cover the flame with the glass, which turn upside down. The water rises in the glass. Why?—Because the burning of the paper having absorbed a part of the oxygen, and the volume of confined gas being diminished, the pressure of the outer air has driven back the fluid. Next fill a goblet with water up to the brim, and cover it with a sheet of paper, which touches both the edge of the glass and the surface of the water. Turn the glass upside down, and the sheet of paper prevents the water running out, because it is held in place by atmospheric pressure. It sometimes happens that this experiment does not succeed till after a few attempts on the part of the operator; thus it is prudent to turn the glass over a basin, so that, in case of failure, the water is not spilt. (*n*) Having obtained a vase and a bottle, both quite full of water, take the bottle, holding it round the neck so that the thumb can be used as a stopper, then turn it upside down, and pass the neck into the water in the vase. Remove your thumb, or stopper, keeping the bottle in a vertical position, and you will see that the water it contains does not escape, but remains in suspension. It is atmospheric pressure which produces this phenomenon. If, instead of water, we put milk in the bottle, or some other fluid denser than water, we shall see that the milk also remains suspended in the bottle. (*o*) Light a piece of paper, and let it burn,

plunging it into a water-bottle full of air. When the paper has been burning a few seconds close the opening of the water-bottle by means of a hard-boiled egg, which you have previously divested of its shell, so that it forms a hermetic stopper. The burning of the paper has now caused a vacuum of air in the bottle, and the egg is gradually thrust in by the atmospheric pressure outside. (*p*) Take a thin piece of wood about ⅛ in. thick, 8 in. wide, and 24 in. long, and lay it upon a table so that it shall project over the edge. It is evident that the least pressure will make it tilt and fall. Next spread out a large newspaper over the end that lies upon the table. Now if you strike a sharp blow with your fist on the projecting portion, you will be much surprised to see that the board resists the shock, just as if it were nailed to the table. If you strike hard you may injure your hand, or perhaps the board will break into pieces, but you will not lift the simple paper that holds it. The downward pressure of the atmosphere upon a wide surface explains the phenomenon. In order that the experiment may succeed well, the paper should be spread flat and evenly upon the table, and all the folds should be smoothed out so as to expel the interposed air.

Equilibrium of Floating Bodies.—(*q*) The equilibrium of bodies floating upon liquids is an occurrence of daily observation, but such is not the case as regards aeriform fluids—a soap bubble filled with air and floating upon a stratum of carbonic acid, for example. Although this pretty experiment would seem to require complicated apparatus to carry it out, it may nevertheless be performed very simply, as follows:—Having procured a glass vessel, such as a bell-glass, of medium size, place it, mouth upward, upon a tripod made of coarse wire, or upon

any other support. In the bottom of this vessel place a mixture formed of equal parts soda bicarbonate and tartaric acid reduced to powder. The quantity of powder to be employed depends upon the size of the vessel and the thickness of the stratum of carbonic acid that it is desired to have. Soda bicarbonate contains carbonic acid to the amount of half its weight, and consequently it is necessary to decompose 4 grammes (66 gr.) of bicarbonate to produce 1 litre (61 cub. in.) of carbonic acid gas. Over the mouth of the glass vessel place a disc of cardboard of sufficient size to cover it exactly, and, in the centre of this, make a circular aperture to allow of the passage of a glass rod of sufficient length to rest upon the bottom and project externally. Through this tube, and by means of a small funnel, water is introduced in small quantities at a time (so as not to produce too lively an effervescence) until the powder is entirely covered. When the carbonic acid ceases to be given off, the tube is taken out.

Care should be taken to prepare beforehand a solution of soap in water, or, what is better, some of Plateau's glyceric liquid. With either of these liquids, bubbles about 4 in. in diameter are blown at the extremity of a tube that flares slightly. This tube should be held vertically while carrying the bubble over the cardboard cover, and the latter should be carefully removed by sliding it off horizontally, and the bubble be then detached in such a way that it shall fall in the direction of the vessel's axis. If the fall occurs from a certain height, the ball will rebound as if it were repelled by a spring. It will then descend and rise again, and finally become immovable. It is at this moment that it is well to replace the cover, so that no disturbance shall occur in the interior of the vessel.

The bubble then resembles a small balloon in equilibrium in the atmosphere of the vessel; but, in reality, it is floating upon the invisible stratum of carbonic acid. This equilibrium, however, is of short duration, since the carbonic acid rapidly dissolves in the liquid envelope of the bubble, and passes into the interior of the latter, and increases its weight to such a degree as to cause it to gradually descend to the bottom of the vessel, where it disappears. But a suspension of several balls may be obtained successively, that is to say, the experiment may be repeated several times, if, on removing the cover, care be taken not to disturb the atmosphere of the vessel.

The soap bubble may be replaced by one of those small rubber balloons that please children so much, and that weigh, on an average, 1 gramme each. Upon inflating one of these to a diameter of about 6 in., we shall obtain an equilibrium that has greater fixedness and duration, and may observe the phenomenon at our leisure.

Chemical Experiments.—It is well known that the vapours of mercury are very diffusive in their nature, and some quite singular experiments have been devised based upon this, and upon the fact that the salts of silver and the chlorides of gold, platinum, iridium, and palladium are affected by these mercurial vapours. If any one, for instance, write upon a sheet of white paper with platinum chloride, no mark would be visible, as the liquid is quite colourless. If, however, the same sheet of paper be held over a little mercury, the metal will be brought out on the paper in dark tints. This magical apparition of a figure or drawing on a sheet of paper which appears to be perfectly white is very

astonishing to the spectator.

On the other hand, reversing the experiment, a no less marvellous result is obtained. At first expose the drawing in writing to the gases of mercury; the lines will become charged with mercury, and then by simply bringing the drawing in contact with a sheet of paper previously sensitised with a solution of platinum, the drawing will be reproduced, line for line, on the white paper. Drawings made in this way give a charming effect, the tones being very soft and the lines being distinct and clear.

Optical Delusions.—Those talking decapitated persons that are so often seen in various kinds of shows are one of the sights that always prove successful. They have already astonished a number of generations past, and will probably prove just as attractive to those that shall succeed our own. These decapitated persons are seen under different aspects according to the tricks employed to produce the illusion, and which all have the same aim in view, that is, to cause the appearance, on a table or tray, of a living head with no visible body. This illusion may be produced in several ways. (*a*) At the Foire aux Pains d'Epices of 1880, one of the side shows exhibited a decapitated person as follows: The small stage, which was draped with a black fabric covered with silver spangles, was feebly lighted by a sort of night lamp attached to the ceiling. To the right and left were seen panoplies of skulls and cross-bones. The spectators were in darkness. In the middle of this grim place a tray was suspended by 3 small chains at about 3 ft. from the floor, and upon this tray there was a living head—that of a young man who an instant before had shown himself to the public. His body lay extended out under the tray, and his head

talked, drank, and smoked, while his arms and legs moved. Both, although quite distinct, were perfectly alive.

The trick by which the illusion was obtained consisted in this: The body belonging to the apparently decapitated head was hidden behind, under the tray, and was completely invisible owing to the shadow of the latter, and the partial darkness of the stage. The apparent body was that of another person of exactly the same height, size, and dress, whose head was in the dark and further hidden by black cloth.

(*b*) Recently there was exhibited at Paris, in what is called the "Théâtre des Merveilles," another example of a decapitated person. A young girl first appears before the audience, accompanied by an executioner clad in red and armed with the traditional axe. Then the curtain drops, but rises in a few moments, and shows the stage a little darkened. Near the executioner, however, can be perfectly distinguished the girl's head lying on a round table at the back of the stage; her body is seen lying on a bed at a few feet from her head, and at her side is the fatal block that has served for the execution. The effect is dramatic. The trick employed is the same as the preceding, in that it requires two persons of the same size wearing the same costume. One of these—the one who showed herself to the public—makes the head, her body being hidden behind the cloth in the rear of the stage. The other, who makes the body, has her head bent far back and hidden in a sort of box, a false cardboard neck contributing to increase the illusion.

(*c*) Upon entering the room we perceive a black wooden square table having 4 legs. Over one of its

angles there is thrown a piece of red fabric whose other end may be perfectly seen hanging from the opposite side. The floor, which is strewn with straw, is continuous to the back of the stage. There is nothing under the table, then—there can be no doubt of it. Still, upon this table there lies on a tray the head of a young girl which smiles and answers questions that are asked it. The ingenuous spectators are almost persuaded that the girl has no body; others ask themselves where it is hidden; and very peculiar suppositions are indulged in on all sides. In a word, the illusion is perfect.

When, through favour or money, we enter the side scene and look at the table sideways, we are almost ashamed of having allowed ourselves to be deceived by so simple a trick; for the apparatus consists, in fact, only of a mirror fixed obliquely to two legs of the table. This mirror hides the body of the girl, who is on her knees or seated on a small stool, and reflects the straw which covers the floor so as to make it appear continuous under the table, and likewise reflects the front leg of the table so as to make it appear at an equal distance from the other side and thus produce the illusion of a fourth leg. It also reflects the end of the red fabric hanging in front of the table, and thus makes it appear to hang down also from behind. It should be remarked that during the exhibition the spectator stands only a few inches away from the table and head, being separated therefrom by a wooden railing from which hangs a curtain reaching to the ground. Such proximity of the spectator and actor would seem to favour a discovery of the trick; but, on the contrary, it is indispensable to its success. Were the spectator placed at a distance, and did the curtain not exist, he might by stooping see his legs reflected in the mirror. The

curtain, then, prevents any one from looking under the railing, and the rays that might reach him from the curtain, by being reflected in the glass, are lost beneath the table, owing to the proximity of the latter.

As may be seen, the trick is easily understood, and, moreover, it is one of those that gives the best results, since it deceives the public the best. Besides, it has the merit of great age.

(*d*) The living half-woman is a very ingenious improvement on the decapitated individual. On entering, we perceive, when the curtain is drawn aside, an elegant little room decorated with flowers and lights and hung with curtains and tapestry. In front there are two railings, and the floor is covered with a carpet. In the centre is seen a small square table, on which rests a sort of three-legged stool supporting a cushion and the half body. The latter is the body of a young woman apparently cut in two just beneath the thighs. Naturally, this young person shows that she is alive by moving her arms and head, and speaking and singing. Now, as we can see the 4 legs of the table and can perfectly distinguish the space under the stool, and that too in full light, we naturally ask by what means the lower part of the girl's body is hidden. On raising the stool, it will be seen that it is formed only of a hollowed-out disc whose supports are connected by two mirrors, that make with each other an angle of 45°. These mirrors rest on the top of the table, which is decorated with regular designs in mosaic, and reflect the latter in such a way that they seem to continue uninterruptedly under the stool. The table presents an analogous arrangement, two legs being connected with the foremost one by two mirrors (the table is

placed cornerwise to the audience). These mirrors reflect not only the designs of the carpet, which by their continuity produce the illusion of a vacancy, but also 2 table legs located on each side behind the railings. The mirror to the left transmits to the spectators on that side the image of the leg placed on the left, and this image seems to them to be the fourth leg of the table. The mirror to the right plays the same rôle with regard to the spectators on that side. These mirrors, in addition, hide the lower portion of the girl's body.

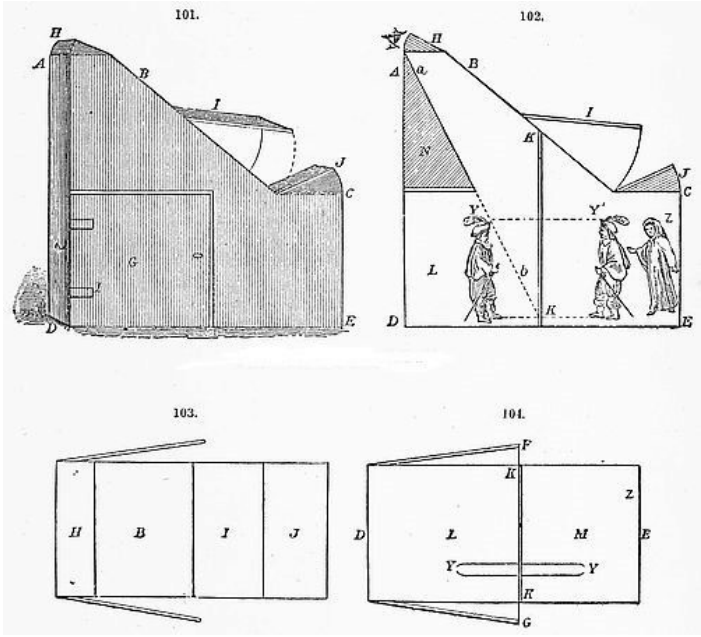
(*e*) The Dircksian phantasmagoria, which was more generally known as "Pepper's Ghost," is another example of the illusive effects of mirrors suitably arranged. On a moderate scale the same spectral apparitions can be produced as an entertainment for the drawing-room.

Dircks arranged an oblong chamber in two equal portions, making the separation by means of one vertical screen of thin glass having a perfectly true surface. Suppose each chamber to measure 12 ft. square and 12 ft. high. Let one of these be the stage on which the acting is to take place; its floor and three of its walls are solid, and the fourth or front of it is one entire glass screen; the ceiling must be made to open at different parts to let in light, and have suitable blinds to regulate the light and shade in which the actors perform. The chamber opposite, or facing the actors, is in reality a second stage for carrying out the spectral performances, and is differently constructed; the two sides may be large folding or sliding doors, or may be left quite open, or one side closed and the other open; but the ceiling must cover only that half of the top away from the glass screen or partition, thus leaving an open space

in the ceiling of 6 ft. by 12 ft.; through this space so left in the ceiling the spectators obtain a full view of the stage, their seats being above the half ceiling described, and thrown rather backwards than forwards; the line of vision thus being at an angle of about 45° with respect to the vertical glass screen, or plane unsilvered crystal mirror. It will now be obvious that the actor on the stage beneath the seats of the spectators can only be seen by reflection, and the trained actor on the opposite stage, knowing the precise situations of the reflection as seen by the spectators, performs accordingly, so that, when really seeming to stand confronting the vision, the actor, whose reflection is thus seen as a vision, is as far from the screen on one side as his reflection is cast on the other.

Some striking effects may be produced illustrative of the illusive properties of optical apparatus constructed on the principle described. Thus, *a figure placed before a white screen* is so strongly reflected, that the spectator cannot divest his mind of their being the substance and not the shadow which he observes, particularly as he contrasts them with an adjacent solid figure. By placing *two figures of corresponding form* equidistant, one on each side of the glass mirror or screen, they appear as one, until one is moved; and if they differ in colour, as one blue and one white, the effect seems more remarkable. If *a cabinet*, *box*, *or the like*, is placed, one on each side of the mirror, until the image of one exactly corresponds with the material figure of the other, then the spectator may see the visionary figure open a drawer or door, and remove and replace anything therein, and afterwards the solid figure repeat the same acts. If the reflection of an actor is thrown on a transparent screen it is invisible, but by gradually

decreasing the light the spectral appearance will be as gradually developed until apparently it becomes a firm solid figure in all its proper costume, and acting in perfect conformity to its designed character.



101. 102. The Dircksian Phantasmagoria.
103. 104. The Dircksian Phantasmagoria.

The arrangement of the apparatus will be understood by reference to Figs. 101-104, in which—

Fig. 101 is an external perspective view, Fig. 102 a vertical section, Fig. 103 a top, or bird's-eye view, and Fig. 104 a plan. A, B, C, D, E is a box, closed on all sides, but provided at D with a door F, and on the other side with another door G, both hinged to the back A, D. H, I, J are flapped openings on the top of the box; K, K a partition dividing the interior of the box, made of a good, clear, and even surface of thin

patent plate-glass, kept in its place within two side grooves; L, M, two separate chambers or compartments produced by K, K, the transparent mirror; N, a ceiling or screen over the compartment L, to exclude any object therein from the direct view of the spectator, as shown by the dotted line, *a, b*.

If two figures be now introduced, one Y, the other Z, and the eye of the spectator be fixed at A, he will observe two images, one the real figure Z, the other Y', the mere reflection of Y. By this arrangement it is evident that the plain, unsilvered glass, thus viewed at an angle of about 45° has all the properties of a mirror, but owing to its transparency two figures are seen, possessing little or no distinguishable difference between them. Of course a person placed at Z sees only the figure Y, but, as a piece of acting may, under proper arrangements of a suitable stage, approach the situation apparently occupied by Y', and thus indicate to a spectator placed at A any pre-arranged dramatic scene requiring Z to be in correspondence with the visionary figure Y'.

In using the apparatus the flap H must be open, but I may be shut, being mostly useful to get admission for inserting or withdrawing the screen or the figures; the flap J may be closed or opened to regulate the admission or exclusion of light. The doors F, G may both be wide open, though one is generally sufficient, provided it is turned as direct as possible to the light. A mirror placed at an angle close to the opening F or G, will assist the illusion by illuminating the figure Y, thus heightening the effect of the reflection Y'.

If two geometrically proportionate figures, as spheres, cubes, or the like, be placed in the situations Y, Y', then the image at Y' will be a vision and a

substance combined, as will at once appear by slightly moving the substantial body in either compartment L or M. Let the duplicate figure be a box, and then the spectator might observe the apparent anomaly of the same box being opened and a substance taken from it and replaced either by a substantial or visionary actor. When the compartment M is lighted up no vision appears, but the light being made gradually to fade and disappear, the vision would seem lifelike, as at first. As it is evident that the right hand of the vision is the left hand of the actor in the compartment L, all his acts requiring the right would have to be performed with the left hand, to appear natural to the spectator. It is also requisite for insuring a good effect, that no solid figure in the compartment M shall come before or behind the visionary image, as its transparency would at once become evident; but if anything of the kind is desired, then the background, figure, or object, should be placed behind the actor Y, and become with him also visionary; in this way *a white screen* placed behind the actor Y will allow his shadow to appear on it and give great force and solidity to his reflected figure or vision at Y'.

A few examples will better illustrate than any elaborate description, the singular effects that may, in different ways, be adopted for realising spectral dramas.

1.—Dickens's Haunted Man.

A student is seen sitting at a table spread over with books, papers, and instruments. After a while he rises and *walks about* the chamber. In this there is nothing remarkable. But the audience is perplexed by a different circumstance: they not only see a man rise from his seat and see him walking about, but they

also see that *he still sits immovably in his chair*—so that evidently there are two persons instead of one, for, although alike in dress, stature, and person, their actions are different. They cross and recross; they alternately take the same seat; while one reads the other is perhaps walking; and yet they appear very sullen and sulky, for they take no notice of each other, until one, after pushing down a pile of books, passes off by walking through the furniture and walls.

The art in this arrangement is to have two actors sufficiently alike in person, similarly dressed, and placed so that the phantom figure sits so exactly like the living figure as to match into it. It consists in having two actors, two chairs, and two tables exactly matching each other. On the acting stage, the actor, table, and chair have each their duplicate; so that, if they were pulled a little to one side, the audience would see two actors, two tables, and two chairs. But such an exhibition would be a defect, as the table and chair are mere guides for the spectre actor: if there were no chair he could not sit, and if no table he could not appear as leaning upon one, or seem to do so.

In this and other pieces of a like nature, it is presumed that the parts are not performed in dumb show, but that an able speaker either explains and gives the dialogue, or that concealed actors address the audience, timing their speech to the action before them.

2.—The Returned Mariner.

A naval officer or other seafaring character, belonging to some particular vessel reported to have been wrecked, is seen in a chamber, into which his

wife or sister, &c., on entering rushes forward to embrace him, but, clasping nothing, immediately falls down in a swoon.

3.—The Californian Gamblers, or Robbers.

Two men, dressed almost like brigands, engage to play some game with cards or dice. They sit one on each side of a table, on which they place their revolvers. After a short play they dispute and wrangle, during which, one seizing his pistol discharges it at the other. He is horror-stricken by the bullet being returned to him, and his playmate passing away by neither window nor door.

4.—The Miser and Money-lender.

He is an aged man, counting his money, and writing up his unjust gains. His room is furnished with bookshelves and cabinets. With a small taper before him, he is absorbed in monetary calculations. Presently a careworn female enters. He shudders—with cold. She opens a cabinet, takes out a long roll of parchment, replaces it, and closes the door again—not quietly, but with a clap like thunder. The miser is colder than ever—shivers more and more, and rises to look into his cabinet, from which he apparently takes the *same* roll, replaces it, and returns to his seat, followed by the reappearing phantom, which again rapidly disappears.

This requires a duplicate cabinet, parchment, &c.

5.—A Strange Christmas-box.

A porter enters the sitting-room of a bachelor while at breakfast. He lays down a deal box, is paid for it, and retires. It is a present—and after being turned over and over, hammered a good deal to burst it open, and seemingly as hard to open as an

oyster would be with a pair of scissors; the cord off, the nails out, and all ready for inspection, the bachelor is suddenly called to any little attention, as the over-boiling of his kettle. He has but turned his back a moment, and behold—a cupid sits on his box! On his approach it walks round to his breakfast table. He removes the box lid and finds it crammed full of old clothes returned to him from his last residence. He is very angry, takes a seat, and is rather startled to see the box lid open, cupid get into it, and at the risk of the pretty boy being smothered, down goes the lid again. He reopens the box, taking from it cloaks, coats, boots, pipes, &c. But, where is cupid?

The box has its duplicate, and the appointed place marked out for each. The box seen by the spectators, however tossed and carelessly used, is very carefully placed *at last* in one precise spot, where it matches an opposite empty box, large enough for a child trained to perform the part. The lid supposed to open does not open, but by rapid action the eye is so easily deceived as not to observe the duplicate lid.

6.—The Duel.

It is to be fought with swords. After various passes, one is stabbed, but instead of falling, he either holds his sword behind him, as if in support, or elevates it, as if appealing to the justice of his cause; but in an instant, to the horror of his affrighted antagonist, he rushes on him with a blazing sword.

The sword is a suitable flat perforated gas tube, with a vulcanised gas tube attached to the handle. A small gas jet above, or an assistant below, enables the actor instantly to produce the desired result.

This example is curious, as showing with what nicety the required effect can be obtained, so as actually to bring the two blades opposite and crossing each other, when the space intervening may be 20 feet or more. It is easily done by stretching a cord or wire, or having movable metal or wood rods held upright by a solid base, placed equidistant on both stages; for it can readily be ascertained where to place them, so that a sword blade crossing a wire on one side is absolutely seen crossing the same on the other side.

7.—The Milliner Bewitched.

A dressmaker and assistants are in a work-room containing a number of empty props, each with a kind of wire-shaped body for displaying dresses upon. She scarcely turns round to her work before every pole has upon it white, black, red, and other dresses, to her evident consternation. Calling in a friend, they are again empty; so, settling down, she is once more terrified by a total change of millinery in cloaks, shawls, bonnets, &c. All this is brought about by employing corresponding wired props.

8.—The Gipsy's Promise.

A plain country servant-girl in a white under-dress stands at her glass, and, having had her fortune told, is ardently wishing to be a fine lady. As she retires from the glass in her mistress's room, she is all amazement to find herself suddenly transformed to a princess. She is attired in a splendid pink or other silk dress, and wears a turban with ostrich feathers; but before she can show herself off to her friends the whole proves a vision!

The arrangement is like the former, only requiring more care and management.

9.—A Hand seen Writing.

The spectre hand may actually write or gradually withdraw a slide over the letters. Either way is very surprising. The actor is behind a black curtain, his hand only seen by reflection. There are corresponding boards, that on the acting stage being black *without* any writing. If the board has a piece inserted in it like a valve, working on centres, the written words or name can thereby be turned out of sight with sufficient rapidity.

10.—The Otranto Picture, or Living Portrait.

A scene from the "Castle of Otranto" may be imitated, representing the full-length figure in a painting stepping from the canvas into the picture gallery.

The picture and frame are a phantasm; the figure being represented by a living actor, or *vice versâ*. He walks from the frame to the floor; and on returning reassumes the still attitude of painted portraiture.

11.—Wonderful Jugglers.

No end of scenes might be brought out under this title, by employing very little and exceedingly simple mechanical appliances; as,—*Swallowing* any length of rope, chain, or other material. To be effected by passing a long endless band of the same over pulleys on the real stage, so as to appear entering the mouth of a visionary actor, keeping his head fixed and mouth wide open at one fixed point.

Strong and weak bandboxes—on which an actor is seen standing, but which when another actor attempts he falls through, crushing the whole to the floor. The first actor was a mere spectre, standing on

strong duplicate boxes, which being removed, the other actor has nothing but the actual weak bandboxes to sustain his weight, which he therefore crushes flat with the floor.

The handing of flowers, miniatures, letters, or any article, by the spectre to the real actor, is so easy as scarcely to require explanation. There must be two of any article to be so used, one *behind* a small black screen on the acting stage, and the duplicate *before* a like screen on the other stage. While the actor appears holding the phantom letter, he in reality has taken hold of its duplicate *behind* the screen, only producing it the instant the other (or first seen letter) vanishes.

12.—The Wizard's Incantation.

An aged wizard in a den-like habitation, standing within the magic circle, and with a boiling caldron before him, attended by certain spirit-seekers, is endeavouring to raise the spectre of some departed relative. In due form the phantom does appear amidst the vapours of the caldron.

The caldron has its duplicate, and is in fact the entrance for a trap door on the opposite stage, through which an actor is mechanically raised, appearing to the audience as the spectre, for he would be seen gradually fading away, first becoming transparent and next slowly invisible.

13.—The Greenroom Riot.

A male and female actor are seen vigorously throwing at each other the masks, dresses, boxes, and other furniture of the greenroom, with the absurd effect of never being once incommoded by the hats, cloaks, coats, and dresses littered about.

Of course each is throwing at nothing, and the audience is amused by the mixture of the real and the reflected actions.

14.—A Spirit-rapping Séance.

A company of this sect being assembled, rapping is heard, hands and heads seen, flowers distributed, and a spirit dimly rises, but just as the circle is about to depart the table with its books, lights, &c., turns rapidly round to their great delight.

The table is visionary, and suspended for the purpose.

15.—Will-o'-the-Wisp.

This ignis fatuus may be represented by a young slender actress in a white gauze dress, holding in her hand a small neatly-made paper lantern. A misguided traveller is seen groping his way along a treacherous heath to trace the whereabouts of the fascinating vision, which at last vanishes, all but the dimly lighted lantern, which last of all dies out, and the actor appears emerging from a quagmire.

The small lighted lantern is seen longest, owing to its own illumination, while its smallness allows its being easily extinguished.

16.—Spectre Workman.

Two men appear to be working a pump, one on each side, like some ships' pumps, or fire-engines, but presently quarrel and fight. The mechanism is connected with an underground shaft, so that opposite actors cannot fail to rise and fall simultaneously in the requisite motions; and all the rest is a mere piece of acting.

17.—The Drunkard's Dream.

A drunkard is supposed to have ruined himself and family, and hastened the death of his wife and children for want of proper sustenance. He is seen lying on a couch, surrounded by visions of his deceased partner and children. He wakes disturbed as they disappear. Again retiring to rest they surround him once more, each bringing him large goblets of his loved beverage, which he attempts to seize, falls on the floor, and awakens in a state of violent horror and passion.

18.—Clown and Fairies.

A tree is seen rising from a green and flowery mound, on which sits a country clown half asleep, with his basket, bottle, and broken victuals before him. Presently a dozen or more fairies forming a ring dance around the tree, to the great delight of the rustic, who, rubbing his eyes, attempts to join the merry dancers, who as speedily flash out of sight.

The mound and trunk of the tree have their duplicate, otherwise the dancers would not be hid in passing behind it, and would therefore appear shadowy and unnatural.

19.—The Black Ghost.

This effect is produced by the actor being first dressed in as white a dress as possible, and then covered with a cowl and flowing black gown; so that sometimes only the head is seen, at others only the hand or hands, and occasionally only a foot, or both feet. Or he may be dressed as usual, in black velvet, wearing a black mask, becoming observable only whenever he passes before a white screen.

20.—The Spectre Dog.

A well-trained Newfoundland or other dog may appear to cross the stage as if passing through the furniture, and while jumping towards his master behind a screen, may appear by reflection as though attacking the real actor on the stage.

21.—The Haunted Hut, or Witch's Laundry.

The witch, appropriately dressed, in a low cottage chamber, may be seen with some fantastically dressed young female preparing to wash clothes. They arrange a large tub, fill it with buckets of hot water (judging from the white vapour), and put in quantities of linen. Each takes a turn at washing, raising their work into the air, in the operation. But presently the girl retires, and on returning, is seen taking quantities of all kinds of boots, shoes, hats, cats, dogs, and children out of the washing tub, finishing by throwing the wet linen into the witch's face, who becomes excessively aggravated.

This pantomime may be carried to any length. It is effected by commencing with two real actors on the stage, and then one of them leaving to commence a series of phantom actions, the audience never suspecting so odd a change.

22.—Temptations of St. Anthony.

St. Anthony may be seen in his cell surrounded by all manner of imps. By having a duplicate seat, a number of youthful actors in pantomime masks and dresses can easily play the phantom part, climbing the arms and back of the chair, and gambolling at its feet, or upon and around a duplicate stand or table.

23.—Metamorphoses.

These may be carried to a great extent; nothing that poets have imagined appearing too difficult, not

even the change of the human form to the trunks of trees.

An actress, dressed in a brown or green dress, on taking a certain assigned place and position, with upraised arms and outstretched fingers, would appear gradually to become like the young oak or elm, with but slight indications indeed of humanity, until disenchanted.

Here the only phantom would be that of the trunk and branches of a tree, either natural or artificially arranged to correspond with the body and upraised arms and fingers of the actress.

Changes from age to youth, male to female, friend to foe, and so on, may be achieved by the phantom actor stepping on a small turning portion of the stage, like a double sentry box, of which one half turn does the magic business, being occupied by two actors.

24.—Trial by Fire.

Men in Gothic costume may be seen at an altar, on which wood is burning. The accused has to test his innocence by a fiery ordeal; for which purpose the priest advances, declares the crimes, and promises clearance from guilt should the accused come off scatheless. He is seen as if washing his hands in the blaze, and burning drops falling from his clasped hands.

The duplicate altar has upon it a metal dish of inflamed alcohol, with a sponge dipped in it, which at the moment of clasping the hands, is raised and pressed by iron tongs, from which the dropping spirits take fire.

25.—Any Legendary Saint's Martyrdom.

Anything of this kind would be too terrible for the stage, but the principle on which it is conducted may be applied in different ways, this being but one out of many striking examples.

The stake and faggots are in duplicate. The duplicate stake and faggots are employed alone for arranging among them gas pipes, and in suitable metal dishes, either spirits, or thin paper, or both, to produce varieties of fiery effect. On the acting stage the martyr would appear surrounded by the terrors of the reality of such a frightful doom.

26.—Executions by Axe or Guillotine.

The descent of the instrument of execution is followed by the rising up or falling down of a black screen, effectively to hide the head, of which there must be a duplicate in waxwork. The executioner only is a real actor, and he only has access to the head. When his axe falls, all the rest takes place on the phantom stage; therefore the axe literally descends upon and adheres to the very block on which the audience saw the culprit place his neck.

Such an exhibition would be anything but desirable; at the same time the *modus operandi* is capable of happier applications, and therefore is only introduced on account of its impressive character, the Author having no desire to encourage the too prevalent vitiated taste for horrors.

27.—The Nightmare.

Some disturbance has caused a nervous gentleman to dress in a hurry in his night-cap, morning gown, and red slippers. With a blunderbuss under one arm and a night candle in one hand, he proceeds with a horse pistol in the other to look warily about, when

suddenly appears before him an old grey mare eating hay—the unconscious intruder on his peace and quiet.

The mare in this instance is the only spectre, and the whole scene is due to a well-known engraving of such a subject.

28.—The Doubtful Visitor.

A lady is informed that a strange lady has called upon her. They meet in the drawing-room, courtesy to each other, and finally take their seats on a couch. Soon afterwards they rise, but the stranger rudely drops her cloak, parasol, reticule, gloves, veil, &c., and runs off. The lady in astonishment attempts taking up the cloak and other things, which to her infinite terror seem to be swallowed up by the floor, so she in her turn makes her escape.

29.—A Pantomime.

Supposing the stage to appear as if supplied with real scenery, which should only after all be phantasms, it is clear that the feats of harlequins would be infinitely more surprising than with interposed wood and canvas. Such a scene as jumping through the mouth of a large mask could in no other way be represented. Fire may be held to the person without danger, outvieing the red-painted poker so amusing to youth in all such wild gambolling scenes. The kicks and cuffs that might be bestowed on a spectre actor, actress, horse, or dog, without disturbing the gravity or person on whom bestowed, is of itself sufficiently ludicrous. In fairy and goblin scenes the rapid appearance and disappearance of such visitors form an essential part in their introduction, and when they are grotesque, their phantom-like character would encircle them

with all the sparkling attributes of a lively jest.

30.—Ghost of China.

Among other parts of any suitable scene, large china jars, dishes, jugs, plates, or other earthenware and glass, may appear so placed that on the actor falling on the floor the audience shall hear the crash of china and glass, and see the whole fall upon him, yet shall he rise unhurt, as though nothing had happened.

This is obtained by means of communicating wires or cords between the two stages, so that the one cannot fail to act in concert with the other.

31.—Pilgrim and Saint.

The worthy saint is seen with outstretched sandalled foot, and a pilgrim with pointed iron-shod staff standing beside him. Wishing to show the holy man some relics he strikes his staff into the ground to release his hand in the act of opening out his treasure. But, behold! he has pinned the saint's foot to the earth with his pilgrim's staff.

32.—The Spectre's Kiss.

Two young ladies enter a drawing-room from opposite ends, courtesy and dance; when their performance is over they approach and kiss each other, and then seem to be attempting to shake hands, but in vain, on which one falls down while the other slowly and almost imperceptibly vanishes.

In many other devices, as in this, the same means for effecting a near approach may be resorted to, nothing more being required than a piece of glass supported on a black pole, which, as ascertained beforehand, exactly distances the two heads, the lips

approaching the glass on an opposite side, in opposite directions, far apart.

It must not be overlooked that these various scenes require different modes of action, a leading one being the peculiar property that this phantasmagoria affords of uniting as one body a phantom with a substance, whether alike or unlike in form and colour. This is a feature so important that it will not be out of place here to dwell upon it more at large, to impress so important a property on the attention of all who may desire an intimate acquaintance with the subject.

As a preliminary step, let a few chromotographic experiments be made. Set a yellow cube before the mirror and a blue one behind it, in a model apparatus, employing the sun's light. Blue and yellow it might be supposed would give a cube having a green tint, instead of which it will be snow white. Again, for blue, substitute a deep pink; and for yellow white, when the pink will disappear all but the faintest possible tinge—the shadow or phantom appearing to overwhelm the coloured substance. These effects are so surprising, simple as they appear, that, unless tried and seen, description alone must fail to convince any one of the full force of the results stated.

Acting on this property of matching one body into another, so as to all appearance to absorb it into itself, many curious dramatic effects may be produced, whether the subjects be animate or inanimate. And this mode of procedure is always in demand where the phantom is required to touch, handle, and repeat the actions of an ordinary actor.

On this peculiarity of matching one body into another so exactly depends the striking character of

"The Haunted Man," where the actor himself is so placed; so likewise "The Miser," with several others, where furniture, chairs, or any other things or vessels require to be so conjoined. In "The Bachelor," the article used is a box, which is carried and moved about, but ultimately fixed in a pre-arranged spot. It would not be easy to perform such parts with animals or with children, as they would not be likely to keep sufficiently quiet and immovable. Whenever the actors on the opposite stages have to play similar parts, then such duplicates of solid and shadow or reflection must always be employed. Two couches are required to make it appear that two persons are sitting on one couch, although in reality each couch has only one occupant; but in the acting the only spectre that appears is the actor, while the spectral couch is absorbed into and hid by the real couch. So likewise in sitting to a table—two tables and two persons must act the part, and the result that follows is the same as before; but if only *one* of these actors places anything on the table, then the opposite actor cannot touch it, unless its duplicate is already placed there for the purpose, behind a black screen, by which means flowers, letters, books, &c., may appear to pass from hand to hand.

The necessity of corresponding stops and marks on the two stages is shown in "The Duel." A mark on the floor directs where to place the feet; slender black rods, set in a weighted foot, mark places for the body, feet, or hands; and suspended wires or cords answer the same purpose. But such marks may be, as in the case of "The Milliner," some part of the furnishing of the apartment, as there we see taking place with mere clothes' props; or, indeed, as in "The Gipsy's Promise," the very person of the actor.

As the entire person is, sometimes, not required to be seen, it is always easy to exclude any portion by employing a black dress, screen, or curtain, as in “A Hand seen Writing.”

A curious result is obtained by appearing to give animation to the inanimate. This may be seen in “The Otranto Picture,” where the actor standing within a framed recess has all the appearance of a painted full-length portrait, the stepping of which from the canvas realises a romantic story of “The Castle of Otranto.”

The absence of all machinery or trap-doors to get rid of “The Ghost” can be rendered strikingly obvious in two ways: first, by the very gradual dissolving of the vision until it becomes thoroughly transparent; or, secondly, by placing in the hand some very bright object, either a dagger, sword, censor, or small enclosed light. By using a night light, having a paper or ground-glass shade, the same will appear as though floating in the air after entirely losing sight of every other spectral object.

Yet trap-doors and machinery may become accessories in many scenes. “The Wizard’s Incantation” requires a duplicate caldron, which on the spectre stage is merely an upright circular frame around a trap-door, through which the spectre actor has to be raised to be presented to the audience by reflection. So also in “The Spectre Workman,” simultaneous action is produced by an underground shaft, which in some cases may be otherwise produced; even bell-wires, cords, and the like serving for many purposes, as illustrated in “The Ghost of China.”

The method of double acting is shown in “The Witch’s Laundry,” producing some strangely startling

results. One or both of two actors may, by changing to the opposite stage, become alternately spectral or solid. What they are seen acting as real actors becomes wildly ridiculous when converted into spectral acts. If after two actors going through performances decidedly requiring mutual intercourse, one adroitly passes to the spectral stage, then his friend, or his adversary, cannot any longer succeed in friendly intercourse, or commit any fatal act by means of sword or pistol.

Advantage may be taken in many scenes of the marvellous property of the phantom to overpower and conceal the colour and features of a corresponding substance. In "Metamorphoses," this is made evident by the facility shown in causing the human figure to take the form of a branching tree, which the wizard can readily disenchant, reproducing a living actor or actress. By such means the classic stories of Ovid, or the sprightly and wonderful creations of the Arabian Nights, may be set before an admiring audience; and when the changes cannot be exactly thus realised, the mechanical arrangements for turning one actor from and another actor into view, aided by screens, is so exceedingly simple as to render minute details superfluous. Actors may appear to dress and change with the rapidity of lightning; age may become youth, and *vice versâ*; and even, a gorilla might step forth an altered creature to trip the "light fantastic toe!"

In some scenes the peculiarity may consist in the spectre passing off undiscovered, and only be traced by its phantom accompaniments, as in "The Doubtful Visitor," who sitting on the same couch with a lady, departs without any other strangeness of action than

leaving behind some portions of her phantom dress.

In pantomime and legerdemain the Optical Illusions eclipse every extravaganza hitherto conceived for making the “eyes the fools o’ the other senses.” And what is still more remarkable, this portion of the subject is so exceedingly simple to perform that, although short, yet sufficient directions will be found in the description of scenes under the respective titles of “Pantomime” and “Jugglers.”

These few observations appeared requisite to impress on the general reader that each of the preceding scenes involves some peculiarity in arrangement to produce the effect described, and that, therefore, they are not all on one model. Some show the actors apart, some together, and afterwards separate; some with and some without machinery of any kind; some with phantom actors, others with only phantom dresses or furniture; and others again employing animals, as the horse, dog, &c.

The mechanical portion of the arrangements are too various to enter upon in minute description, but they are generally of such a nature as any practical workman employed on theatrical machinery will readily understand. The modes of arranging the transparent mirror are as numerous as in the employment of ordinary mirrors. It may be used framed, or for some purposes without any frame whatever; it may be suspended and slide on framework placed above, by means of pulleys, thus leaving the stage floor free from any grooving or any raised portion. Or, it may be made to swing like a hinged door, whether hinged at top, bottom, or either side. Or, it may turn on centres, so as to be half in and half out, when turned to right angles with its common position, being thus capable of

regulation to any desired angle. It is also obvious that the position of the mirror necessitates a corresponding change in the placing of the spectre stage, so that the one shall always be opposite the other. As it is not requisite to cover the entire front of the stage with one or more mirrors, their use may often be artistically concealed by pillars, trees, or similar devices, in which case the spectral effects will be limited to such mirrored portions. When out of use, these large mirrors can be made to slide, sink, or rise, as done with the scenes in general use.

Games.—Space being limited, choice is made here of a few games not generally known.

Bézique (Polish).—Polish bézique, sometimes called open bézique, or Fildinski, is played by 2 persons in the same way as ordinary bézique, except in the following particulars. The tricks are not left on the table at Polish bézique, but are thus disposed of: 7's, 8's, 9's, and 10's (except the 10's of trumps) are turned face down on the table as soon as a trick containing any of them is completed. These cards must not be looked at again during the hand. Other cards, which are cards that can be used in declaring, are taken by the winner of the trick, and placed by him face up on the table close in front of himself, in rows, consisting of aces, kings, queens, and knaves, and of the 10's of trumps. At the end of the hand all cards that can be used in declaring are thus exposed or open on the table. Having been once played, they can only be used in declaring, and cannot be played a second time. Whether declared or not, they remain open during the hand and the play of the last 8 tricks.

Declarations can only be made from open cards,

and never from cards held in the player's hand. This is the fundamental difference between Polish and ordinary bézique. As soon as a trick is won containing a card or cards that can be used in declaring, those cards are transferred to the open cards (if any) already in possession of the winner of the trick, and as soon as a card is won that completes a scoring combination, the declaration is made and the score marked.

For example. A. has 3 open queens, and he wins a trick containing a queen. Before drawing again, he places the fourth queen in the row which contains the other 3 queens, and scores 60 for queens.

The 7 of trumps can be exchanged for the turn up when a trick is won with it, but not when a trick is won with another card by a player who holds the 7 in his hand. Similarly the 7, if not exchanged, can be declared when a trick is won with it. If the 7 of trumps is played, and is won with a higher trump, the winner of the trick declares or exchanges the 7. The principle is the same throughout, viz. that declarations are made only out of cards won, and by the winner of them.

At Polish bézique compound declarations are allowed, i.e. all the scores that can be made when cards are added to open cards are made at once, and the same card may be declared more than once (in combinations of a different class), without waiting to win another trick. The ordinary rule that a card once declared cannot be again declared in combinations of the same class, e.g. a king once married cannot be married again; a fifth ace added to 4 aces already declared does not entitle to reckon aces over again.

As examples of compound declarations take the following: A. wins the queen of faintest possible

tinge—the shadow or phantom appearing to overwhelm the coloured trumps with the king. He has in his open cards 3 kings, 4 queens, and the ace, 10, knave of trumps. He declares royal marriage (40), 4 kings (80), but not 4 queens, as he cannot again reckon any of the 4 queens already declared in that class of combination, and sequence (250), in all 370.

Again, the ace of spades is turned up, and the ace of hearts is led. The second player wins the ace of hearts with the 7 of trumps, and exchanges the 7 for the turn up. He scores 10 for the exchange, and 10 for each of the aces he adds to his open cards—in all 30. If at the same time he were in possession of 2 other open aces, he would score 100 more for 4 aces.

At Polish bézique aces and 10's must be declared as soon as the trick is won, and not at the end of the hand, a mode of scoring preferred by some players at ordinary bézique.

In the play of the hand it is not compulsory to follow suit nor to win the trick, and a player may win the trick by trumping notwithstanding that he holds a card of the suit led. But in the last 8 tricks suit must be followed if the second player has one of the suit led. The trick in the last 8 tricks must also be won by the second player if he has a higher card of the suit than the one led. If he has none of the suit led, and has a trump, he must win the card led by trumping.

Declarations do not cease at Polish bézique when playing the last 8 tricks. They are made just as in the early part of the hand after winning a trick and before leading again.

Polish bézique is generally played 2000 up, as the

average scores are considerably higher than at ordinary bézique.

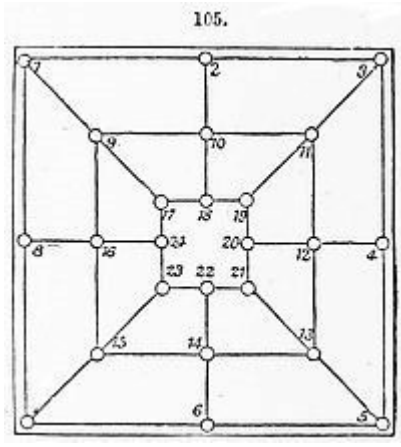
Block. Implements.—A board as in Fig. 105, the figures not being necessary, except when the game is played by correspondence—they are placed here to simplify the examples—16 pegs, and 2 King pegs; 12 pegs and the King pegs being required for play, the 4 remaining pegs are a reserve force of 2 for each player.

Play.—Divide the pegs, one player taking the White, the other the Black. The first to play is decided by lot. Each player then places a peg into one of the holes in turn, occupying those which he may consider the most advantageous, until the 12 pegs and the 2 King pegs have been placed. Then each moves one of his pegs in turn, but only one hole at a time, and as the lines run.

Points of the Game.—To Block, to Force, and to Make a Line.

(*a*) To block is to get a peg on each side of one of your adversary's: this, if an ordinary peg, is its capture, and it is immediately removed off the board.

105.



Example.—Black having a peg in 1, and White playing a peg in 2, Black captures that peg by playing a peg in 3; but White having a peg in 4 can capture Black's peg in 3 by playing another peg in 2; or White having pegs in 1, 10, and 24, and Black a peg in 9 could block Black's peg by playing peg 24 either into 17 or 16.

But to block the King peg, the other holes surrounding him must be filled, though it is of no consequence by whose pegs. To block the King peg is game. His only means of escape is by immediately capturing one of the pegs blocking; if he cannot do this, and cannot move, the game is over.

Example.—Black's King peg being in 3, and White having a peg in 4, is not blocked by White placing a peg in 2, because the hole 11 is unoccupied. Or supposing Black to occupy 11 (King peg), and 3, and White 2, 12 and 19, the game would be lost to Black by White playing 2 to 10, which blocks the King; but if Black had a peg in 17, 16 or 1 to immediately play into 9 he would capture 10, which is one of the blocking pegs, and so liberate the King peg. The other blocking peg is 12. Capturing 19 would be of no avail, neither would moving his own peg 3.

(*b*) To force is to get 2 pegs on a line with one of your adversary's, in which case you force him to move that peg to the first vacant hole on its square, in whichever direction it may occur, and in the event of there not being one vacant on its square, to whichever square has the nearest.

Example.—Black, occupying hole 1, could force White from hole 3 by placing a peg in hole 2 in which case White's peg 3 would have to move to 4;

or by occupying holes 11 and 19, when White would have 2 holes at equal distance—4 and 2; and could move into either unless the forcer gave the preference.

If the King peg be forced, a peg is thereby gained from the reserve which is placed in the hole vacated by the King.

(*c*) To make a line is to get 3 of your pegs on one line in any way but diagonally, in which case the third or last peg moved to make the line can be at once removed to any vacant hole on the board.

Example.—By occupying holes 1 2 3, 2 10 18, 9 10 11; in fact any way but from corner to corner as 1 9 17 or 19 11 3.

If your adversary insists upon maintaining a peg in a hole to your great disadvantage, play your pegs so as to force him from it, having first prepared a hole for him to move into. That is to say, be careful that the hole you force him into does not attack your position, as—Black's pegs in 2, 4, and 7; White's pegs in 1 and 6; now Black, moving peg 4 to 3, forces White's peg 1, which is compelled to move to hole 8, and so captures Black's peg 7. On the contrary, if Black occupied holes 2, 6, 7, 9, 11, and White holes 1, 4, 5, by Black playing peg 11 into 3, White's peg 1 is forced into 8, and it being Black's next move, he occupies hole 1 with his 9 peg, or 2 peg, and so captures the peg he forced. The great point is to place the pegs in a good position at the commencement of the game.

Rules.—1. Each player places one peg in turn, and when all are placed, moves in the same manner, but only as the lines run, and one hole at a time.

2. A force made during the placing of the pegs

does not interfere with that player's turn; that is to say, if White in playing the pegs occupies hole 1, and Black hole 3, Black would be forced by White taking hole 2 and would have to move, but would immediately afterwards place his peg as was his turn.

3. The placing of a peg gained from the reserve into the hole vacated by King peg does not count as a move, consequently any advantage so gained is *nil*.

4. The playing a peg when forced counts the same as its move, and reaps any advantage gained by occupying the hole it is forced into.

5. A forced peg, having the preference of 2 holes to move into, can be compelled by the forcer to occupy either.

6. A made block or made force is of no advantage; that is to say, if Black occupied holes 1 and 3, White could put a peg in hole 2 without being captured; or Black possessing holes 1 and 2, White could place a peg in 3 without being forced. The same applies to a peg when forced into such a position.

7. Any advantage gained in a move, and not noticed before the next move, cannot be counted.

8. A person drawing a peg is compelled to move it, and on the event of its being placed in a hole, must there leave it.

9. A peg played to force or block cannot claim the advantage of a line if it make one by so playing, for instance, Black in 1, 6, 8, and 23, a white peg being in 15; Black by playing 6 to 7 can either take it as a line or block 15, but not both. Neither can 2 pegs be forced or blocked in the one move. The player has the preference in each case. A peg can, however, block and force in the one move.

Example.—White occupying holes 9 and 8, and Black holes 15 and 24, Black by getting a peg into 16 forces both 8 and 9; he therefore compels his adversary to move whichever is most to the forcer's advantage. Or white in 10, 19, 13, with Black in 9 and 12, captures peg 12, and forces peg 9, by moving from 19 to 11.

10. A player, whose turn it is to move, having his pegs so surrounded that he cannot—draws the game.

11. A player having the whole of his pegs (9) on the board can gain no more by forcing the King.

12. A game being reduced to only 3 pegs on the board can be drawn, if not won in 20 moves. (H. E. Heather, *Amateur Chess Magazine*.)

Chancery.—This new round game at cards requires no tuition, and can be played by the smallest child, and by any number.

If the company does not exceed 5 or 6, one pack of cards is sufficient; if it does exceed that number, extra cards are preferable.

A pool is then subscribed, say 5 counters by each player; that is generally enough to keep it floating for some time, though should it run out another subscription is called for immediately.

The cards are then scattered in the centre of the table, with their faces downwards. Each player then draws one in turn, displaying it before him and calling what it is. Should it only be an ordinary card or picture drawn each time let the cards drawn lie in a heap before the player; should aces be drawn spread them conspicuously in front of the others.

The cards to score points are:

1. The majority in possession when all are drawn.

2. The majority of court cards.

3. Every ace.

4. Every ace to which you have also drawn the deuce of the same suit.

Should any player draw the deuce of the same suit as an ace drawn he calls the owner's attention to the fact, who immediately places the ace with his other cards, it being "killed" and reduced in value. Should a deuce be drawn before the ace of its suit it must be replaced with the others again, and another card be taken, the cards being previously shuffled. A player drawing the deuce of the same suit as an ace in his possession places it upon the ace, and keeps them separate from the others, as they score the most points. If a card drawn pairs with the player on either side, the person drawing the pairing card has immediately to pass all his cards to the one so paired, and pay a forfeit of one point to the pool.

When all the cards have been taken the pool-master (it is best always to appoint one player to occupy this post, or confusion is apt to ensue) pays out the points scored as follows:

1. For the majority of cards, 1 point.

2. For each ace on which the deuce has not been drawn, 2 points.

3. For majority of pictures, 3 points.

4. For each ace on which the deuce has been drawn, 4 points.

The cards are then mixed for a fresh start, and the pool again subscribed if run low.

Laws.—1. Each player to take but one card, and in

turn; departure from this rule a fine of one to the pool.

2. If a deuce is drawn before the ace, it is to be replaced; if drawn after the ace, and replaced in mistake, it cannot be recovered, provided the ace was conspicuously displayed; the player so doing loses his turn and pays one to the pool.

3. A player turning a card other than that he draws pays one to the pool.

4. A player pairing with the last card drawn by the person on either side of him passes all his cards to that player and pays one to the pool. Should it so happen that he pairs with both, the one on the left has the preference.

5. It is not necessary that a player should have any cards in his possession to be paired with; the last card he drew, whether he has lost it or not, is the one to count.

6. Any dispute to be settled by pool-master.

7. Pool-master to be chosen for each game if desired. (H. E. Heather).

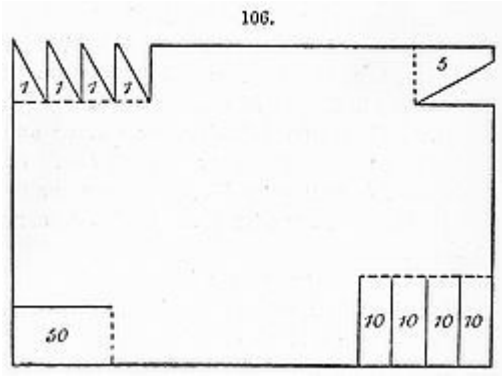
Dominoes.—A set of dominoes usually consists of 28 oblong cards, each consisting of 2 squares united; no 2 pieces are alike, they being distinguished by pips. It is important for the learner to bear in mind that there are 7 dominoes of each number, and that each number is joined to one of each of the others. The calculations of the game are founded on these facts.

Dominoes are usually made with bone or ivory faces and ebony backs. They are shuffled, or “made,” as it is technically termed, by being turned downwards on the table, and mixed quickly by a

light pressure and rapid movement with the hands.

On the Continent, where the game is usually played on a marble or hardwood table, the dominoes have frequently a projecting metal stud in the middle of the face; this enables them to be mixed with greater facility on smooth surfaces, but prevents their being effectually shuffled on one covered with a cloth, unless a large sheet of cardboard is interposed. Care should be taken that the back of the dominoes should not be stained or marked, as, if only one is thus capable of being distinguished, it lessens in the highest degree the interest of the game. They should be of good size, as small sets are very inconvenient to play with, and of sufficient thickness to stand firmly on their edges, with their faces turned towards the player and their backs towards his opponent.

As the game usually played is 100, a marker is convenient to score the successive additions made by each player. On the Continent very convenient markers are used; but there is a simple plan of making them extemporaneously with a visiting card. This is to be cut as shown in Fig. 106.



106. Domino Marker.

By turning back the nicks along the dotted lines the number marked on each is scored; a card so notched will score up to 99, and will answer for a large number of games before it becomes useless by the nicks breaking off.

The dominoes having been shuffled face downwards on the table, one of the two players pushes 2 towards the other, who selects one of the two, leaving the other for his opponent. Both are then turned up, and the player who has the highest number has the lead, or “pose,” as it is called. In England it is frequent for the holder of the 6-6 (double six) to pose first—a stupid plan, as it quite spoils the first hand, inasmuch as 6-6 may be a very bad domino to play from the dominoes held.

The 2 dominoes drawn and exposed are again mixed with the others, the non-leader mixing for them last. Each player then selects 7 dominoes; the leader plays one, placing it face upwards on the table, and the opponent matches it from his own hand, playing at either end as he thinks fit.

Thus, if the first player plays 4-5, the second may

play either a 5 to his 5, or, should he think it more advantageous, a 4 to the 4, thus:

If a double is played first, which gives the second player only one number to play to, it is usual to place the double in a cross.

In either case the first player plays again, and so on alternately until one or other has played out, when he scores the pips on the domino or dominoes remaining in his opponent's hand.

If one player cannot play at either end, he says "go," when his opponent plays on until some number is posed to which he can play. If neither can play, both hands are shown, and the one that has the fewest pips wins the score, which should consist of the whole of the opponent's pips as well as his own added together. After a score the dominoes are turned and mixed, the pose or lead being taken alternately.

Persons who know but little of the game think that the best play is at once to get rid of the heaviest dominoes, but this is not necessarily the case; but with a heavy hand, every care should be taken not to let the opponent close the game leaving you with a heavy score. In this most simple English game the aim of the player should be to make his long suit, and prevent his opponent playing.

Following are a few examples of hands played in the ordinary English game with 7 pieces. In this game the player sees his whole hand of seven at once, and he knows that his opponent has also seven, or one-third of the remainder; the other 14 dominoes are untouched, and he can make his calculations and play his game accordingly. In this game, each player plays alternately, until one or other has played all his

dominoes, when he scores the number of pips left in his opponent's hand. Should either be unable to play, the other continues until he brings a card to which his opponent can play. Should both players be unable to play, then the one who has the least number of pips scores, not only those in his opponent's hand, but his own also. To give an example. Suppose 2 players, A. and B., playing the English game, and having drawn for pose, A. plays first from the following hand:—6-6, 5-2, 5-0, 4-3, 4-0, 2-2, 2-1.

An inexperienced player would probably play his 6-6, that being a heavy card, and in all probability he would lose the score if his opponent had 2 or 3 sixes in his hand.

The proper play would be the 2-2, as it gives B. only one number to play to, and if, as not unfrequently happens, B. has no twos, A. has the chance of a splendid game.

Let us take B.'s hand as follows:—6-4, 6-3, 6-1, 5-4, 5-1, 3-0, 1-1.

A. plays 2-2. As B. cannot play, A. plays again, selecting the card of which he has most (so as to lessen B.'s chance as much as possible), this would be the 2-5, as he has 2 fives in his hand and only a single one. If B. plays 5-1, which offers his best chance of success, A. will play 1-2, and the game will be shut up. On counting the pips, A. will be found to have 22 and B. 46. A. consequently scores 68 towards the game of 100.

If, on the contrary, A. plays the 6-6, he may lose, and he cannot possibly win as many as he could have done with the previous play.

If B. replies to 6-6 with 6-1, A. would then play

1-2, B. 6-4, A. 2-2, B. 4-5, A. would close the game by making 2-all, viz. 2 at both ends, by placing 5-2 to the 5 end, and his score would be 36, made up of B.'s 20 pips and A.'s own 16.

A hand with 3 or 4 of any one number is better than a hand with only 2 of each sort, even supposing the first to be much the heavier, as it gives a command of the game, and enables the holder to shut his adversary out and to play his own dominoes as he likes, closing the game if he thinks fit.

Thus take the following hands, A. to play first with the heavy pieces, viz.: 6-6, 6-4, 6-3, 6-1, 5-4, 5-2, 5-1, and B. to be his opponent with the light hand: 5-0, 4-1, 3-3, 3-1, 2-2, 2-1.

If A. commences with 6-6, B. must lose, provided A. plays with the most ordinary skill.

The principle of the game is to play so as to bring the numbers of which you hold most (and therefore in all probability your opponent least) at the ends; by this means you play out more dominoes than he does, and you often have the opportunity of closing the game. But this must be done with judgment, for it sometimes may happen that the player who shuts up the game loses, as his opponent may have a less number than he has, and win the score. It is this uncertainty which gives interest to the game, for to close the game and win when the numbers are nearly equal shows the skill and judgment of the player.

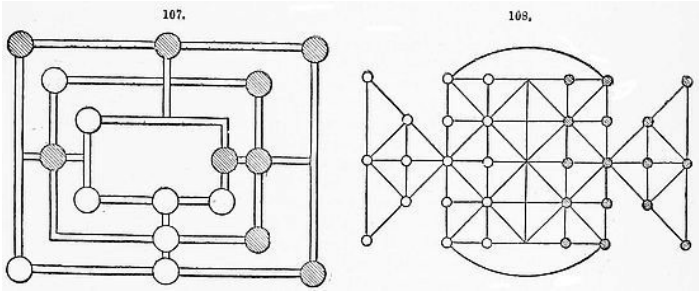
Mill.—This is a good evening game for boys. It somewhat resembles draughts, and is easily manufactured as follows: Take a sheet of stiff white cardboard, such as is sold for mounting water-colour drawings, &c., draw on it 3 oblong squares (Fig. 107) one within the other; the outside square, say 18 in.

by 14 in., the second 14 in. by 10 in., and the third 10 in. by 6 in. Unite the 3 squares by drawing 4 opposite lines from the centre square to the outside square, so as to make 4 passages, enabling the players to move their men from one square to the other. Fig. 107 shows the board, with a game in progress.

In this game the black men are supposed to be winning. At the right hand black has a double mill, and a single mill at the top; white has a double mill also, but is afraid to open it, as black would instantly seize his man.

The lines forming each square should be ½ in. wide. The board can be made in a few minutes with the help of a flat rule with the inches marked on it. “Mill” is played by 2 people, each of whom has nine men; draught men will do. Having chosen who is to commence, begin by placing a man on any part of the board, either at the corner of a square or in the centre, of on one of the 4 lines. *The men must not be placed in the intermediate spaces.* Each line holds a mill, which consists of 3 men in a row, and the object of each player is to make a mill, and to prevent his adversary from making one. When a mill is made call out “mill,” and remove one of your opponent’s men, provided it does not form one of a mill, which cannot be broken as long as it remains closed; try, if possible, to get a double mill, that is, 5 men so placed that by moving one man either forwards or backwards you make a mill each time. If you can get 3 men on 3 corners of one square—which, if your opponent is a good player, he will prevent your doing—you are certain at all events of one mill, if not of a double one. When all the men are on the board you can move a man in any

direction on the lines and up or down the cross lines into the other squares, but you must not cross the squares in any other way but by the passages; each passage will hold a mill. A move is from the corner of either square, on the line, to the centre, or back again, so on all round the squares if necessary—i.e. supposing you have only 3 men left, the rest having fallen to your opponent's skill, and these 3 are in different parts of the board, you must move them till you have succeeded in joining them into a mill. When you have one or more mills, open either by moving a man forward (taking care that your opponent has not a mill ready to be closed, as he will then take your man and break your mill), and when you close it again remove one of your adversary's men not forming part of a mill. When a mill is open it is of course in danger. The most amusing part of the game is when each has arrived at his last mill and is trying to destroy his opponent's. The board may also be made of 2 very thin pieces of wood, joined by 2 hinges in the centre, so as to fold it up when not in use, painted white or black, and the squares and passages painted gold or scarlet.



107. Mill. 108. Pachîsî.

Pachîsî.—This is a variety of the game of draughts as played by the natives of India, as good as, if not

superior to, the English game. The freedom of moving in any direction, and the fact that it is not obligatory to accept a force, make the game one entirely of tactics, and are productive of many phases before the game is finished. The rules are few and simple. The name Pachîsî is derived from the Oriental expression for “25”—the number of posts in the square (Fig. 108): *a* are places for the men when off the board.

Pachîsî is played with a board as in Fig. 108, and 16 pieces on each side. The centre line of posts is left vacant. A piece may be moved in any direction along any line (and this includes advancing, retiring, and a lateral or diagonal move), but no farther than one post. Captures are made as in draughts, and are not limited in number, i.e. each piece has the power of a crowned piece in ordinary draughts. It is not obligatory to capture an adverse piece when it is possible to do so. The game is won precisely as in draughts, by capturing all the adverse pieces, or by the adversary being unable to move.

Poker.—Poker is a round game at cards, much played in America, but scarcely known in this country. Recently it has found favour here. The deal is determined by throwing a card to each player, the lowest having the first deal, and the deal afterwards proceeding to the left, as at whist. A pack of 52 cards is used. It is better not to play with more than 6 players.

The dealer, beginning with the person at his left, throws round 5 cards to each player, giving one card at a time. The dealer shuffles and makes up the pack himself, or it may be done by the player at his left, and the player at his right must cut.

To begin the pool, the player next to the dealer on

his left must put up money, which is called an "ante," and then in succession each player, passing round to the left, must, after looking at his hand, determine if he goes in or not; and each person deciding to play for the pool must put in twice the amount of the ante. Those who decline to play throw up their cards face downwards on the table, and for convenience in front of the next dealer.

When all who wish to play have gone in, the person putting up the ante can either give up all interest in the pool, thus forfeiting the ante which has been put up, or else can play like the others who have gone in, by "making good," that is, putting up in addition to the ante as much more as will make him equal in stake to the rest.

If a number of players have gone in, it is best generally for the ante-man to make good and go in, even with a poor hand, because half his stake is already up, and he can therefore stay in for half as much as the others have had to put up, which is a percentage in favour of his taking the risk. This of course does not apply if any one has "raised," that is, more than doubled the ante, before it comes around to the starting point.

Any one at the time of going in must put up as much as double the ante, and may put up as much more as he pleases, by way of "raising" the ante; in which case, every other player must put up as much as will make his stake equal to such increase, or else abandon what he has already put in.

Each player as he makes good, and equals the others who are in before him, can thus increase the ante if he chooses, compelling the others still to come up to that increase, or to abandon their share in the pool.

All “going in,” or “raising” of the pool, as well as all betting afterwards, must be in regular order, going round by the left; no one going in, making good, increasing the ante, or betting, except in turn. When all are in equally who intend to play, each player in turn will have the privilege of drawing; that is, of throwing away any number of his 5 cards, and drawing as many others, to try to better his hand. The cards thus thrown up must be placed face downwards on the table, and, for convenience, in front of or near the next dealer.

The dealer, passing around to the left, will ask each player in turn how many cards he will have, and deal him the number asked for, from the top of the pack, without their being seen. The dealer if he has gone in to play for the pool will, in like manner, help himself last.

The players must throw away their discarded cards before taking up, or looking at those they draw.

In the game every player is for himself and against all others, and to that end will not let any of his cards be seen, nor betray the value of his hand by drawing or playing out of his turn, or by change of countenance or any other sign. It is a great object to mystify your adversaries up to the “call” when hands have to be shown. To this end it is permitted to chaff or talk nonsense with a view of misleading your adversaries as to the value of your hand, but this must be without unreasonably delaying the game.

When the drawing is all complete, the betting goes around in order, like the drawing, to the left. The ante man is the first to bet, unless he has declined to play, and in that case the first to bet is the player nearest to the dealer on his left. But the player entitled to bet first may withhold his bet until the

others have bet round to him, which is called "holding the age," and this, being an advantage, should, as a general rule, be practised. Each better in turn must put into the pool a sum equal at least to the first bet made; but each may in turn increase the bet or raise it as it comes to him; in which case the bets, proceeding around in order, must be made by each player in his turn equal to the highest amount put in by any one, or else, failing to do that, the party who fails must go out of the play, forfeiting his interest in the pool.

When a player puts in only as much as has been put in by each player who has preceded him, that is called "seeing" the bet. When a player puts in that much, and raises it, that is called seeing the bet and "going better."

When the bet goes around to the last better or player who remains in, if he does not wish to see and go better, he simply sees and "calls," and then all playing must show their hands, and the highest hand wins the pool. When any one declines to see the bet, or the increase of bet which has been made, he "lays down" his hand, that is, throws it up with the cards, face downwards, on the table. If all the other players throw down their hands, the one who remains in to the last wins, and takes the pool without showing his hand.

To "bluff" is to take the risk of betting high enough on a poor hand or a worthless one to make all the other players lay down their hands without seeing or calling you.

When a hand is complete, so that the holder of it can play without drawing to better it, that is called a "pat" hand. A bold player will sometimes decline to draw any cards, and pretend to have a pat hand, and

play it as such, when he has none.

A skilful player will watch and observe what each player draws, the expression of the face, the circumstances and manner of betting, and judge, or try to judge, of the nature of each hand opposed to him accordingly.

No one is bound to answer the question, how many cards he drew, except the dealer; and the dealer is not bound to tell after the betting has begun.

Drawing.—If the player determines to draw to a pair, he draws 3 cards.

If he draws to 2 pairs, he draws one card. If he holds 3 to begin with, he draws 2 cards, in order to have the best chance of making a full, inasmuch as, in playing, pairs are apt to run together. But, to deceive his adversaries and make them think he has nothing better than 2 pairs, a sharp player will often draw but one card to his 3's.

It is advisable sometimes to keep an ace or other high card as an "outsider," with a small pair, and draw but one card—thus taking the chance of matching the high cards and so getting a good 2 pairs, or something better possibly—while at the same time others may be deceived into believing that the player is drawing to 3's.

When drawing to cards of the same suit to try to make a flush, or to cards of successive denominations to try to make a sequence, as many more cards are to be taken as will be needed to fill out the flush or the sequence. But it is seldom advisable to venture in to draw for either a flush or a sequence when more than one card is required to complete the hand.

When a player holds 4's in his original hand it is as good as it can be, and yet it is best to throw away the outside card and draw one, because others may then think he is only drawing to 2 pairs, or for a flush or a sequence, and will not suspect the great value of the hand. When one is in (as he ought seldom to be) without even so much as a pair, his choice must be either to discard 4 cards, or 3 cards, and draw to the highest, or 2 highest in the hand, or throw away the whole hand and draw 5, or look content and serious, stand pat, and bet high!

The player determining to try this last alternative on a worthless hand had generally better begin by raising when he goes in, or else nobody will be likely to believe in his pretended strong hand.

Relative Value of Hands in their Order, beginning with the Best.—1. A Sequence Flush: Which is a sequence of 5 cards, and all of the same suit.

2. Fours: Which is 4 out of the 5 cards, of the same denomination.

3. A Full: Which is a hand consisting of 3 cards of the same denomination, and 2 of likewise equal denomination.

4. A Flush: Which is all 5 cards of the same suit.

5. A Sequence: Which is all 5 cards not of the same suit, but all in sequence. (In computing the value of a sequence an ace counts either as the highest or lowest card, that is, below a deuce or above a king.)

6. Threes: Which is 3 cards of the same denomination, but the other 2 of different denominations from each other.

7. Two Pairs.

8. One Pair.

9. Highest Card: When a hand has neither of the above, the count is by the cards of highest value or denomination. [Ace is highest.]

When parties opposed, each holds a pair, the highest pair wins, and the same when each party holds 3's or 4's.

When each party holds 2 pairs, the highest pair determines the relative value of the hands.

When each party holds a sequence, the hand commencing with the highest card in sequence wins; so also when two or more parties hold flushes against each other.

That full counts highest of which the 3 cards of the same denomination are highest. The 2 cards of the same denomination help only to constitute the full, but do not add to the value of the hand.

When hands are equal so far that each party holds a pair or 2 pairs of exactly the same value, then the next highest card or cards in each hand must be compared with the next highest card or cards in the other hand to determine which wins.

In case of the highest hands (which very seldom occurs) being exactly equal, the pool is divided.

The main elements of success in the game are: (1) good luck, (2) good cards, (3) plenty of cheek, and (4) good temper. (*The Field.*)

Vint, or Siberian Whist.—This game is at present much played and is very popular in Russia, and comprises some very interesting features. The scoring appears complicated, but is not really so, and may be easily learnt in one evening's play.

It is similar to whist, with the difference that there are many more combinations, and the rewards and penalties are greater. The object is to make the number of tricks you declare, with a certain suit for trumps, or without trumps, according to the declaration; but should a less number of tricks be obtained, then a penalty of a certain number of points is scored to the opponents, according to the number of tricks short of the number declared. The side that reaches 400 first scores game, but the hands are played out and scores and penalties marked as usual. The laws of whist apply to revoke and general rules. Cut for partners and deal as in whist, the last card not to be turned up.

Value of Suits.—Spades, as seen below, are the lowest in value, and "without trumps" the highest.

"Spades"	4	"Two Spades"	14	"Three Spades"	24
"Clubs"	6	"Two Clubs"	16	"Three Clubs"	26
"Diamonds"	8	"Two Diamonds"	18	"Three Diamonds"	28
"Hearts"	10	"Two Hearts"	20	"Three Hearts"	30
"Without Trumps"	12	"Two without Trumps"	22	"Three without"	32

Declaring.—The dealer commences with one declaration, then the player on left hand, and so on; each declaration must be of a higher value than the previous one. Any number of declarations may be made by any player, but after each declaration all the other players have the right to declare in their

turn, but no declaration can be made after all the 4 players have consecutively said “Pass.” A player not wishing to declare says “Pass.” Should, at the commencement, no declaration be made by the dealer, and all the players in their turn say “Pass,” the cards are thrown up, and the deal passes on as usual. This is called a “Bird,” and 300 points are noted, to be added to the score of points of the winners of the rubber. Several “Birds” may occur during a rubber, and are noted thus ⌓ = 300 points. A declaration of “Spades” or other suit, or “Without trumps,” means that 7 or more tricks will be made with declared suit trumps; “2 Spades” or other suit, 8 tricks will be made; “3 of a suit, or without trumps,” 9 tricks, and so on.

Scoring—Is noted at the end of each hand, every trick counting thus, with a declaration of “Spades,” AB., 7 tricks = 28; CD., 6 tricks = 24. A declaration of, say “3 Diamonds,” then AB. 9 tricks = 252; and CD., 4 tricks = 112; or if AB. make 10 tricks = 280; and CD. 3 = 84. Big Schlem, 1000; little ditto, 500; rubber, 1000; game, 500. Bird 300 each, scored to winners of rubber.

Honours, &c.—The 10 counts as an honour; 1 or 2 honours do not count; 3 honours, score according to value of suit thus: 3 honours spades score 120 (a zero always being added); 4 = 160; 5 = 200.

3 honours in, say hearts = 300; 4, 400; 5, 500. 3 aces count 150; 4, 200; 1 or 2 do not count. A game being played “without trumps,” honours do not count; but aces score, for 3, 300, 4, 400. The honours and aces may be in the 2 partners’ hands, as at whist.

Penalties.—Should the number of tricks declared not be made, the penalty is reckoned thus: For a declaration of, say “Spades,” other suit, or “without

trumps," 400 points for every trick under the number declared; a declaration of "Two" of any suit, 800 points; for "Three," 1200 points for every trick, and so on. Thus, if the declaration was "Five" of a suit, or "without trumps," and only 9 tricks were made, or 2 short, the penalty would be 4000 to be scored to the opponents. Penalties, honours, aces, &c., are scored above the line, and do not count towards game, but are scored as points. The total number of points scored by the losers during the game, and also the rubber, must be deducted from the winners' score, the balance, if any, credited to the winners; or it may happen that the winners of a rubber may lose in points. Should the game be for stakes, so much per point should be calculated.

Illustrative "Vint" Hand.

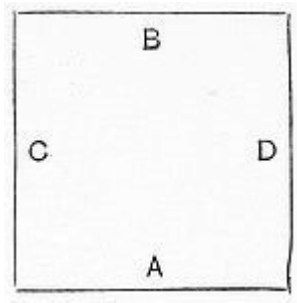
A.'s Hand.		C.'s Hand.	
Ace, 10, 7	♠	King, Qn, 5, 4	♠
10, 5	♥	Ace, Kg, Kv, 7, 4	♥
King, 7	♣	5, 3	♣
Ace, Kg, Q, 8, 7, 2	♦	9, 5	♦

B.'s Hand.		D.'s Hand.	
9, 3, 2	♠	Knave, 8, 6	♠
3, 2	♥	Queen, 9, 8, 6	♥
Ace, Knv, 9, 6, 2	♣	Queen, 10, 8, 4	♣
Knave, 6, 3	♦	10, 4	♦

A. and B. are partners. A. is the dealer, and begins declaring

A.—“Diamonds.”	C.—“Pass.”
C.—“Hearts.”	B.—“Pass.”
B.—“Two clubs.”	D.—“Pass.”
D.—“Two hearts.”	A.—“Four diamonds.”
A.—“Three spades.”	C.—“Pass.”
C.—“Pass.”	B.—“Pass.”
B.—“Three diamonds.”	D.—“Pass.”
D.—“Pass.”	A.—“Pass.”
A.—“Four clubs.”	

A. and B. have to make 10 tricks, with diamonds as trumps. C. leads.



A. and B. make 10 tricks, scored thus:

CD.		AB.		
			3 aces	150
			4 honours	320
	114			380

The above hand is only given to show how the declaring may be made. (*The Field.*)

Supplementary Literature.

Mrs. Orrinsmith: 'The Drawing-room; its decorations and furniture.' London, 1878. 2*s.* 6*d.*

Henry J. Dakin: 'The Stage in the Drawing-room; or the Theatre at Home. Practical Hints on Amateur Acting for Amateur Actors.' London, 1883. 1*s.*

Capt. Crawley: 'The Handy Book of Games for Gentlemen. Billiards, Bagatelle, Backgammon, Chess, Draughts, Whist, Loo, Cribbage, Écarté, Picquet, All Fours, Quadrille, Pope Joan, Matrimony, Vingt-un, Quinze, Put, Speculation, &c.' London, 1876. 5*s.*

Cavendish's 'Pocket Guides to Backgammon, Chess, Draughts, &c.' London, 1878. 6*d.* each.

THE BEDROOM.

The Room.—Some of the conditions affecting bedrooms have been already discussed on p. 101. It is not necessary to say anything about the special ventilation of bedrooms, for the same principles apply to them as to other rooms; but, in passing, it will be well to mention that there should be a floor space of at least 42 ft. to each person, and at least 500 cub. ft. of air space—more if possible; 12 ft. is quite high enough for ordinary rooms; all space above this is wasted, so far as health is concerned.

There should be as little in the way of carpeting, bed and window curtains, as is consistent with comfort. Light metal bedsteads are the best. The floor is best stained and polished. Avoid crowding with heavy furniture as much as possible. If the bed is out of the way of direct draught, it is a good plan in summer to let down the top sash of the window a little way. Sleep will be more refreshing and sounder than if the window had been closed all night.

Edis would have the whole floor of the room stained and varnished, or painted, and strips of carpet, matting, or rugs thrown down only where required; these can be taken up and shaken every day without trouble, and the evil of fixed carpets is thus avoided. If, however, a carpet must be laid down, let it on no account go under the bed or within 2 ft. of the walls; the spaces under the bed or wall furniture would rarely be swept, and under heavy wardrobes and chests of drawers there would be a gradual accumulation of dirt and dust, until such time as the annual general turn-out and cleansing takes place. At least, leave the floor uncarpeted underneath a bed, so that the boards can be swept daily and scoured weekly. But if the room is close carpeted, a tightly-stretched piece of holland should be pinned down under the bed to receive the flue, which is certain to accumulate; the holland cloth can be taken away and replaced as frequently as occasion requires.

For the walls, Edis suggests a dark matting dado as a base, and the remainder of the wall to be distempered of some grateful soft tint, with graceful pattern border and frieze stencilled on, and here and there panels formed in the decoration, with enclosing lines of bright and well-selected colours, wherein

might be enframed looking glasses, and here and there watercolours or photographs, as forming part of the decoration of the room, but not standing out of it in any too prominent manner. All this kind of work can be treated simply, and at little cost, and the distemper work can be rubbed over with bread crumbs, or brushed down, and so easily cleaned.

The general woodwork of the doors, windows, and skirtings should be painted in some plain colour to harmonise or contrast with the wall decoration, and the whole varnished; woodwork finished in this way can be easily washed or cleaned, and the extra expense of varnishing will be saved in a few years. Now that good painted tiles can be obtained at small expense, they may be used in washing stands with good effect, or the wall above might be lined entirely with them to a height of 2-3 ft.

With regard to warming bedrooms. It surely requires but very little common sense to see that it must be thoroughly bad for people to spend their evenings in warm comfortable rooms, with the thermometer at 60° F., and then to take their departure for chilly bedrooms, along cold passages, and to undress in a temperature of 30°-35° F. Even the strongest constitution must suffer more or less by such a proceeding. The favourite argument against warm bedrooms is that it is weakening. Sleeping in badly ventilated, *hot* rooms, may be weakening; but sleeping in a temperature of 50°-60° F. cannot possibly be so. If it were, then healthy sleep in the summer would be impossible. It is, of course, essential that the heating apparatus—be it a stove, a fire-place, hot-water pipes, hot-air ducts, or gas-stoves—should not consume the oxygen from the room without at the same time provision being made

for the admission of fresh air from without. This fresh air from without need not, however, come into the room in a cold state. It may be first warmed by passing near to the fire or heating apparatus. Providing the above precautions be taken, there is no fear of warm rooms being injurious to health. Some grates suited to bedrooms have been described on pp. 61-71, especially the “Eagle”; but all grates possess objections for a bedroom, and probably the very best warming medium would be a soda acetate stove, as spoken of on p. 82.

As to flowers in a bedroom, it seems pretty safe to assume that the mischief of a dozen or two is theoretical rather than practical, and that those who like flowers in their bedroom may indulge their fancy quite safely. But it should be borne in mind that certain plants may throw off much larger quantities of carbonic acid gas than others; and some emit unpleasant odours. In any case, where flowers are grown in bedrooms, there should be very free ventilation.

The position of the bed in the room is of much importance, although many are utterly regardless of it. It depends on the size of the room, the part occupied by the fireplace, and the position of the windows. If possible, the bedstead should always be put between the door and windows; not at the end of a long room, where the fresh air can never blow upon it; and not opposite to the windows, as the glare from them is not agreeable on first awakening. It is not easy to lay down fixed rules, but the housewife should give this a proper amount of thought and care. It is wrong to place beds sideways against a wall, as they invariably spoil the paper or paint, and will very likely be badly made.

Servants are very often put in attics without fireplaces. This is an unwholesome plan which should be avoided, as without a chimney there cannot be proper ventilation. When an attic is the only available servants' room, some ventilation should be effected by boring holes in the wall, or by making one large hole and inserting a grating. An open grate is, however, far preferable, as it greatly conduces to the wholesomeness of any sleeping room to have a fire lighted in it several times in the course of the winter. Bare boards, with good strips of carpet round the beds, a chest of drawers, looking-glass, and neat washstand for each servant, and a couple of cane chairs, would be quite enough for a room occupied by two maids. Each maid should certainly have a separate bed, and a comfortable one. Servants' beds should never have valances round them, as it encourages a habit of keeping boxes and rubbish under the beds, which is most untidy and unwholesome. There should be a couple of bags hung up for soiled linen, unless a wash-basket can be spared. The room should be not only swept out every week in turn with the other bedrooms, but also well scrubbed all over with carbolic soap, and left to dry with windows and door open. If this is done, the room will never get stuffy. Encourage everything in the way of neatness and refinement. Cotton, twill, or unbleached linen is suitable for sheeting. Each servant should have one clean sheet a week, changing the upper one to the lower regularly. A clean pillowcase every week is generally necessary, and one large or two small towels. A bell communicating between the mistress's room and the servants' is a great convenience for calling them in the morning. Insist on having the beds stripped and the window opened as soon as the servants are up.

The Bed.—To revert to the bedstead, its size and length are well worthy of consideration. Of course these may vary according to the fancy of the occupant; but, unless in exceptional cases, a bed should never be less than 6 ft. 6 in. in length for a grown person. A tall man may be made utterly miserable by a bed too short for him, while the extra inches make but little difference, even in a small room. The width must vary as the tenant likes; but a bedstead to contain 2 persons should certainly never be less than 5 ft. 6 in., and will be better at 6 ft. in width.

The feather bed is now acknowledged to be a mistake, and detrimental to health and strength. It is both enervating and luxurious; it heats and relaxes the spine, and enfeebles the whole frame. Notwithstanding that warmth is considered of the utmost necessity for an infant, feather beds are now never put in their cots or bassinettes, wool and hair mattresses being used instead. In larger bedsteads in private houses, spring and hair mattresses have almost completely taken the place of the feather bed. Nevertheless, it should by no means be tabooed in the case of the old and infirm, who, having lost the quick pulsation so necessary for the warmth of the body, and still more the pliability of their limbs, require the surrounding softness of the feather bed to afford them the caloric they so much need, and a greater support and more yielding substance than the mattress to afford them rest. For them the feather bed is highly useful and desirable; but for the vigorous and the young there is not this excuse, and it should never be allowed. Besides which it is expensive, and requires much care to protect it from the moth.

The advantages of chaff beds are many. Real chaff, not chopped straw, is used for them, and they are cheap, easily filled, and easily renewed; the latter should be done once a year. Delightfully soft, and at the same time supporting, they have not the stuffy heat of feathers, but are warmer than mattresses. A chaff pillow and bolster to those suffering from headaches are luxuries. In making the bed, chaff must be well shaken.

The horsehair mattress is now usually preferred, and is an agreeable substitute, being cooler, more comfortable, and far better than the feather bed from a sanitary point of view. Then there is the wool or flock mattress, much less expensive, and very commonly found in servants' rooms and in the dwellings of the poorer classes. It soon, however, wears flat, and even with care becomes lumpy after a short time, and moth is very likely to attack it. Even when mixed with hair, it makes an unsatisfactory bed, and loses much of the springiness which is so pleasant a sensation in one of superior horsehair. It must be owned, however, that not a little of the discomfort of wool mattresses is owing to the carelessness with which they are treated. If now and again they were unpicked, and the wool well carded, they could easily be restored to their first state and made clean and comfortable—for the tick which contains the wool is capable of being washed during the picking and carding process. French mattresses are irreproachable. It is the custom throughout France to renew the mattress once a year; and taking advantage of the summer months, they remove the tick covering, and pick, card, and pull the wool or hair until they have restored it to its original elasticity. The tick or covering is then replaced by a clean one, and very wholesome and pleasant is the

result. The wool mattress is not at any time so pleasant as one made of horsehair, nor is it so durable; and indeed it is well to bear in mind, that the most economical method in the end is invariably to purchase the best material.

The housemaid should have strict injunctions to beat, shake, and turn all mattresses each morning, and they should be brushed all over from to time, in order to prevent dust and flue from accumulating underneath the little leather stars through which the thread for ticking the mattress down is passed. To prevent the edge of the mattress from becoming soiled, it is an admirable plan to sew or tack a border of glazed holland all round the palliasse and mattresses; and a still better one is to have them put into large white covers, after the fashion of a pillow case, as these may be removed and washed at will, keeping the external tick always as good as new.

A straw palliasse is the first thing placed upon the laths of the bed: with a proper amount of care this should last a lifetime. The spring mattress takes the place of it in many instances, being an invention of modern times. It is much more expensive, but is held in high esteem by most housewives, being considered superior in comfort to any other kind. But some housewives still prefer the palliasse, declaring that, with two good hair mattresses placed above it, no bed can be superior to it in elasticity and comfort.

The spring bed has its faults; the wires underneath, not easily reached, collect dust, and they may get out of order, in which case they occasion no small discomfort. The best spring bed is that called the Sommier Tucker—on a new principle, without a covering, so that it can be entirely cleaned and dusted throughout. These beds are undoubtedly cool

and have the advantage of giving great elasticity to the bed, as indeed do all of their kind. A hair mattress is always placed on the springs; this, if well brushed and tended, ought to require only occasional renewal, perhaps once in 8-10 years.

The bolster is always of feathers; the pillows may be manufactured either of feathers or down, according to the fancy of the housewife. This is quite a matter of taste; and some like a hard, others a very soft pillow. The shape must also vary, according to the ideas of those most concerned. The oblong is the usual form, but a square cut one, after the French fashion, is a very comfortable style of pillow. The number of blankets must vary, according to each person's taste and the time of year, but 2 on an average, are enough for temperate weather. Great care should be taken in the purchasing of these: they should be of the best quality, and the wool free from a mixture of cotton. They should be washed at least once a year; but that ought to be enough, as they are impoverished by constant cleansing. For winter wear the Witney blanket is a delightful covering. Sheets may be made either of linen or cotton, and their textures are numerous; varying from the delicate fine linen of the wealthy and luxurious housewife, to the thick, coarse, unbleached cotton of the poorer classes. Linen is the most durable, and is generally used in preference to cotton, as being more pleasant to the touch. It is cooler, preferable for summer wear, and some people are rendered hot and uncomfortable when sleeping in cotton sheets at any time of the year. In winter however, much may be said in their favour. By using them, the chill which first contact with linen invariably gives the skin is avoided. For children's beds they are much the best, and can be bought of as fine a quality as the

housewife desires. Twilled cotton wears the longest, and is a very suitable material for servants' sheets. For keeping the feet warm there is no covering so pleasant as the eider down quilt, its lightness being its greatest recommendation. But each person has his or her idiosyncrasies on the matter of quilts, and the arrangement of the bed.

Making Beds.—Bear in mind, to begin with, that, unless a bed is properly aired every day, it certainly will not be a place of rest. Remember the instant you get up, to throw back all top clothes, and let the air come freely to the lower sheet. This will be a great help to the housemaid later on. A bed should always be stripped daily.

Every girl should, as a matter of course, learn to make her bed, and it would be very good for her if she had to do it regularly as part of the daily routine. Naturally, while little, she would require help and supervision; but after 14 she ought to make her bed, and be responsible for the general tidiness of her room, with no further interference than the sweeping and a little help in turning the mattresses. Rooms would be more daintily kept if girls were encouraged to see to such things and the housemaid would be saved a good deal of work.

The proper course in bed-making is as follows: The bolster and pillows should, after a slight shake, be laid aside; the mattress freed of the bedclothes, should be raised and allowed to stay in an arch for a few minutes, to let the air get to the palliasse or spring bed; then it should be turned head to foot, or side to side, to equalise the wear, and well kneaded and shaken, to prevent any hard lumps gathering. Next lay the binder blanket smoothly over it, then the sheet, allowing the piece at the top to roll the

bolster in, if you do not use a bolster-case, tuck sheet and blanket firmly in at foot and sides; shake and toss the bolster well, and see the feathers are evenly distributed, roll it up in the sheet-end left for that purpose, and tuck the ends in well under the mattress, straining the sheet evenly and carefully to prevent folds and creases. Then lay on the top sheet, tucking it in well first at the foot end. Draw it up straight and even to the top; repeat this process with the blankets and the quilt; fold blankets and sheets well in under the mattress, letting the sides of the quilt hang evenly and loose over them all; then turn back the top of the sheet ½ ft. over blankets and quilt and finally turn all together back just below the bolster; shake the pillows as you did the bolster, place them in position, and then when you have laid the eider down quilt in its place your bed is made. The mattress should be dusted daily, and once a week the whole bed should be brushed and overhauled.

Sleep. *Bedfellows.*—There is nothing that will so derange the nervous system of a person who is eliminative in nervous force as to lie all night in bed with another person who is absorbent in nervous force. The absorber will go to sleep and rest all night; while the eliminator will be tumbling and tossing, restless and nervous, and wake up in the morning fretful, peevish, fault-finding, and discouraged. No 2 persons, no matter who they are, should habitually sleep together. One will thrive and the other will lose. So say the doctors.

Length of Sleep.—It is manifestly impossible to lay down any universally applicable rule as to the number of hours which it is desirable to sleep. Probably no two persons require precisely the same

amount of slumber, and it is scarcely likely that any person needs the same length of sleep on all occasions. Sleep is the state in which the fires are, so to say, damped down, and the machinery has opportunity for cooling. The bow is, as it were, unstrung, and may recover its elasticity during the recurring periods of slumber. The great point is to secure what Bichât characterised as “general” sleep made up of particular sleeps. The whole body should be rested—so far as any avoidable demand on its energy is concerned—during sleep. If sleep be thorough, then a short spell will do more good than a much longer duration of sleep that is incomplete and imperfect, both in its nature and in its effects. Sleep is a distinctly natural function, and therefore, both as regards its induction and management, ought to be performed in conformity with natural laws. Practically, a man should sleep until he is refreshed. The mistake many persons make is in attempting to govern what must be a matter of instinct by volitional control. When we are weary we ought to sleep, and when we wake we should get up. There are no more vicious habits than adopting measures to “keep awake” or employing artifices, or, still worse, resorting to drugs and other devices to induce or prolong sleep. Dozing is the very demoralisation of the sleep function, and from this pernicious habit arises much of the so-called sleeplessness—more accurately wakefulness—from which multitudes suffer.

The secret of good sleep is (the physiological conditions of rest being established) to so work and weary the several parts of the organism as to give them a proportionally equal need of rest at the same moment. The cerebrum or mind organ, the sense organs, the muscular system, and the viscera should

be all ready to sleep together, and, so far as may be possible, they should be equally tired. To wake early and feel ready to rise, this fair and equal start of the sleepers should be secured; and the wise self-manager should not allow a drowsy feeling of the consciousness or weary senses, or an exhausted muscular system, to beguile him into the folly of going to sleep again when once his consciousness has been aroused. After a very few days of self-discipline the man who resolves not to "doze," that is, to allow some still sleepy part of his body to keep him in bed after his brain has once awakened, will find himself, without knowing how, "an early riser."

Wakefulness.—The difficulties about sleep and sleeplessness—apart from dreams—are almost uniformly fruits of a perverse refusal to comply with the laws of nature. Take, for example, the case of a man who cannot sleep at night, or rather who, having fallen asleep, wakes. If he is what is called strong-minded, he thinks, or perhaps reads, and falls asleep again. This being repeated lays the foundation of a habit of waking in the night and thinking or reading to induce sleep. Before long the thinking or reading fails to induce sleep, and habitual sleeplessness occurs, for which remedies are sought and mischief is done. If the wakeful man would only rouse himself on waking, and get up and do a full day's work, of any sort, and not doze during the day, when next the night came round his 16 or 20 hours of wakefulness would be rewarded by a sleep of 9-10 hours in length; and one or two of these manful struggles against a perverted tendency to abnormal habit would rectify the error and avert the calamity. The cure for sleeplessness must be natural, because sleep is a state of natural rhythmical function. You cannot tamper with the striking movement of a clock

without injuring it, and you cannot tamper with orderly recurrence of sleep without impairing the very constitution of things on which the orderly performance of the function depends. (*Lancet.*)

Nothing lowers the vital forces more than sleeplessness, which may generally be traced to one of four causations: (1) Mental worry; (2) a disordered stomach; (3) excessive muscular exertion; (4) functional or organic disease. Loss of sleep is, when rightly understood, one of Nature's premonitory warnings that some of her physical laws have been violated. When we are troubled with sleeplessness, it becomes requisite to discover the primary cause, and then to adopt suitable means for its removal. When insomnia (sleeplessness) arises from mental worry, it is indeed most difficult to remove. The best and perhaps only effectual plan under such circumstances is a spare diet, combined with plenty of outdoor exercise, thus to draw the blood from the brain; for it is as impossible for the brain to continue active without a due circulation of blood, as it is for an engine to move without steam.

When suffering from mental distress, a hot soap bath before retiring to rest is an invaluable agent for obtaining sleep, as by its means a more equable blood pressure becomes established, promoting a decrease of the heart's action and relaxation of the blood vessels. Many a sleepless night owes its origin to the body's temperature being unequal. In mental worry, the head is often hot and the feet cold, the blood being driven to the brain. The whole body should be well washed over with carbolic soap and sponged with *very* hot water. The blood then becomes diverted from the brain, owing to an adequate diffusion of circulation. Tea and coffee

should not be taken of an evening when persons suffer from insomnia, as they directly induce sleeplessness, being nervine stimulants. A sharp walk of about 20 minutes is also very serviceable before going to bed. (*Chambers Journal.*)

Sleeplessness is sometimes engendered by a disordered stomach. Whenever this organ is overloaded, its powers are disordered, and wakefulness or a restless night is its usual accompaniment. No food should be taken at least within 1 hour of bedtime. It cannot be too generally realised that the presence of undigested food in the stomach is one of the most prevailing causes of sleeplessness. (Dr. C. J. B. Williams.)

Persons suffering from either functional or organic disease are peculiarly liable to sleeplessness. When inability to sleep persistently occurs, and cannot be traced to any perverted mode of life or nutrition, there is good reason for surmising that some latent malady gives rise to so truly a distressing condition. Under these circumstances, instead of making bad worse, by swallowing deadly sleeping drugs, a scientific physician should be without delay consulted. Functional disorders of the stomach, liver, and heart are often the primary source of otherwise unaccountable wakefulness.

Recently, the dangerous and lamentable habit of promiscuously taking sleeping draughts has unfortunately become very prevalent, entailing misery and ill health to a terrible degree. Most persons addicted to this destructive practice erroneously think that it is better to take a sleeping draught than lie awake. A greater mistake could hardly exist. All opiates more or less occasion mischief, and even the state of stupefaction they

induce utterly fails to bring about that revitalisation resulting from natural sleep. The physiological effect of hypnotics, or sleeping draughts, upon the system is briefly as follows: They paralyse the nerve centres and disorder the stomach, rendering it unfit for its duties; they have life destroying properties in a low degree; the condition they produce is not sleep, but a counterfeit state of unconsciousness; and they directly poison the blood, consequent upon its carbonisation, resulting from their action. Of all hypnotics, chloral is by far the most deadly, and should never, under any circumstances, be taken except under medical supervision.

To epitomise what has already been said regarding wakefulness; its rational cure should be arrived at in each individual case by seeking out the cause, and then removing the morbid action, of which it is but a natural sequence. Lastly, sleeplessness under no circumstances should be neglected, as it acts disastrously both on the mental and physical forces.

Dr. Corning drops a few simple hints which may be of value. In the first place, he insists that people should have a regular time for going to sleep, and it should be as soon as can well be after sunset. People who sleep at any time, according to convenience, get less benefit from their sleep than others; getting sleep becomes more difficult; there is a tendency to nervous excitability and derangement; the repair of the system does not equal the waste. The more finely organised people are, the greater the difficulty and the danger from this cause. The first thing in order to sleep well is to go to bed at a regular hour, and make it as early as possible. The next thing is to exclude all worry and exciting subjects of thought from the mind some time before retiring. The body and mind must

be let down from the high-pressure strain before going to bed, so that nature can assert her rightful supremacy afterwards. Another point is, never to thwart the drowsy impulse when it comes at the regular time by special efforts to keep awake, for this drowsiness is the advance guard of healthy, restorative sleep. Sleep is a boon which must not be tampered with and put off, for if compelled to wait, it is never so perfect and restful as if taken in its own natural time and way. The right side is the best to sleep on, except in special cases of disease, and the position should be nearly horizontal. Finally, the evening meal should be composed of food most easily digested and assimilated, so that the stomach will have little hard work to do. A heavy, rich dinner taken in the evening is one of the things that murder sleep, says Dr. Corning; yet many people will say just the opposite, and find they sleep most readily on a full stomach; obviously this rule varies with surrounding conditions. Late suppers with exciting foods and stimulating drinks make really restorative sleep next to impossible. Narcotics are to be avoided, save as used in cases of disease by competent physicians. The proper time, according to Dr. Corning, to treat sleeplessness is in the day-time, and it must be treated by a wise and temperate method of living rather than by medicines.

Dr. Rogers asserts that invalid children with little disposition to sleep may be induced to do so by placing their cots due north and south, with the child's head to the north. There may be some truth in this popular superstition that the magnetic current induces sleep; but "due north" is not "magnetic north" by a long way.

Frank Buckland's remedy for insomnia is "onions—

simply common onions raw, but Spanish onions stewed will do." The oil contained in onions, he thinks, has highly soporific powers, and in his own case they never fail.

Great benefit is sometimes derived from the use of a hop pillow on special occasions.

Snoring.—This is caused by sleeping with an open mouth. It is just possible that by a resolute and determined effort of will the habit may be overcome; breathing by day through the nostrils only and pursing up the mouth firmly will help much towards it. It is well to urge upon all parents and nurses the absolute necessity of their training all young children to sleep with mouth shut. Never allow an infant to get the contrary habit. Watch it in early life, and close its lips when it is falling off to sleep, which can easily be done with thumb and finger, holding them together for a few seconds. The habit thus acquired wards off consumption in after-life. Coughs and colds contribute to the tendency to snore by stopping the nostrils wholly or partially, thus rendering breathing through the mouth imperative. In this case, clear your nose well at night, using snuff if necessary, and keep your mouth closed.

Supplementary Literature.

Lady Barker: 'The Bedroom and Boudoir.' London, 1878. 2*s.* 6*d.*

THE DRESSING-ROOM.

The Toilet.—Beyond the advice to avoid all cheap scented soaps, the following notes will be useful:—

The Hands.—A little ammonia or borax in the water you wash your hands with, and that water just lukewarm, will keep the skin clean and soft. A little oatmeal mixed with the water will whiten the hands. Many people use glycerine on their hands when they go to bed, wearing gloves to keep the bedding clean; but glycerine does not agree with every one. It makes some skins harsh and red. These people should rub their hands with dry oatmeal and wear gloves in bed. The best preparation for the hands at night is the white of egg with a grain of alum dissolved in it. Quacks have a fancy name for it; but all can make it and spread it over their hands, and the job is done. They also make the Roman toilet paste. It is merely white of egg, barley flour, and honey. They say it was used by the Romans in olden time. Any way, it is a first-rate thing; but it is a sticky sort of stuff to use, and does not do the work any better than oatmeal. The roughest and hardest hands can be made soft and white in a month's time by doctoring them a little at bed time, and all the tools you need are a nail brush, a bottle of ammonia, a box of powdered borax, and a little fine white sand to rub the stains off, or a cut of lemon, which will do even better. To soften hard water use Maignen's "anti-calcaire." If a man works at any mechanical business, or any which involves muscular exertion, the hands will always, do what he may to them, show signs thereof. But some men's hands show work much more than others. In some the epidermis does not seem to get callous and

horny, nor the muscles thicken nor swell much, while in others the least contact with tools makes the hand look as if the owner had worked as a day-labourer all his life. It seems to me that the thinner the skin, the more, as a rule, the hands show the effect of work. The only palliative is working in gloves, but this is a great nuisance. Sandballs or pumice soap will remove horniness. Now, as to the care of the nails. The great beauty of the nails is being long, the "quick" coming close to the extremity of the fingers, and the "half-moon" near the root being as large as possible. The best chance of cultivating these merits is, first, never to touch the quick with a penknife and to press back with a towel, on drying the hands, the skin which grows over the half-moon. This skin ought never to be cut, as that only stimulates and increases its growth. In some, however, it seems to show no tendency to do so. Nothing more than this can be done by art towards obtaining delicate finger nails, which, of course, are a great attraction in either sex; and, as they show personal cleanliness and niceness, are a laudable object of ambition.

Removing a Tight Ring.—A novel method of effecting the removal of a ring which has become constricted around a swollen finger, or in any other similar situation, consists simply in enveloping the afflicted member, after the manner of a circular bandage, in a length of flat indiarubber braid, such as ladies make use of to keep their hats on the top of their heads. This should be accurately applied—beginning, not close to the ring, but at the tip of the finger, and leaving no intervals between the successive turns, so as to exert its elastic force gradually and gently upon the tissues underneath. When the binding is complete, the hand should be

held aloft in a vertical position, and in a few minutes the swelling will be perceptibly diminished. The braid is then taken off and immediately applied in the same manner, when, after another 5 minutes, the finger, if again rapidly uncovered, will be small enough for the ring to be removed with ease. This plan need only be resorted to when wetting and soaping the fingers have failed.

The Hair.—Baldness comes chiefly of the artificial determination of blood to the head, and to the heat and perspiration thence arising. The result is a relaxed condition of the scalp and loss of hair. If the skin of the head be kept in a healthy state the hair will not fall off. To keep it healthy, the head-covering should be light and porous, the head kept clean by washings with water, and the hair cut short.

Ladies are often in trouble about their hair between the ages of 17-30. The hair may be unruly; it may come out; the scalp may be at fault, or the fat-glands act improperly. The hair may be too dry, and get brittle; this arises sometimes from the too free use of spirit washes of various kinds, or from dyes. The remedy is plain. The great complaint is that the hair gets thin. If there be any debility present the hair will mostly thin out. In these cases it is as well, for a time at any rate, to keep the hair rather shorter than usual, and to take general tonics. If there be indigestion present this must be remedied; if neuralgia, quinine should be taken. The most troublesome instances of loss of hair follow in the wake of violent attacks of neuralgia of the head, brought on by some mental excitement or depression. In these cases very much may be done by the use internally of remedies that give tone to the nervous system, such as nux vomica, bark, quinine,

and steel. After these have done good service, local applications, especially ammonia, are serviceable.

It is a fashion with very many young ladies to wear their hair in different styles, that necessitate frequent variations in its length. This is productive of much harm. At one time nature has to furnish a large, at other times a small crop, and lapses into a state of indifferent weakness in consequence. The one great cause of thinning of the hair is unquestionably general debility. In the majority of such cases 1 teaspoonful tincture of gentian, with about 10 drops diluted hydrochloric acid, should be taken twice a day in a wineglassful of water, and the scalp rubbed with some such as the following lotion night and morning: Distilled vinegar, 2 oz.; tincture of nux vomica, 3 dr.; tincture of capsicum, 7 dr.; otto of roses, 2 drops; and rosewater, 4 oz. It is almost identical with the nux vomica lotion of Corbyn and Co., Bond Street, the very best preparation of its kind.

The heated and crowded rooms at balls and parties are in some cases very injurious to a good state of the hair. The gas acts very hurtfully in those cases in which the hair and the scalp are very dry. The only plan here is to use to the scalp such a simple preventive as the glycerine lotion already recommended.

At no time is general thinning of the hair more marked or more frequent than after confinements, or in mothers who are nursing when in a somewhat debilitated condition. Here general tonics are needed. The following lotion, of a stimulating character, may be employed with great advantage at the same time: Distilled vinegar, 2 oz.; rum, 1 oz.; glycerine 2 dr.; tincture of lytta, 4 dr.; elder-flower

water, 4 oz.; or tincture of bark, 4 dr.; cherry-laurel water, 4 oz.; glycerine, 2 dr. It will be seen at once that the treatment of almost all cases of general thinning of the hair is not merely local but constitutional, and that we may pour and besmear tons of the most nutritious liquids and pastes, pomades, and the like upon an unfortunate head without doing much good. It is necessary that the machinery itself be given the power to work healthily and happily, and such power is given from the nutritive organs in the centre of our bodies, and by the vital fluid that flows in our veins and arteries.

As a remedy for dandriff, a French physician recommends that a solution of chloral hydrate, containing 5 per cent., should be applied to the scalp by means of a sponge every morning. The quantity employed should be ½-1 oz. A slight burning sensation and reddening of the scalp occurs, disappearing after 2 minutes. If the hair has fallen off in consequence of the dandriff it will be renewed in about a month.

A teaspoonful of ammonia, added to 1 qt. of water, is the best possible agent for cleansing hair brushes.

Shaving.—(*a*) Soreness from shaving may be cured by anointing the part with glycerine every night before going to bed, and dusting it with precipitated Fuller's-earth after shaving.

(*b*) Before you begin, study the grain of your beard in the glass, and do not shave against the grain. In some beards the grain runs from one ear to the other, instead of both shaping to the chin. In others the grain runs half way down the neck, and then half way up. Next wash very thoroughly before you shave in warm water, which will be lathering No. 1,

rubbing the beard with the lump of soap and fingers with good perseverance. Then commence lathering No. 2, using the brush with really hot water, aiming to produce as thick a soapy composition on the skin as possible to fill up the spaces between the hairs. Dipping the fingers in a little oil softens the beard, and prevents the lather drying so quick. You cannot lather too much. Strop your razor on your own hand, and preserve it from damp by wiping it only on chamois leather. Never lay a razor down open, and put it away safely in its case. If you will take extra trouble in the lathering you will get an easy shave. Hairdressers set razors better than cutlers.

Toothbrushes.—Tap the brush before using it, to see if you can jerk out any loose bristles. Tap the brush after using it, to shake out the water, and put it away fairly dry. Do not keep it closely shut up in a brush tray or dressing-bag bottle. Loose bristles may be found in a new brush in consequence of the wire having cut the bristles in half while drawing them into the hole, the knot being too full. Bristles may project beyond the level of the serge, the knot being too slack; clip them off; do not withdraw them, and thereby make the knot still more slack. Bristles will perish if brushes are put away thoroughly wet, and left for days to get thoroughly dry; after a time, even with the greatest care, this will happen. Brushes will smell offensively if closely shut up when wet; they will also become discoloured. Some people select a brush too soft for their requirement, and make it harder by pressure, breaking down the bristles, which they would not do if their brush was sufficiently hard.

Dressing-jackets and gowns.—Under the term "combing jacket," people often include, not only the

loose garment thrown over the shoulders while doing one's hair, but the warm, becoming jacket required by an invalid sitting up in bed. It is best to distinguish between the two, and to call the latter a camisole. The combing jacket should always be of some washing material. A three-quarters length loose-fitting jacket, with long open sleeves, is best. White muslins and percales in summer, and white flannels and serges in winter, are the most suitable materials; but ordinary prints, if the pattern be pretty, will answer every purpose of home wear. If meant for invalid wear, they should be made as coquettishly as possible—of pale-blue cashmere, with jabots of cream-coloured lace falling down the front.

A very showy little dressing gown, in which one can see servants, tradesmen, and even friends, is made as follows: Run up a crimson quilted sateen walking skirt. As this is to form part of the dressing gown, it must be cut up in front from hem to waist, and fastened together in the ordinary way with buttons. Then choose some pretty chintz or Pompadour material and make up a loose polonaise, separating into two side curtains in front, and bunched up behind. Fasten the band of your quilted petticoat securely to the waist of your polonaise, and you are then able to put on the whole arrangement as you would an ordinary dressing gown. If you make, in addition, a muslin mob cap, trimmed with crimson ribbon, you will present a marked contrast to the usual slovenliness of ordinary dressing gowns.

Undressing.—A certain amount of organic matter gets into the outer clothing, and, therefore, when these garments are taken off they should always be hung up in a current of air. It is a common practice to spread clothing upon the bed, to give additional

warmth during the night; but this practice is really very pernicious, as the woollen clothes get charged with organic matter, that slowly putrefies, and gives off not only a nasty fusty smell, but also dangerous poisonous fumes. Clothes should always be hung upon pegs.

Dress.—*Requirements of clothing.*—The object of clothing in cold climates is to retain and economise the heat which is constantly being produced within the body by vital processes, such as digestion, respiration, muscular exercise, and brain work. In hot countries the body must be covered as a protection against the rays of the sun. A secondary object of clothing among women is adornment.

All clothing should be as light as is consistent with sufficient warmth, and should be so fashioned as not to interfere with the proper movements of the body. Easy clothes are much warmer than tight ones, and, paradoxical though it seems, are cooler in warm weather. Admitting of more perfect ventilation, they do not so readily become moist with perspiration, and then cling unpleasantly to the wearer. Some materials permit heat to pass too quickly through them, and do not sufficiently impede evaporation. Of the various substances which only admit of gradual radiation or escape of heat from the body, wool of many different sorts is most generally suitable; and this is produced in such abundance and at such a price that all can obtain clothes made from it. In this we only copy the lower animals which, being exposed to great alternations of temperature, have a loose open fleece or hairy covering; so a loose, open-wove porous material makes the warmest garment. Hence knitted underclothing and fleecy or thick soft cloth for outer wear are cosiest, though it must be

admitted not in all cases the most durable. The warmth of the dress depends, too, on the way it is manufactured. It is an established fact that the weight of a material may be largely diminished without destroying any of its heat-preserving powers, and this may even in some cases be increased by manufacturing it very loosely, so as to contain a quantity of air in its meshes, stationary air being a bad conductor of heat. It is in this way that the silk and cotton-netted vests, with meshes ½ in. in diameter, which have been lately introduced, are so warm and sanitary, as, with the aid of the linen and other garments worn over them, a stationary layer of warm air is kept continually next the skin. In warm weather the clothing should be loose, so as to admit freely of currents of air passing over the surface of the body; in winter it should be moulded to the figure, but without being tight. Colour, too, has an influence. If equally thick, dark stuffs are warmest, because such absorb more of the sun's rays. Light coloured articles of dress reflect more of these rays, and hence are cooler. Grey presents a medium tint which suits our climate well.

Underclothing.—Underclothing should always be of wool, and every one ought, in this climate, and even in India, at all seasons, to wear woollen materials next the skin. This is even more imperative at the two extremes of life; in the cases of infants and aged persons, whose powers of reducing heat are less active than those of individuals in the vigour of middle life or of youth, and who are therefore less able to resist cold. In winter, either hand-knitted under-vests and drawers, or machine made, in imitation of hand-knitted, are the best. In summer these woollen under garments should on no account be entirely laid aside, but when the warm season has

fairly set in, here scarcely ever till June is well advanced, thinner and lighter ones, made of merino, should replace the thicker worn in winter and spring. If any article of underclothing is to be thrown off in summer, it should be the drawers, the under vest never during the day. Clothing worn in the daytime should invariably be put off at night, to be replaced by cotton or linen night dresses. Many wear under-flannels night and day, but the good effects which result from wearing flannel next the skin are thus much lessened. Flannel is worn by day when one is actively occupied (and the perspiration is thereby increased) to prevent becoming suddenly chilled. This is unnecessary, as a rule, during sleep. Flannel night dresses are preferable for children to linen or cotton. Children have less heat-producing powers, and are apt to throw off the bed-clothes. For them a night dress, made somewhat like a bathing costume, suits best, as it is then impossible that, though the bed-clothes are tossed off, the child can be entirely exposed. In old persons, and in those with strongly developed rheumatic tendencies, flannel is also the best material for night dresses; but in all these cases there must be special garments for day and night, each to be reserved for its proper time and use. At night the feet must be kept warm, warmed artificially if cold on going to bed, since, unless they are warm, it is not possible to sleep soundly—in many instances even to sleep at all.

Underclothing for use in the day should not extend farther down the arms than half-way to the elbow, for healthy men, as this permits much greater freedom of movement for the arms; in women and children it should reach from wrists to toes and be cut with a high neck. It should never be allowed to become too dirty before being changed, since this

renders it both unwholesome to the wearer and unpleasant to those around him. It gets loaded with perspiration and particles cast off from the skin, which, being animal products, tend readily to decompose. A week is the limit to the time they should be worn before being changed, and thus an endeavour should be made to have a sufficient number of underclothes to allow of this necessary frequency of change. There is no special virtue in coloured flannel. One often hears red or blue flannel, especially when new, credited with surprising qualities; but it has a doubtful advantage in that it does not show dirt so soon as white or cream-coloured, is assuredly not warmer, and brightly dyed wools are often the cause of eruptions on the skin.

Intermediate clothing.—The material of which this is made, varies in the two sexes. Whatever its component parts, it should not be tight. Were the strict underclothing, that worn next the skin, made warm enough, perhaps worn double, there would be less need for the multiplicity of skirts and heavy petticoats still used by some. One woollen under-garment is not so warm as two, even though the one be as thick and as heavy, as the two are separated by a layer of air, and so heat is less rapidly transmitted and lost. Something of what is known as the Bloomer, or rather the modern combination dress, might very well replace all but the gown proper. A very warm material, and not heavy, is found in chamois leather. An under-dress of this has really reason, besides elegance, on its side.

Much has already been said on the subject of stays and tight lacing, but with little real effect. Many women complain that they cannot walk uphill or upstairs without feeling short of breath. This is

largely due to the natural expansive movements of breathing being limited to a minimum by stays. Their effect, bad in all cases, is worst in growing girls, whose ribs are still yielding and elastic, and thus more easily compressed. Parents are now becoming somewhat more alive to the fact, that there must be for girls as well as boys a due proportion of free out-door exercise associated with the lessons at school. In too many girls the natural supports of the spine, the muscles of the back and chest, have partly been left undeveloped by want of exercise, partly been wasted and cramped by the pressure and the artificial support of hard, unyielding, and too often tightly laced stays. Hence it is that far more girls than boys have twisted spines. Girls would be as straight as boys are usually had they only fair treatment. The muscles of the back being weak, the girl sits habitually to one side or the other, and what was at first merely an awkward habit, becomes very soon a decided curvature. If something must be worn to support the figure, a softer and more pliant article than ordinary stays might easily be devised. The corset recommended and used at the Girton Ladies' College is reported to be such. Though the stays may be loose and easy, or absent altogether, dresses are often made or become too tight across the chest. When unbuttoned or unhooked, often a considerable space exists between the buttons and the button-holes, when the shoulders are held only properly back. This should not be. Such dresses prevent the lungs from expanding in the movements of respiration, interfere with easy and full breathing, narrow the chest round the shoulders, and favour if they do not directly lead to, consumption. Dresses for grown up persons should be full across the chest, for growing girls specially so; and when first made they

ought to have enough cloth laid in to admit of ready enlargement, for a dress often becomes too small before it is worn out.

Here a few words are needed as to the place from which to hang the clothing—whether it should be supported from the shoulders or the hips (not waist). We heartily endorse Dr. Bernard Roth, when he says that Dr. Richardson is quite wrong in recommending that ladies' dresses should be made to hang from the shoulders, and not from the hips. Many cases of spinal lateral curvature may be attributed to hanging an excessive weight of clothing from the shoulders. Growing girls and weakly women have sufficient difficulty as it is in holding themselves erect while carrying the head, neck and trunk, and upper extremities, without unnecessarily dragging down the shoulders by the weight of the long and heavy skirts exacted by fashion. It is much more sensible and scientific to attach the skirts to bands round the pelvis, where only the solid hip bone is pressed upon. Another great objection to suspending the skirts from the shoulders is that the respiratory movements of the upper part of the chest are unavoidably impeded by this arrangement.

For similar reasons braces are not so beneficial as Dr. Richardson believes, even for men who are not over-strong, and who would stoop less and find their chests freer by wearing braceless trousers fitted with an elastic band round, but not above the hip bones. Who among us would do heavy work or exercise in braces and no belt? Every labourer and every athlete discards braces for a waistbelt when actively engaged. At the same time the belt must not compress the inside—the trousers should hang from the hip bones. There is an additional value in the

waistbelt, if it take the form of a woollen or silk sash, that it protects the viscera from sudden chills, and this is deemed of high importance in fever and cholera countries.

As to the question between trousers and knee-breeches, there can be no doubt that knee-breeches are on the whole more seemly and convenient than trousers. Certainly all callings which entail much physical exertion would profit by the change. In particular, this is true of labour in the open air. In this form of work especially, where there is frequent and prolonged movement of joint and muscle, the weight of surplus clothing soon occasions weariness, and the surroundings are not the most cleanly. The labourer if knee-breeched and gaitered would be disencumbered of as much heavy moleskin or corduroy as would otherwise fall below the knee, a part of his clothing would not then as now flap about the feet for no good purpose but to be soiled by the mire of his work, or in wet and cold weather to lead to illness by chilling or freezing on his legs. Gaiters of some close and not too heavy material might be worn over the stockings. They would be comparatively out of the way of dirt, would maintain warmth, would brace the muscles by equal and moderate pressure (a noteworthy consideration with men who are much on their feet), and if wetted might be easily removed and replaced by another pair. (*Lancet.*)

Though in summer cotton socks are cool and pleasant, when one can wear thin shoes, and there does not exist any necessity for walking a long distance, woollen stockings are actually much more suitable at all seasons. Woollen stockings woven of coarse yarn absorb the perspiration and preserve the

feet from blistering, and are cooler than cotton ones on a long walk. Tight garters are frequently worn below the knee by women. Garters in any position are bad, but if used they should be worn above the knee, as the two tendons to be felt at the back of the joint receive the pressure and act as a bridge to the veins which pass beneath. The garters as usually worn are a frequent cause of enlarged veins in the leg, and by interfering with the blood supply of the foot also favour the development of chilblains. Stocking suspenders bearing on the hips are far better.

Boots.—Boots and shoes must be easy, broad in the toes and sole generally, while the waist should have some degree of elasticity and not be absolutely rigid. High and narrow heels give an insecure hold of the ground, and throw the weight, which ought to be distributed over the sole, forward on the front part of the base of the toes. This unnatural position, besides rendering the risk of sprained ankles much greater, stretches the fibrous bands which bind the various and complicated bones of the instep into a beautiful arch, strong yet springy. The tough fibres yield, the foot flattens, elasticity and grace of movement disappear to a large extent, and aching pains are complained of. If we wish to walk elegantly, comfortably, far, and with ease, straight broad soles and low heels must be worn. Attention should constantly be paid to children's boots and shoes, so as to have them lengthened or renewed as soon as they become short. The foot elongates considerably in walking, so all boots should have a full ½ in. or more of spare length to permit of this. Women's boots and shoes are generally far too thin. Besides being worn thicker, the addition of an inner sole of cork covered with felt excludes damp from the

ground or pavement, and aids in keeping the feet warm. These soles should, however, be taken out and dried at night or when the boots are laid aside. Lacing boots are better than elastic side ones, though in some ways the latter are more convenient. Patent leather boots are only suitable for occasional wear; like galoshes, they do not allow the escape of perspiration, hence are unhealthy, and if worn constantly engender habitual cold feet.

Do not purchase boots the uppers of which are formed of leather possessing an artificial grain. This is easy to detect; the rollers from which the skins receive their impressions are of too even a pattern, and the imitation is struck deeper than the real. Good upper leathers should handle mellow; leather destitute of suppleness and soft silkiness, or that leaves a decided line whenever pressed into a crease, should, in all instances, be avoided. With regard to the soles of boots, great precautions should be used to see that they are of the thickness they seem to be. It has become a practice with cutting manufacturers to use an outer sole of extremely light substance, making up the deficiency by means of an extra inserted welt. By this plan a box is formed between the inner and outer sole, the hollowness of which is filled in with scraps of leather, cardboard, or any foreign substance that is easily procurable and is fitted for the purpose. When sole leather has been cut and affixed as soles, the distinguishing marks that characterise good and bad leather are hidden from sight, so that the means of detecting that which should be avoided are few, and difficult to point out to a tyro. Sole leather being placed to resist moisture, it should not be too porous; in other words, it should be close in its grain, and possessed of a full share of firmness. The firmness here spoken of is something

entirely distinct from brittleness. There can be solidity without brittleness, and this should be easily distinguished.

A boot should have a good and sufficient stiffener inserted at the heel to strengthen its back, and facilitate the getting of it on or off. This should be carefully inserted, and be shaped away so as to offer no resistance to the entrance of the foot. The top portion should be firmly secured to the back that it is meant to strengthen; so much so that there should be no possibility of its rucking down upon the insertion of the foot. It should be observed whether there is a superfluity of leather in the waist of the foot, that is, under the arch of the foot. The existence of such useless leather is a sure sign that the boot has been badly lasted, and that it has little or no spring in it, and that it will consequently give little or no support to the arch of the foot it covers. The buttonholes of a boot upper, if it have any, should be well and carefully stitched, and they will be found to wear much better if they are protected by the insertion of a cord. This cord sustains the drag or strain that the unprotected leather would otherwise have to bear. The channel is that portion of a hand-sewn boot in which the thread that attaches the outer sole to the welt lies hidden. Care should be taken by the purchaser to see that this channel is well and sufficiently closed over, otherwise it is easy to perceive that the sole has lost more than half its resisting power to damp or wet, and that the stitches will get soaked and speedily rot. The “seat” of a boot is that portion just above its heel. Look at this carefully. If it is likely to tread over by failing to resist the pressure it will be called upon to bear, do not by any means be persuaded to become the purchaser of boots with this defect. The reason why

the front part of the upper of a boot is cut in two portions is because that practice conduces to economy. In selecting a pair of boots great care should be taken to avoid those in which the join falls over the great-toe joint.

Some time ago a correspondent of *The Field* gave an excellent and simple method of treating the soles of boots to make them last as long as the "uppers." The plan was to apply to them when new as many coats of coachmaker's varnish as the leather would soak up. In varnishing the soles the following hints are of value, though, however roughly the operation is performed, they will become waterproof and durable:—(*a*) See that the soles are dry before using the varnish; also scrape off the black polish from the face of the heels; (*b*) thin the varnish according to circumstances; 1 tablespoonful turps to ½ pint varnish will usually be the right proportions; (*c*) place the boots, soles upwards, in a dry place, and give soles and heels 3 copious coats of varnish the first day, 2 the second day, and one coat each day after that until the leather will absorb no more; (*d*) do not miss a day, or the soles will harden and no more varnish will go into the leather; (*e*) 2 days after the last coat the boots should be worn, so that the soles may get shaped to the feet whilst moist. These directions may appear elaborate, but they are really very simple; and however badly the varnishing is done, the results will, to a certain extent, be good.

Ladies who have much walking are strongly advised to have kid leggings made at a bootmaker's to button on from the tops of their boots to their knees; they can then go out in wet, damp, or extremely cold weather with perfect impunity. For girls who walk to and fro to attend school, or for

those who are forced to go out in all weathers, the plan is a good one and well worthy of trial. The leggings are no weight, they are very warm, and will keep out damp and cold; whilst they are small enough to be carried about in a pocket, and put on or left off at a moment's notice; so that they need only be worn when extra protection is absolutely needed.

Squeaky boots may be cured by the injection of powdered French chalk through a perforation in the inner sole; the free use of the same substance between the soles when boots are being made will effectually prevent any trouble of this nature.

Gloves.—In winter, at least, woollen gloves should be worn, as best preserving the proper circulation of the blood in the hands, and lessening the chance of chilblains. In the warm seasons silk or cotton ones are preferable to kid.

Head-gear.—Were it possible to form a covering for men's heads which would admit both light and air in due proportions, a great problem would be solved, and baldness would be reduced to a minimum. Since hats are a necessity, they should be very light, pliant as far as may be, well ventilated, and with a soft band which will compress the arteries of the temple as little as possible. The hat, too, should only be worn when it cannot be laid aside—not constantly, or when in the house. Ventilation is best secured by having a slight space between the band and the hat proper in front and behind, the hat being close to the head at the sides, to avoid conveying the impression of being over large. In addition, there should be a hole in the crown for cold weather, and in the sides and crown in summer. As to women's bonnets, any advice

would be a mere waste of words.

Veils, especially those ornamented with spots, &c., have a bad effect on the eyes. Persistent mischief is done by the practice of binding a veil tightly round the face in such a way that not only is the sight obscured, but the eyes are mechanically irritated by the fabric clouding them.... Veils of to-day are semi-transparent eye-bandages, and must tend to disturb the vision, as well as to set up irritation in the eye-lids. (*Lancet.*)

Waterproofs.—It is highly important that the public should clearly understand the manner in which waterproof garments may prove injurious to health, and how any effect of this kind may be prevented. A mackintosh is perspiration-proof as well as rain-proof, and, consequently, when one is worn the perspiration, being unable to escape, accumulates in the clothes, and they become damp. Upon its removal, the evaporation of this fluid—in other words, the drying process—commences, with its attendant loss of heat and well-known risk of "chill." The retention of this heat, which would otherwise be gradually lost, makes the mackintosh invaluable during a long drive on a cold winter's day. The disadvantage of this garment is, not that it inflicts any injury while it is on; but that our clothes being damp, we may catch cold upon its removal, unless our dress be changed at the same time; and when the dampness is very decided this precaution should certainly be taken. Endeavour to avoid excessive perspiration by walking slowly when you have a mackintosh on, and do not wear it in hot weather except for driving. (Dr. P. Foster.)

How to Buy Clothes.—Low-priced materials do not wear so well as those for which a fair amount is paid;

but it is not in the power of every woman to purchase materials which are necessarily expensive. The woman of small means will do well to confine her purchases to some well-established shop, famed rather for the soundness of its goods than for their apparent cheapness.

Ladies' boots and shoes cannot be well made and of good materials for a little money; 21*s.* to 25*s.* for boots, 16*s.* to 18*s.* for walking shoes, suited for town wear, is about the lowest price for which a really good serviceable article can be obtained; but each of these will wear out three so-called cheap ones, and will look well to the last, after being twice soled. No boot or shoe will last if the servant is allowed to scrape the dirt off with a knife, put blacking on soft kid, or smear it over with some patent satin polish or peerless gloss. See to the cleaning of your boots and shoes yourself—that is, only have the dirt wiped off, and the kid well rubbed dry by the servant, and put on the polish yourself if it must be used. Evening shoes of a colour suitable for any dress can scarcely be had good for anything under 10*s.* 6*d.* or 12*s.* 6*d.*, but they will wear out several cheaper pairs, and look well to the last.

The greatest mistake is to be perpetually attempting to keep pace with "fashion." The best-dressed women are never "in the fashion," as it is represented in young ladies' journals. For economical dressing without dowdiness, the golden rule is to buy the best and soundest materials possible for your means, to keep to such quiet colours as will enable you to wear your dresses long without getting tired of them or tiring your friends; to buy a mantle, for instance, which is too good to need changing at the end of the year, but which is handsome enough to

wear two seasons, and to bear retrimming or altering the third.

Many ladies now make their own dresses, and make them well; but where this is not the case, it is cheaper in the long run to have a good material well made than to have it spoiled in the cut and made by an inferior workwoman. Many find it economical to have one good dress every year from a first-class dressmaker: this lasts and makes up again in many new forms, and serves as a model for making others less expensively, either by themselves or by a workwoman. A clever-handed woman can generally make up or trim her own hats and bonnets, and if she carries out the same system of only buying what is really good, and taking care of it, she will find it at the end of the year a really small item in her expenditure. Much depends also on keeping up the supply of underclothing by constant small additions, rather than by allowing them to wear out altogether, when a renewal of the whole stock will form a serious item. Gloves, again, are things which there is no cheapness in buying at a low price; 2 or even 3 of them will wear out before one pair bought at a good shop and at a fair price; by this means they cost far more, and always spoil the whole dress.

Persons of moderate means should as a rule, dress in black, or dark colours, as such are not conspicuous, and consequently do not tell their date as lighter articles do. In selecting a hat or bonnet, be sure to ascertain that the shape suits you, and that it fits your head comfortably. Do not indulge in feathers, still less in flowers, unless your means are such as to enable you to procure the best, as nothing is more vulgar than cheap finery. For a windy day there is nothing half so comfortable as a tightly-

fitting toque, but it must be neat and faultlessly made. A well-made toque is graceful, becoming, and comfortable, and, with a neat veil of spotted net closely adjusted over the face and fastened securely behind, will enable the wearer to brave the most stormy elements without fear of having her head-covering blown away or even misplaced. It is a great improvement, if a dark-coloured toque be worn, to stick a bright pin carelessly in front in a slanting direction, as though securing the top of the veil. To a youthful face it is always becoming, as it takes off the too sombre appearance and lightens up the general effect.

Jackets should not be worn quite tight, unless the figure is particularly good, and without this important "unless" Newmarkets should not be worn at all. Better be content with well-made ulsters, except in cases where the figure is slight and graceful, and the purse is long enough to admit of 7 or 8 sovereigns being paid for a tailor-made article. For travelling or walking there are few costumes more comfortable, nor any which look better on young slight figures, than dark green or brown cloth Newmarkets, with felt hats to correspond, and white or light coloured satin scarfs, with gold or pearl pins stuck neatly through. These coats cannot look well if worn over a dress. The following plan is good and extremely simple. Get your tailor, when measuring for your coat, to make you a perfectly close-fitting garment of the same coloured satin—made without ¼ in. of superfluous material—Princesse shaped, the long straight skirt just reaching a shade below the garment to be worn over it, and finished off at the tail with a tiny plaiting of satin, which, appearing from beneath the Newmarket, detracts from the manly appearance of this species of muffle. The

advantages are manifold; not having any *pouffes* behind, the set of the coat is not interfered with; being of a slippery nature the utmost care is experienced in putting on and taking off the covering, and should necessity or inclination call for a removal of the coat, a perfectly neat and becoming garment is visible underneath.

The most economical dress for everyday wear is a dark navy-blue serge, and for evening a good white silk. Morning dresses made with double-breasted bodices are the most becoming, and the warmest; for evening the square-cut bodice and tight elbow-sleeve are the most *distingué*. Bodices gathered back and front ("shirred") are very pretty, and suit slight figures well, but should never be worn except by such. Many ladies spoil the fit of their dresses in winter by wearing under-vests. This is a bad habit, as, if the vest be left off of an evening, a cold is sure to follow. It is an excellent plan to tack a piece of soft warm flannel around the back and shoulders of the bodice about midway from the neck, and properly shaped to the lining; this imparts a comfortable warmth, and, as a similar piece can be adjusted to the back of an evening bodice, the danger of cold is obviated.

For wearing around the throat with morning dress plain collars have rather a stiff appearance; tulle or lisse frillings toss immediately, and are unsatisfactory as well as expensive. It is a good plan to purchase a few yards of really good washing lace about 1½ in. deep; a few minutes will quill or plait it; it can then be cut into suitable lengths and tacked around the necks of dresses, being easily removed and renovated when soiled. A piece of soft black Spanish lace, folded loosely around the throat, close to the frilling

but below it, looks very well, especially if a natural or good artificial flower be worn amongst the folds. Another effective arrangement can be adopted thus: Buy 3 yd. scarf lace—a good kind, of course—trim the ends with quillings to match, place it around your neck, leaving nearly all the length in your right hand, the end lying upon the left shoulder, being about ½ yd. long. Wind the longer piece twice round the throat, in loose soft folds; and as you will still have 1½ yd. or more to spare, festoon it gracefully in front with the aid of a few concealed pins, and fasten a brooch or flower at the side.

Tan gloves are the best for wear. Long silk mittens are extremely pretty in the evening, and shorter ones midway to the elbow, look nice in the house with the half-long sleeves. To keep the feet warm, wear a pair of soft woollen stockings, with silk ones drawn over. This hint is invaluable to those who ride, as it is not unusual, on hunting days, to experience a severe chill, if riding a tired horse homeward at a slow pace after a hard day. One word about fur-lined cloaks. They seem to be a sort of muffle, quite unsuited for walking, and only fit to be worn as a wrap, in a vehicle, on a cold day. Apparently made for warmth, they let in every breath of chill air, unless held carefully across; and it is not easy thus to hold them, if one has an umbrella or a parcel to carry, or a muff to hold in the hands. Here is a valuable hint. Take the pattern of the sleeves of your Mother Hubbard cloak, and the precise measurement of the spot in which they are placed—copy them exactly, and insert them in the fur-lined mantle, binding the inner edges neatly with ribbon to prevent the fur, which is cut, from coming loose. Then remove the hood, place a neat full frilling of cashmere and satin around the neck, and a full bow, with long ends, at the back.

Next put 5 rows of gathers at the back of the waist, to which attach, on the inner side, a band of ½ in. black elastic, with a strong hook and eye. This, when fastened, draws the cloak close to the figure and gives it a becoming shape. The band is preferable to a ribbon-string, as it is more readily adjusted and can never get into a knot. In making the gathers, small fragments of the fur may pull with the thread and show on the outside; these should not be plucked at, but simply blackened over with a little ink. To utilise the hood for going out at night, or for variety to wear with the cloak by day, bind it nicely with black ribbon, leaving long ends for strings to tie in front. The materials required to effect this transformation are: ¾ yd. cashmere, 1 yd. black satin, 5 yd. ribbon for back and sleeve bows, and 3 yd. binding ribbon.

An important consideration is how to dress so as to suit individual peculiarities. Thus, a short stout figure should have perpendicular trimmings to her dress, the eye being thus carried to lines marking the height, not the breadth, of her person. A tall figure, on the contrary, may have bands of trimming or tucks running across the skirt; this reduces the apparent height. Stout people, be they tall or short, should remember that they require almost no trimmings or puffings. They look handsomely dressed in quite a plain garment, if it be well cut and rich in texture. Thin people, on the contrary, take any amount of trimming and puffing to give them a sufficiently clothed appearance. The first study in every case is what is becoming, not what is fashionable. The principal idea should be to attract attention to the wearer, not to the dress.

It is safer to dress rather older than younger than your age, it generally makes women past 30 look

younger to dress thus; but much depends on the colours used. It is easy to lay down rules of colour for decided brunettes or decided blondes, but much more difficult to fix rules for those who belong to neither class, and who compose the majority. It used to be an old rule with portrait painters that the colour of a woman's eyes ought to be repeated in some part of her head-dress. It is a much safer rule to repeat the colour of the hair in the dress. This is why fur is so often more becoming than anything else, it is often an exact colour of the hair. The only case in which matching the hair would not be suitable, is when the hair is unmistakably red. Then nothing but the quietest colours should be worn, with a good deal of white at the neck. Very dark shades of red and brown go best with it, but they must be chosen with the greatest discrimination. It is a safe axiom to lay down that all very bright colours should be kept away from the face; only the finest complexions can stand them in close proximity to the skin. The idea that pink is becoming to dark people is a mistake: only a very fair blonde can bear it. Maize is also most becoming to a fair skin, though it is also suitable, occasionally, to dark-haired people. Half-tints are the safest wear in the long run, and dark-coloured plushes, velvets, and satins, with their lovely reflection, are becoming to all. A slight knowledge of what are called "complimentary colours" in optics is useful, for it teaches the effect of certain colours on the skin. Thus bright blue makes the skin look yellow; mauve makes it look orange-tinted; bright yellow gives it an ashen-blue look; bright vermilion-red makes the skin look green. Thus it will be seen that half-tints will not be so mischievous in their effects. Many elderly ladies have a preference for violet or purple. Nothing could be

more unfortunate. As people get on in life, the skin assumes quite enough of a yellow tint, without adding to it by wearing its complimentary colour—purple. Transparent materials, such as lace or tulle, are the most becoming settings to old faces. For younger people, harmony in colour is everything. Brown may have points of yellow or paler brown; dark red, a carefully selected pink. If grey is worn, a little pale blue may be worn in the bonnet. Then gold ornaments look best with brown and red, silver ornaments with grey and blue. In combining materials for a dress, it will be found that too soft or too stiff materials are more difficult to drape gracefully than one of each kind. Silk and cashmere make a very good combination, and a cheap and effective imitation of these can be made in merino and good alpaca. Short people should have outdoor mantle and dress of the same colour, as a contrast in these takes away from their height. But they may wear with great advantage a pelerine, or long mantle, which comes to within 2 in. of the bottom of the skirt; in that case the dress does not much matter. The fashion of tight sleeves and cuffs is very unbecoming to the hands unless they are small. The cuff ought to measure the same as the hand across the knuckles; dressmakers generally only measure the wrist, which is quite a mistake, as it is often out of proportion to the hand. A frill at the wrist is always becoming to the hand, but not always becoming at the throat. Short necked, plump-faced people do not look well in frills round the throat. A piece of lace laid on flat is better for them. Thin, long-necked people, on the contrary, ought invariably to wear frills at neck and wrist. Belts are unbecoming to all waists over 25 in. Tippets and fur collarettes should not be worn by high-shouldered

people. The great secret of dressing well is to know what to avoid. To know where advantage can be taken of a good point is well, but to know how to hide a bad one is better. Frequently the best-dressed women we see are those whose own deft fingers have put the finishing touches to their toilettes.

Clothes for Foreign Boarding School.—(*a*) At Lausanne. Take 2 warm winter dresses (one for school, and one for church, &c.), 2 evening dresses, one light cashmere or beige dress, and 4 or 5 washing dresses. Two jackets (one for winter, and one for summer), a cloak or ulster, and a mackintosh. Much the same underclothing as one would take to an English school, with plenty of warm vests, &c., as the winter in Lausanne is colder than in England. Take a warm travelling rug, as sometimes in winter the "duvets" on the bed are not sufficient covering, and the rug will be very acceptable. July and August are the hottest months, but most people go to the mountains then. Take with you all in the way of clothes that you will require for the year, as dresses, hats, &c., are costly, and there is scarcely any choice there. Pack the things in 2 small basket trunks, rather than one large. Put such things as you will require immediately into one, and taking that with you, send the other and heavier one on by slow goods train. This will be found cheaper than taking all the luggage with you, as only 56 lb. of luggage is allowed free.

(*b*) In South Germany. For luggage, provide 2 leather-covered basket trunks and a black travelling bag, with necessaries for the voyage. If household linen has to be taken, pillow cases are best supplied at the school, being larger and different in shape from English ones; allow two large bath towels and a

clothes bag, in addition to what is required. For dress, 2 thick blanket serge costumes, in addition to 2 cashmere dresses, fur cloak, eiderdown skirt, 2 knitted skirts, princess petticoats, high necked, in thick stuff, for winter wear, Galatea or white for summer; 2 short jackets, one thick cloth; also a shawl, as the passages are very cold, and a wrap is required for leaving the schoolrooms, as these again are rather over heated; white dress and pretty lace aprons and frills, for evening wear, when the young ladies are required to sit in the *salons*. Painting requisites had better be taken, for they are expensive; no school books, beyond church service and dictionary; add a few simple articles as suitable birthday presents for school friends, as the girls are expected to give on these occasions to mistresses and boarders, and it is tax on a girl's pocket money. About 4 gingham housemaid dresses and 2 white cambric ones will be required for summer wear. Boots and furs are in comparison cheap in Germany. Seal fur caps are usual for winter wear.

Bathing and Swimming Dresses.—There are 3 main points to consider before deciding on the make of a bathing dress: (*a*) the place at which it is to be worn, whether an English or a Continental watering place; (*b*) whether the wearer swims or merely bathes; (*c*) whether the wearer is a child, a girl, or a middle-aged woman. The best materials for bathing dresses are summer serge, cashmere serge, alpaca, wool bège, and twill flannel; give preference to the first two, because they are soft, pliable, and light, do not cling objectionably to the figure when wet, and may be obtained in almost any colour. Alpaca is recommended for its lightness to swimmers especially, but both this material and wool bège can only be had in black and neutral tints; whilst twill

flannel can be bought in all colours, is very comfortable and warm, especially for children, and has only one drawback—that its woolliness prevents it from being allowed in most fresh-water swimming baths, and renders it, for this reason, an unwise investment for one who wishes to frequent baths on return to town.

The best way to make a swimming dress for use in England, to ensure comfort and ease, is to have a loose bodice to the waist fastened into a broad band, from which the drawers are suspended, the bodice fastening down the centre, the drawers on the left side. The combination style of garment, i.e., all one piece from the neck to the knees, has one great objection, viz., that any mishap with the buttons is very awkward when there is no skirt. This need never be feared when the bodice and drawers are made separately and fastened at the side, and the only way to avoid it in the combination style is to make the dress open to the waist and then have it cut straight across and down the side of the hips for 5-6 in., so that it can be buttoned up on to the waist-band. A dress intended for swimming only should be as simple as possible. It should not come over the knees, and not be trimmed with a large collar or elaborate sleeves. Deep white cotton fringe or Torchon lace will be found to give quite sufficient finish. 3 yds. of 24 in. material will be found ample to make a dress of this description for a girl about 20.

Where ladies bathe with gentlemen their dress must come below the knees, must have a skirt from the waist, and must have sleeves of some kind, and these, whether long or short, or however loose, are always uncomfortable for swimming, as they cling

and impede the movements of the arm, whilst the whole dress is made heavier by these additions. The only way to make such a dress more comfortable is in the first place to avoid making the skirt too heavy or too deep, and next to make the drawers longer than is really needed, and to fasten them in at the knee, so that the legs may be moved comfortably.

Children's bathing dresses are best made in the "combination" style, of bège or some warm material, for the shivering cold feeling some children get in the water when they are not able to swim is one of the chief causes of their dislike and fear of sea bathing. Bathing dresses for matrons may be made in almost any style, however elaborate or heavy. A very comfortable dress for ordinary wear in England may be made with drawers reaching either to the knee or ankle, and gathered in by a band of turkey red or material with which the dress is trimmed, running alternately in and out of inch-deep slips made for the purpose; the upper part being simply a long loose blouse made either with a yolk, sailor collar, gauging, or any other design at the neck, and fastened at the waist with a broad band, so as to leave the skirt loose to the knees. A dress made in this way will take about 5 yd. of 24 in. material. Another kind of bathing dress is made with combination bodice and drawers, with the addition of a deep cape plaited into the neck and reaching to the elbows, and a skirt from the waist. Colour and trimming are the chief points in the finish of a bathing dress. Only those who really have a good appearance should choose a brilliant colour like red, blue, pink, or yellow, charming as these colours are in the water.

To avoid looking conspicuous, have some neutral

tint or dark colour, and bright trimming. Black is particularly becoming for bathing costumes, as it shows up the whiteness of the skin, and it is convenient besides, because it can be trimmed with any colour or design.

Plain white canvas shoes laced with a colour to match the dress are perhaps the best; but straw or cork soles, with an upper piece of the same material as the dress, laced with broad strips of braid to match the trimming, are also good. The upper part should be cut from the pattern of a gentleman's slipper, fitted, sewn on to the sole, and pierced with 3 holes along each side. The braid is fastened each side of the holes nearest the toe, laced across into the others, and continued sandalwise up to the knee. It is useless to think of keeping the head dry, so caps should always be made to allow for wetting. One good plan is to take a plain straight piece of stuff like the dress, about ½ yd. long and ¼ yd. wide; place it straight round the head, and fasten or tie it underneath the hair at the back so as to leave the rest in loose folds. A cap the same shape as a brewer's is very pretty, placed on the head, with the point twisted once and fastened on the left side. When bathing, a Japanese parasol will prevent getting sunburnt. (E. M. B.)

Mourning.—The tendency of the day is towards shorter periods of mourning and deepening the mourning, so that half-mourning for aunts, cousins, &c., is almost abandoned, and only resorted to in longer periods of mourning. Crape is absolutely inadmissible with velvet, satin, lace, bright or glacé silks, embroidery, fringe, excepting the special "crape fringe," or, indeed, with anything but mourning silk, paramatta, merino, cashmere,

woollen barège or grenadine, or barathea. A widow's mourning is the deepest, and continued longest. For the first 12 months the dress and mantle must be of paramatta, the skirt of the dress covered with crape, put on in one piece to within an inch of the waist; sleeves tight to the arm, bodice entirely covered with crape, deep, tight-fitting lawn cuffs with broad hems, and deep lawn collar. The mantle or jacket, of the same material as the dress, is very heavily trimmed with crape. The widow's cap must be worn for a year, but not beyond the year. The bonnet is entirely of crape; it has a widow's cap tacked inside, and is worn with a crape veil with a deep hem. When the crape on the dress requires renewing, it must be put on precisely as at first until the first 9 months have expired, after which, if preferred, it may be put on in 2 deep tucks, with about 1 in. space between them. Crape cloth is permissible, and well adapted for a rough or walking dress for the country; it wears well, and is not very easily distinguishable from crape at a distance. After the expiration of the first year, "widow's silk" may be substituted for paramatta; but it must be heavily trimmed with crape. This is worn for 3 months, when the crape may be very sensibly lightened, and for the next 3 months jet passementerie and fringe may be used. At the end of the 6 months (18 months in all) crape may be left off, and plain black worn for 6 months; and 2 years complete the period of mourning. For the first year, while a widow wears her weeds, she can, of course, accept no invitations; and it is in the worst possible taste for her to be seen in any place of public resort. After the first year she can, if so disposed, gradually resume her place in society. It is usual for the pocket hankerchiefs to have broad black edges, and no jewellery of any kind, with the exception of jet, can

be worn.

The mourning of a parent for a child, or a child for a parent, is the next degree and lasts for 12 months. For the first 3, paramatta, merino, coburg, woollen grenadine, or some similar material heavily trimmed with crape, usually in 2 deep tucks, is worn; for the next 3, silk mourning, with less crape, the latter arranged more ornamentally in plaits, folds, or bouillonnés, is admissible. The crape bonnet may have jet upon it, and the veil may be of net, with a deep crape hem. Linen collars and cuffs cannot be worn with crape. Crèpe lisse frills are *de rigueur*. Sable or any other coloured fur must be left off; plain, untrimmed sealskin is admissible, but it never looks well in really deep mourning. After 6 months, crape may be left off, and plain black, with jet ornaments and black gloves, worn for 2 months. For the next 2, black dresses, with gold or silver, pearl or diamond ornaments, and grey gloves, sewn with black. After this, half-mourning—such as black dresses with white flowers or lace; white dresses, with black ribbons; or grey dresses, trimmed with black.

There is a very prevalent notion that red is a sort of mourning, and that red flowers or ribbons may be worn with black for slight mourning; but it is not in good taste. Only jet ornaments are permissible with crape; neither gold, silver, nor precious stones can be worn with it, neither can lace be in any way intermingled with it. This is a fact which seems to be very imperfectly comprehended. Society must be relinquished for 2 months, and it is in far better taste to avoid balls so long as crape is worn. For grandparents, the mourning is now only 6 months, 2 in silk and slight crape, 2 in black, and 2 in half-

mourning.

For brothers and sisters the mourning, is now usually 3-4 months. It is correct to wear crape tolerably deep for 2 months, and plain black for 2. For an uncle or aunt 6 weeks is the orthodox time, and crape is not required. Black is generally worn the whole time, for the first month with jet, afterwards with gold, silver, pearls or diamonds; no coloured stones. For a great uncle or aunt 5 weeks, 2 in black, 3 half-mourning. For a first cousin, a month, generally the whole time in black. It is not usual to wear mourning at all for a second cousin, but if done 3 weeks are sufficient. Relations by marriage are mourned for precisely in the same degree as real ones: thus a wife wears exactly the same mourning for her husband's relations as she would for her own. There are, however, exceptions. For instance, a lady would mourn for her uncle by marriage for 6 weeks if his wife (her aunt) were alive; but if she were dead the mourning for the uncle might be curtailed to a month. A few remarks may be made on "complimentary mourning." For instance, when a man has married a second time, his second wife must wear slight mourning for 3 months on the death of his first wife's parents, and for 6 weeks on the death of her brothers or sisters, if any intimacy has been kept up. This is not *de rigueur* like real mourning for absolute relatives, but it is good taste, and usual in society. So also it is usual for a mother, whose married son or daughter loses a parent-in-law, to wear black—of course without crape—for one month, and half-mourning for another.

There are some additional points of etiquette connected with mourning. Black-edged envelopes and paper must be used. The width known as "extra

broad" is the deepest that should ever be used, even by widows, the "double broad" being too much. Even for widows the simple "broad" is in better taste than either; "middle" is the proper width in mourning for parent or child; "narrow" for brothers or sisters; "Italian" for all other relatives. Visiting cards are only edged with black when crape is worn, so black-edged cards are not requisite for an uncle or aunt. The edges should be of the same width as that adopted for the paper. Cards returning thanks for the kind inquiries of those who have either called or sent to inquire, should not be sent out till the mourners feel equal to again receiving visitors; it is the accepted token of their being once more visible. Letters of condolence should be written on paper with a slight black edge, and offence should never be taken if they are left unanswered. Many people consider it correct to wear black on a first visit to a house of mourning, and though this is not absolutely necessary, it is certainly in better taste to avoid brilliant colours on such an occasion. (*The Queen*).

Travelling Dress.—(*a*) The fewer dresses to take for positive travelling, the better. A black silk, fashionably made, is almost indispensable. This should be accompanied by one or two stylish muslin fichus and lace collarettes to wear on any dress occasion, as it is tiresome not to be able to put in an appearance for lack of suitable attire. It is a good plan to have this silk made with a bodice separate from the skirt; and a white washing silk polonaise will be found very useful. For travelling nothing is so suitable as a light serge, and dark blue is the best colour. This should be made with a plain skirt and polonaise, and have a jacket also to wear when required; the plainer the better. Also take an alpaca costume, or one of a light woollen stuff, and 2 dark

blue linen ones; these are cool if the weather prove hot. But to ensure real comfort in travelling, the point is not the quantity of dress nor the kinds, but to have them in working and wearable condition. They should be arranged to loop up when required, and to fit well, &c. Thick kid gloves, and gloves with gauntlets, are necessary; and a waterproof petticoat, and one or two others. Always carry a waterproof dress in your wraps; perhaps a good ulster would best replace it; there never was so comfortable a garment for travelling. Plenty of rugs, shawls, and, above all, a fur boa are desirable. Bonnets are not necessary, and a felt hat is the best, with a good supply of veils, a gauze one particularly. Thick boots are essential, and for climbing, the new Hygeia boots of Marshall's are real comforts. All the dresses taken should be nearly if not quite new; travelling soon reduces a half-worn dress to shabbiness. Paper collars and cuffs are invaluable; they are as cheap as getting them washed, save an infinity of trouble, and are sold in compact boxes taking little room. If it is possible, pack in portable luggage; it will be found a great comfort, for thereby many wearisome waiting hours are saved at foreign railway stations. A Gladstone bag, or one of the portable portmanteaus, holds almost all you require, with a travelling bag and wraps.

(*b*) For a rough travelling dress select a dark blue bège or thin serge, made with a short full plain skirt, and a rather long coat, shaped, but not tight fitting, so that, if required, a bodice could be worn underneath. For out-of-the-way travelling have the skirt put into a very deep band, to fit tightly over the hips, and the full gathers put into that; it will be found lighter, more becoming, and better for the appearance of both skirt and jacket. The band is of

the same material. The bodice is made like a skirt, full and tolerably loose, with straight neckband and coat sleeves, over which are turned black lace, first tacked inside, turned over, and lightly tacked down. Have a scarf of the dark blue material, 2½ yds. long, and a little over ½ yd. wide, and use this to pass round the hips and loop behind over the skirt band when you stop for any length of time and have to take off your coat. This scarf gives at once a smart look to the otherwise plain skirt. It is also useful in passing round the neck in cold day or night travelling, and when not used rolls up into a small compass, and goes in the wraps. The dark blue coat and scarf look well over a stout holland plaited skirt (which is useful with a plaited bodice and band for hot days). A soft hat with prominent brim, and dark blue veil, should accompany the costume. Also have a thin tweed of some dark grey colour, either made in the same way, or with a plaited skirt, up to the hips, and a Norfolk jacket, with band or a coat or a polonaise. Always have pieces of black lace to tack into your travelling dress at throat and wrist, and take a white piece, for wearing at any smart place. If the band of the dress is high round the throat, no collar or lisse is necessary, only tack the lace inside, turn it over, and tack it again lightly to keep it down in place; the same at the wrists. Never take white petticoats for rough travelling; a striped coloured one is best. Take black lace neck scarf and gauze veils.

Lawn Tennis Dress.—Short costumes made with bibs, Marguerite sleeves (viz., slashed at the elbow and shoulders), and the tunic *à la Laveuse*, appear to be a good style of dress for lawn tennis. A white serge made thus, with red trimmings, is very effective; or a light fawn tone, trimmed with bands

of forget-me-nots, embroidered on a darker shade; or a rough holland dress with no tunic, but made with a yoke, bands, and large pockets, like an artist's blouse, embroidered in outline.

Dress for the Moors.—A thick homespun or tweed costume is the most serviceable for the moors. A leather petticoat is a comfort in bad weather. Doré has introduced a good costume for ladies who go in for sport, viz., gaiters and knickerbockers, buttoned at the knee, of the same stuff as the skirt, which is kilt plaited, and is capable of being made long or short. A long scarf can be easily arranged as a tunic, or be wrapped about the shoulders, and a jacket, waistcoat, and cap of the same stuff make it complete. An ulster with a cape and hood attached is comfortable, so is a Norfolk blouse. In Scotland, ladies wear in the daytime little else but these tailor-made suits. In the matter of boots, black leather Balmoral walking boots are best, with thick soles, and for bad weather, the gaiter boot, which comes half-way up the leg. Phipps and Barker, of Cadogan-house, Sloane Street, have brought out a water-tight Highland boot, to button or lace. The latter give support, are a good fit, and durable, keeping their shape well, and are light in weight—a great point where there is much walking. Marshall and Burt of Oxford Street, have besides a Balmoral boot with double or clump soles, some of porpoise hide, which will stand hard walking, and are excellent hygienic boots, preserving the foot in a natural position, with low heels and projecting soles.

Dress for Walking Tour.—Procure from Marshall and Burt, 192, Oxford Street, a pair of Hygeia boots, which keep the feet warm and dry, do not unduly press, and are not heavy. They are waterproof, and

should be well greased from time to time. Wear light woollen stockings, well soaped, and a thin tweed dress, plain skirt, and Norfolk blouse, with an outer jacket when required and an all-round mackintosh; a felt hat, bound with corded ribbon, a rosette at the side; loose gauntlet gloves. The mackintosh should be accompanied by a tarpaulin cover for the hat. An umbrella stick is a comfort.

Dress for Yacht.—(*a*) A black lace or canvas and silk dress is sufficient. Liberty's soft silks are invaluable, as they take up little room, and pack well. Take a dark pretty dressing gown for your bath in the morning, and avoid making an object of yourself then by going attired in a waterproof, with your head tied up in a shawl, as is the fashion of many ladies. (*b*) For a month's cruise on a public yacht a lady who has been a similar voyage advises dress as follows: One light weight serge or cloth dress, one tweed ditto, a jacket that can be worn with both, an ulster, and plenty of wraps, a rug, a high short dress for dinner, a dress for excursions, one lace dress. A useful and nearly essential item is a short dark silk tea gown, which can be easily slipped on for dinner in rough weather; for instance, a black Merveilleux satin, trimmed with black lace and red ribbons. Other necessaries are pockets to nail against the cabin walls, plenty of Florida water or eau de Cologne. A large supply of under-linen, to enable you to be independent of the laundress during the hurried washing in port, is a great advantage.

Outfits for Abroad. Australia.—A necessary outfit for a voyage to Australia is as follows, whether you go by the Cape or Canal, bearing in mind the southern seas are cold, and that 10 days by the Cape route sees you through the tropics. A regulation sized

box is only allowed in the cabin, together with a bonnet box; but luggage marked “Wanted on the voyage” is brought up from the hold once a week. Old underclothing is best to wear, for when soiled it is dropped overboard, and saves washing. On arrival in a country where labour is dear, and also as the trunks from the hold are packed and unpacked in public, it is pleasanter to be rid of soiled linen. Take 7-8 weeks’ change of everything. The voyage is 6 weeks as a rule. Friends will supply you with old underclothing, if you ask. Take 4 doz. paper cuffs and collars; you will need a clean one a day. Buy a few dozen cheap pocket handkerchiefs to ensure having enough. No washing whatever is done on board. At Ceylon, the natives come out for clothes, but as steamers’ sailings are irregular, you may leave your belongings behind. Frilling becomes limp, but have a few dozen yards to freshen up a dress. Have warm flannels; a pair of mittens are a boon, keeping your hands cosy while your fingers are free to work. Tennis shoes are not elegant, but comfortable, and, when decks are slippery with wet, they are invaluable. Avoid high heels, for the ship’s rolling is apt to make walking unsafe. Have besides tennis shoes a pair of bath slippers, house shoes, a pair of strong walking shoes, and a pair of boots to land in. Remember a wave may sneak in at an open port and invade a cabin, so have bags for boots hung high, bags for brush, comb, scent, and all toilette requisites, and a few pouches for ribbons, cuffs, handkerchiefs, to avoid opening your box when you want any trifle; a hanging pincushion, and a few large linen bags to slip things into when rough, for it is objectionable to wake and find your clothes about the floor. The stewards act as housemaids, come in to shut ports, clean out cabins, carry water, so a lady

should have things specially tidy. Have a hat capable of keeping firmly on the head in wind, a shady one for the tropics, though it really matters little, the decks being covered with awning, and keep your hat for landing strapped up high above invading waves in the cabin. A cabin's furniture consists only of bunks, basin stands, mirrors, a shelf for the water bottle, each berth a rack, such as are in railway carriages, useful to hold books, workbox, &c.; but do not in calm weather pile it too high, for when you run into rolling seas of course the things slip out. You may be in a cabin with three other ladies; space is very limited, trunks are thrust below the bunks, and at most two pegs apiece allowed to hang dresses on; but for the bags mentioned, take a few thin tacks and put them up yourself. Only keep out the dress you wish to change and your dressing gown, for, if you hang out more, the cabin, even if you have the luck to have only one fellow-traveller in with you, gets stuffed up, and you blush for its untidiness when you learn the captain inspects every cabin at 11 A.M. daily.

Take a few pairs of old scissors, a few penny button hooks, and hang one of each up by the mirror to have handy, and keep the others stored in your cabin box for fear of losing or mislaying the two out for use. Take plenty of pins and thread and needles, and an extra pair or two of stay busks. To break one in mid ocean is a misfortune, unless you have others get-at-able to remedy the evil.

Take some cotton and also some woollen stockings, and do not forget a hot water bottle. The bed-room steward will readily get it filled, and, if it is cold, the bottle will be a great comfort. Have an ulster, a muffler, and a light shawl: the last to throw

over your head, mantilla fashion, when sitting on deck during the delightful balmy evenings one enjoys on board. Have one warm dress, one cotton, either one grenadine made with high bodice, or an old silk for dinner. You hardly *dress* for that meal, but change your gown to a slightly smarter one, and a little addition of lace to any old afternoon costume is sufficient: also take a few flowers to vary it. On the tray of your cabin box keep another smarter dress to land in and to wear on Sundays, for a little variety is grateful to all. Let the warm dress and your dinner one, if you are economical, be old, and keep your new toilettes for Australia. Dresses get stickily salt on board, lose their freshness, and, as most folks wear their second best when travelling by sea, as long as you are tidy, neat, and clean, you need not trouble about a little shabbiness. One print, even by the Red Sea route, is quite sufficient, unless you are a very careless person, and cannot keep a cotton dress clean for two weeks. Put a silk costume in at the top of "Wanted on voyage trunk" to get out easily, for perhaps you may wish to be extra smart at a ship concert; and have packed on the top of that box also a cotton, for fear of soiling the other, your relays of underlinen, a few extra books and music to relieve the monotony of the ones in your cabin. Do not take more than what I have advised, or you will hamper up what is your bedroom for the time, and make it a sore vexation to your steward and uncomfortable for yourself. When you see the officers in white flannel trousers, take out your cotton dress. When they put on white hats and duck suits, lay away your thick dress and your ulster and rug. When you see them back to navy-blue attire, put away your cotton dress and take to your warm clothes. You can rely on the official sense to guide you aright. Have a neat

dressing gown, as you may have to pass the saloon on your way to a bath. Do not forget a supply of hairpins. You will find a thick dress, a print, an evening dress all-sufficient, with underclothes and collars for a week or two, hats, boots, &c. These will fill up your cabin box; but keep room for a few books, although there is a library on board. You can lend your stock, and vary the ship's literature. Of course, take a piece of work, but you will not do much after the first week. When you know your fellow-passengers, you will help them all day at doing nothing, for sea voyaging is idle and frivolous. Take music if you play, and have a store in the "wanted" trunk, for your fellow-passengers will get tired of your songs if you have but 3 or 4. If you paint, have your materials handy to illuminate a concert programme, for you must try and be ready to assist amusements, unless you wish to be killed with *ennui*. Take some tea (though on the Orient line they supply it freely), and a teapot, and a few cups. You can get hot water from your steward, and do not need a kettle. Afternoon tea-parties on board are pleasant as on shore, and it is well to have the means of entertaining. If you are to be at sea on Christmas Day take some cards. Your neighbours will thank you when they find a greeting on their breakfast plates. Take some mimic note paper and envelopes for invitations to tea, &c., as all these little odds and ends to amuse others are sure to help you to enjoy seafaring.

Fancy balls are a common form of fun on Australian steamers; and, if you are taking a fancy dress out with you, put it in the "Wanted box," and, if not, exert your ingenuity. Take some games with you in your cabin box—cards, chess, backgammon, dominoes. You can get them all in mimic sets.

If you are going to Australia to live, look well on the map as to your future colony, and, as you are near the equator, prepare for heat. Western and South Australia, Queensland, and New South Wales, are all very warm, especially during 3 months in the year; but also bear in mind in the bush servants are scarce, and do not have your cotton dresses too elaborate, for fear you may have to wash them yourself. There is winter too in Australia, and at first you think it like our May at home, but after a year you will suffer from the least cold keenly, so have some warm clothes, and over all the colonies it is dusty, therefore do not forget a dust cloak. Victoria is not quite so warm, nor Tasmania, as the northern colonies. The South Island of New Zealand is like home, with a vastly improved climate, and clothes for there identical with England. North Island is hotter, but never so warm as Australia. If you are going to live in a town you will need the same sort and amount of dress as in England. Clothes are not much dearer. Frilling, gloves, and small items are, however, more expensive, and bear in mind people in the antipodes are very smartly dressed, so have a few well-made things in preference to many dowdy ones. If you are to live on a station, or in the bush, as the country is called, you will not need evening or garden-party dresses—only a couple of cotton dresses, a grey summer bège, a warm dress of tweed, a commoner one for the morning and a better one for afternoon wear, a habit, ulster, dust cloak, garden hat, and gloves; a hat to drive to the township in, and one thoroughly good costume, bonnet, and mantle, all well-made of some handsome material for a marriage, a race meeting, the show, or any such event as comes to relieve bush life's quiet routine.

India.—To have a reasonable outfit, and often

renewed, is far better economy, and is also much pleasanter, than taking very many things at once, as in this way one does not so soon tire of one's wardrobe; and new things can be had out from home of a later fashion. For a life to be spent in the plains of India, 2 doz. of each article of underlinen would be an ample allowance; while for those who can go to the cool climate of the hills 1½ doz. would be quite sufficient. A good supply of dark-coloured finest cotton stockings (say 1½ doz.), and ½ doz. black spun silk stockings, should also be taken. ½ doz. fine flannel jerseys (flannel is by far the safest wear in India) and 4 flannel petticoats would be a very fair quantity, and 1 doz. white petticoats, with one or two pretty-coloured warmer ones for the cold weather, will always be found quite sufficient. Much embroidery or lace on one's clothes is a great mistake, as the "dhobees" (washermen) beat them to pieces in no time. Also ½ doz. high petticoat bodices, and ½ doz. embroidered low ones to wear with thin dresses. Avoid having the petticoat skirt and bodice in one, as very often in the hot weather one is glad to change the bodice when it is quite unnecessary to change the skirt also; so little walking is done in the hot weather that the skirt remains clean for some time, and, as the "dhobees" beat one's clothes most unmercifully in washing them, it is a consideration not to have them undergo this process oftener than is necessary. Collars, cuffs, ties, neck ribbons, pocket handkerchiefs, should be taken *ad lib.*, also one or two pretty fichus, with materials to make others from them, as these things are very expensive in India, and do not spoil by keeping if put carefully away and looked at occasionally. It is much better to have boots and shoes out as you require them. The best plan is to have 2 pairs pretty walking boots and 3 or

4 of house shoes out at a time. The Chinamen in Calcutta can copy boots and shoes remarkably well, and even up-country “maachees” (shoemakers) can make them up pretty well from a pattern; but the leather never lasts long, nor do they keep in shape. In the hills it is absolutely necessary to have good strong English walking boots, with very thick soles and moderately high heels—not very high ones, as they are apt to make one fall, and the sharp stones and rocky ground grind them down at once. To have a number of dresses is a great mistake; a handsome, well-made black silk is indispensable, and the most useful thing a lady can have; this, with a pretty visiting dress and (say) 2 cashmeres, or some such material, is ample for the cold weather. These, with the exception of the visiting dress, should be a walking length. A warm coat is also necessary, as it is very cold for about 2½ months; a thick “burruk” coat, trimmed with fur, is not at all too much, and very comfortable wear; also a lighter coat for the hills, or when the mornings and evenings are chilly. A well-fitting ulster is a necessity for the hills, and if waterproof so much the better, but it should be made of a light material. Of course, some people go out much more than others do; but a handsome dinner dress (a black satin, with jet trimmings, &c., is very useful), one for small parties, and 2 pretty ball dresses, will be ample for any one. Of course to those who live in Calcutta or Simla more dresses would be necessary, as there is so much more gaiety there; but in up-country stations this is a very good allowance, and more than the quantity named would only get old-fashioned and be very much in the way. Shoes to match, and silk stockings also, should be taken. Some sort of opera cloak is necessary; a black cashmere dolman, lined with thin silk, is the nicest, and, if sent

to Delhi to be embroidered in gold or silver thread, or in coloured silk in what is called the “enamel” or the “peacock” pattern (both very handsome), it would be lovely, always look well, and last for years. This embroidery is not very expensive. Silk gloves for India are the nicest things that were ever invented, as they do not spot and spoil as kid, nor get hard in rainy weather; it is best to have a good many pairs, as they wear out so soon, and they are very dear out here. Bonnets are very seldom worn, but some ladies like them for visiting and for going to church. Hats are much pleasanter wear, and, as a rule, more becoming; 2 pretty hats are ample, with a plainer one with no feathers (except perhaps a wing or a hackle one) for dull rainy days, or for travelling. Hats and bonnets can so easily come out by P. and O. parcel post that it is much nicer to have a few, and have them yearly, when one gets the latest fashions. A well-made habit should of course be taken; a good native “dirzi” (tailor) could easily copy in cloth or any thinner material for daily wear, as habits do not last long, and are such expensive things to buy. For the hills, the fewer clothes one has the better, as fish, insects, and the damp destroy them; and in the rains nothing very good should be worn. A pretty cashmere dress is by far the most useful. For hot weather in the plains, it is nice to have a foulard silk or Cora silk dress for the rains, as muslins and such things get very limp there and look untidy. Coloured prints and muslins are very pretty and tempting, but they are not the best wear for India, as, with the constant washing and the heat, they soon lose their colours and get washed out, and look far from fresh and nice; thin white materials (not piqués and such stuffs, which are the hottest wear possible), prettily made, with coloured ribbon bows down the front,

&c., are the nicest. In the house, pretty morning dresses made like tea gowns are by far the most comfortable wear; it is a good plan to bring one pretty, nicely fitting one out, and also to bring the materials and trimmings for ½ doz. others, as then the native tailors can copy them beautifully at a small cost. These dresses, worn with different coloured ribbons, always look nice for the house, and are so much cooler than tight-fitting dresses. Pretty self-coloured muslins, worn over batiste slips of the same colour, are always nice for garden parties and visiting; and now hats are so often made of the same material as the dress, it is easy to have a variety of them, and they always look dressy, and are very light. Cottons, tapes, needles, buttons of all sorts, elastic, ribbon, wire, &c., should be taken in large quantities; but keep them under lock and key, or they disappear most mysteriously. A good supply of paper and envelopes also is necessary. Rooms in India are so bare and colourless, that one wants many bright little things to make them look home-like and cheerful. No one would regret bringing out some pretty inexpensive chromo-lithographs in nice frames; they need not all be framed (though all should be mounted), as the “mistris” (carpenters) can make the Oxford frames very neatly and cheaply from a pattern, and glasses can also be got out here in some places; these always make the room look pretty, and hide the walls which, not being papered, but only coloured plaster, are by no means the prettiest part of an Indian drawing room. Also bring a good many yards of coloured cretonne; black cretonne, with gold-coloured pattern on it, is nice, and does not fade as some of those with light grounds do; but it is well to include a few yards of different patterns of cretonne, as it is pretty to have

the chairs not all the same, and makes the room look brighter. Over-mantels would be charming and uncommon; brackets for the walls, and pretty china wall baskets, also wall mirrors, would be found great additions to the look of a room, and would always be eagerly bought up if one was leaving a station, as it is almost impossible to get such things, except perhaps in Calcutta, where they are fearfully dear. By all means take glass and crockery out; it is twice or three times as expensive in Calcutta as at home; and if one trusts to station auctions, one is sure to get imperfect and shabby sets of things, and very often has to pay heavily for them. Electro-plate must, of course, be taken, also knives; and any pretty little ornament one can find for the table is nice, and makes it look bright. A few pudding moulds and any small things of this kind are very useful, and not always to be picked up up-country. Window curtains should certainly be taken, especially écru-coloured ones, but if white are preferred, it is a good plan to have several pieces of pretty pale-coloured cheap tarlatans to line them with; this always looks nice. Curtain cords should also be taken; some dozens of pretty brass-headed nails would be found very useful; also some yards of different coloured Utrecht velvets to cover small tables, and fringe to edge them with; by going to Maple's or some such shop during the selling-off time remnants of these things can be got at a very moderate price. A few pretty-coloured tablecloths should certainly be included. For those who care for fancy work, all the materials must be taken, as it is not always easy or possible to get them in India, and even when one can they are very expensive. Table linen, &c., must be taken, of course; at the various jails in India, and also in Dinapore, the natives make very fair towels, bath sheets,

tablecloths, &c., but they are not nearly as nice as English ones, nor do they last as long. As for having boxes out by steamer, there seems to be quite a risk in doing so now-a-days; it may be found that on arrival the tin has been neatly cut open, everything taken out, and the boxes filled up with straw and bricks, to make them weigh heavily. It is always most difficult to get any compensation from the ship's company, and is never done without endless correspondence and delay. It is safer to have things out by P. and O. parcel post, but they allow only small boxes, so but few things can come at a time; these parcels are under the charge of Government from the time they leave till the time they are delivered, so they are perfectly safe.

New Zealand.—In a lonely country district much toilette would not be required. In or near any of the principal towns there is a good deal of gaiety—small and large dances—constant tennis parties for about 7 months in the year, small dinners, luncheons, &c. Any clothes taken should be well made and fashionable, as very many of the ladies there now get their things from England every 6 weeks or so, from the best dressmakers in London. If a lady intends riding, a well cut habit should be taken. Very heavy furs, such as a sealskin jacket, are hardly required in the north island, down south it might be useful. More summer clothes than winter ones are wanted, as the summer season lasts long, although rarely if ever so hot as in London sometimes. It will be well to remember that life in New Zealand, except in one or two remote places, is simply English life, with a bright blue sky and pleasant climate. New Zealand is as large as Great Britain, so of course the climate varies with the situation, warmer in the north island, cooler in the south, although the extremes of heat

and cold are not nearly so great as from North of Scotland to the South of England. Of course the outfit for the voyage depends much on the proposed route, whether across America, or by the Suez line, or by direct steam, New Zealand line (easiest and most comfortable of all), or by sailing vessel, a route avoided now by all except those ordered a long sea voyage for their health. In almost any case there is both hot and cold weather. Old underlinen that you can throw away is best, as the sea air ruins good linen. A little change for dinner is needed, but elaborate dressing on the voyage is quite out of taste.

North America.—The outfit a young man requires depends upon the occupation he intends taking up. If he looks forward to employment in a town, he should take a supply of good clothing, such as a gentleman would wear at home, adding 2 or 3 quite cool suits for summer wear. All gentlemen's clothing, from hats to boots, from coats to vests, is inferior and very costly. Really superior cloth materials are not to be got at any price, nor are flannel shirts that will wash well. If the young man is going to a stock ranche, one good suit for winter, and another for summer, to wear on an occasional visit to town, are sufficient: he will never use them on the ranche, and stockmen's clothing here is reasonable in price, and made to stand such wear and tear as no one in England has any idea of, even with school-boys. A close fitting, very warm jacket, or extremely thick warm kind of jersey to go on, either of them, under stockman's jacket, would be invaluable. The rapid fall of temperature, in a few hours, from 70°-80° down to below freezing, accompanied by piercing wind, causes the cold to be felt intensely. The country has greatly changed during the past few years. In organised counties, carrying concealed

firearms is prohibited by law. Many do carry them, but they are always liable to have them seized, and to be fined $25 in addition. Some stockmen on the ranges carry six-shooters and Winchester rifles, which are much better for their need than any English rifle. Ammunition for most of the English rifles is not to be obtained. The American six-shooter is much cheaper, and more suitable than the English. For steady men, careful not to get mixed up with gamblers and the rowdy element, Texas is as safe as England. Those who do associate with such classes hold their lives at risk.

West Indies.—(*a*) The best time for going out to the West Indies is November, after the rains; our winter is their cool season; the hot weather begins towards the end of April. For the voyage take for the first half of the time a serge dress, warm hat, cloaks, wraps, indiarubber-soled shoes. No one dresses for dinner on board the mail packets. The cabins are small. A bag with many pockets to hold all the odds and ends, is a comfort. An overland trunk to go under the berth, a tin bonnet box, and a travelling bag for the cabin, and tin-lined or tin cases for the hold. For the latter half of the voyage, you want a large shady hat and dark cotton dresses, glauntlet gloves, and gauze veils. It is very hot in Kingston; you would wear the same as in summer here, not linen collars or cuffs, lace, which washes easily is best; flannel underclothing, large boots, shoes, and gloves, and a good-sized parasol. People who travel in the island find a solar topee a comfort. A riding habit of thin cloth is necessary, and a low hat, no one wears a high one. A large loose skirt to wear over your dress on the hills is a comfort when you go out to dinner, which you must do on horseback; a low black dress is desirable. There are several parties

in the course of the year, lawn-tennis parties, &c.

(*b*) Any old underlinen answers for the voyage, as one generally throws it overboard, as no washing can be done. Take to wear in Kingston nothing but prints and muslins, and a grey cashmere would be very useful. For large dinners have a couple of pretty satin dresses made, with lace sleeves; and for small dinners some cream muslins, trimmed with lace. As there are a good many balls, 3 dresses would be necessary. One bonnet would be sufficient, but you would want several hats (as light as possible). A white cashmere for tennis is always serviceable, and a habit of light material (in dark green or blue) indispensable. Stockings should be all thin and cool, and all underclothes made of linen or the finest calico. Gloves are easily spotted, so only take out gants de Suede and silk ones. The heat of Kingston during the day is very great, but the evenings are cool and enjoyable; society good (nearly all military and naval) and several old Jamaica families.

Fancy Dress.—The following selection of fancy dresses comprises most of the picturesque national costumes of Europe and the East, adapted for wear at Fancy Dress Balls, &c. There is a striking and distinctive character about the majority of these which places them far above the ordinary type of fancy dress, and it is a great pity they are not more generally adopted.

No. 1. Saxon Bride and Bridegroom of Transylvania.

No. 2. An Austrian woman.

Nos. 3 and 4. Dutch Ladies of the 17th century.

No. 5. Fisherwoman of the Zuider-zee. The petticoat or skirt is made of coarse brown or dark

blue frieze, and over it is worn an apron, sometimes red, sometimes green, with a bib of silk or linen, embroidered or interwoven with a large flower pattern, and pinned to the front of a sleeveless jacket, made of the same material as the petticoat, and fastened at the back with hooks and eyes. The skirt is of striped calico, visible in our illustration round the neck and from the shoulders to the elbows, from where to the wrist it is covered with a sort of over-sleeve of frieze. A close-fitting cap of coloured satin or linen encases the hair, as loose tresses are not allowed to float in the wind. This cap is ornamented over the forehead with a piece of gold or silver tinsel cloth.

No. 6. A Bulgarian woman.

No. 7. An Italian girl. The Italian woman chooses white for the principal colour of her dress, knowing from long experience that this is the most suitable colour for lessening the effects of the sun. For the same reason, she has been taught from early youth how to compose fanciful and becoming headdresses from linen scarves. An apron striped in many colours, and a bright border to her skirt, serve the purpose of producing the gay contrast she likes. Her sister in the East, where the climate is less genial and the temperature moves within extremes, needs heavier materials for her costume, and of darker shades, to bring it into accordance with the surroundings. To break the sombre tints, she employs embroidered stripes and squares on her silk bodices and linen under-skirts, as well as on her apron and over-skirt, both made of heavy woollen materials. A bright-coloured ribbon, a flower, or an adroitly draped scarf form her headdress. The effect south and east is the same—picturesqueness and absence of

conventionality, more or less the two chief attractions of all national costumes.



1. 2. 3. 4. *W. J. WELCH. PHOTO GRAVEUR 25 WELLINGTON S^T. STRAND, W.C.*



5. 6. 7. 8. *W. J. WELCH. PHOTO GRAVEUR 25 WELLINGTON S^T. STRAND, W.C.*

No. 8. A Jewish Lady, of Tetuawn. The dress is a fanciful combination of velvet, gold braid, and embroidery, with the gauze-like muslin of the Orient, rich in colours, and adorned with a gorgeous silk sash round the waist.

No. 9. Peasant maiden, of Donaueschingen, Black Forest. The bodice is made of black silk, festooned across the chest by blue or violet lace. The little cap, sitting close to the head, has a crescent-shaped opening at the back, through which the long tresses of hair escape. Two long ends of black ribbon fastened together complete the headdress. Short full snow-white chemise sleeves leave the arm bare in summer time. The petticoat is black and the stockings red.

No. 10. A Servian peasant woman.

No. 11. A Bulgarian peasant woman. The unmarried girls ornament their hair with wreaths of flowers, and on festive occasions wear rows of gold coins round their necks. As protection against the sun, the younger women wear on the head a white embroidered scarf, picturesquely draped. Married women deck themselves with tawdry bead jewellery, and wear a belt with large copper gilt buckles round their waist.

No. 12. A Peasant maiden of the Steinlach Valley. On the head is set a flat black cap, decked with floating ribbons. The dress consists of a stuff petticoat and scarlet bodice, the petticoat being made out of light or dark blue cloth, generally bordered with green bands, relieved by gold edging. The bodice is embroidered with gold down the back, and open in front over a handkerchief covering the bosom. The bodice is kept in place by cords, ribbons,

or silver chains laced backwards and forwards. A white apron (the matrons wear black), made of fine linen, embroidered at the bottom, completes the dress. A garnet necklace encircles the throat. The full petticoat reaches a little below the knee, showing the feet in buckled shoes. On Sundays a girdle of silk or velvet embellished with metal bosses is worn round the waist.

No. 13. Wallachian girl. The costume consists of a long linen chemise, elaborately embroidered on the shoulders and sleeves with black, red, or blue wools, lace ruffles hanging from the wrists. Round the waist the chemise is held together by a bright coloured scarf, to which a front and a back apron, of a striped woollen material, are attached, leaving the chemise visible at both sides. The ordinary headdress is a white or red handkerchief thrown over the hair and tied in a knot under the chin; but on Sundays a smart little cap, embroidered with gold or silver tinsel, covers, fez-like, the beautiful hair, which is carefully parted in the middle and adorned with bunches of flowers, gold-headed hairpins, and strings of coin jewellery. A necklace of coins is an essential feature.

No. 14. Chinaman. Flowered silk robe; blue jacket; red hat.

No. 15. Dame Trot. Short quilted skirt; tunic and bodice red, with laced stomacher; tall black hat.

No. 16. Little Grannies. Grey cashmere dresses; white caps.

No. 17. Russian Peasant. White dress trimmed with red embroidered bands and Russian lace; long white embroidered apron; beads round neck; gold embroidered Kroshnick headdress of black velvet.

No. 18. Tyrolean peasant. Full black knee

breeches; grey silk stockings; red blouse, with bretelles embroidered in yellow and gold; small bouquet at the waist; white Surah shirt, with wide sleeves; black silk necktie; black felt hat, with black and flame-coloured feathers.

No. 19. Normandy peasant. Short red skirt, striped with black; white mousseline de laine tunic, spotted with blue; low pointed bodice, laced with silver; muslin fichu, trimmed with lace; sleeves to match fichu; white muslin headdress, trimmed with lace.

No. 20. Polish costume. Pink satin dress, trimmed with white fur; the plastron is crossed with white brandebourgs, which are continued the entire length; white silk stockings; pink satin shoes.



9. 10. 11. 12. 13. *W. J. WELCH. 25 WELLINGTON ST. STRAND.*



14. 15. 16. 17. *W. J. WELCH. PHOTO GRAVEUR. 25 WELLINGTON S^T. STRAND.*



18. 19. 20. 21. 22. *W. J. WELCH. PHOTO GRAVEUR. 25 WELLINGTON S^T. STRAND.*

No. 21. Normandy youth. Dark-blue satin knee breeches; silk stockings of the same colour, with red garters; white lawn skirt, with full sleeves; blue silk necktie; red satin coat opening over the skirt, and ornamented with small red brandebourgs; silk cap and cravat.

No. 22. Neapolitan girl. Pink silk skirt, with a

claret velvet hem; white silk apron, striped with many colours; claret velvet bodice, with pink revers opening over a waistcoat to match, crossed with gold bands; long sleeves; claret revers, with gold braid; coral necklace; headdress to match the apron, and fastened with gold pins; tambourine in the right hand.

No. 23. Fop, reign of Henry VI. Long robe of blue cloth, with long hanging sleeves, festooned in shape of leaves; double band and pouch of yellow cloth; large hat of fur, trimmed with a fan of yellow cloth; grey worsted stockings. (Wingfield.)

No. 24. Lady, reign of Henry VI. Particoloured costume of pink and white Italian satin sheeting, trimmed with deep border of ermine on skirt; headdress of same material, with long flowing veil of Indian muslin. (Wingfield.)

No. 25. Page, reign of Charles II. Vest of myrtle-green velvet; blouse bodice, and sleeves in cambric; fringes of gold ribbon loops; skirt in amber silk; lace cravat bow; embroidered satin shoulder sash; green hat with amber plumes.

No. 26. Page, reign of Henry IV. Doublet of black satin trimmed with gold galloon; trunks of figured cherry-coloured silk; black velvet cloak with gold embroidery; black silk tights; velvet cap with turreted brim, and brooch of paste diamonds.

No. 27. Judge. Loose gown in black reps or Ottoman silk; cambric band, and wig. Alpaca may be substituted, if preferred, for the gown; high black cap.

No. 28. Friesland girl. The bust is encased in two bodices, one of cloth with sleeves of gaily coloured silk, and over it another tightly laced with a red or

yellow silk ribbon of interminable length. The lacing tag, made of gold or silver, is worn as an ornament on the left side of the bust by girls, and on the right side by married women. A bright coloured silk wrapper covers the upper part of the body, and ends round the throat in a narrow black braid on which is a small red strip, placed on the left by girls and on the right by married women. For outdoor toilet a short jacket with sleeves, and wide open in front, is worn over the two bodices. This jacket is of printed calico for ordinary wear, but embroidered with gold and silver for festive occasions. The most peculiar feature of the costume is the headdress, made of striped calico or fine linen, and supported in its helmet-like shape by starch alone. Two petticoats are worn, one of crimson cloth, with a broad border of black velvet, reaches to the ankles, just showing the broad-toed velvet slippers; the other, of black woollen material, encircles the waist, in numberless plaits, and leaves the velvet border of the first one free. A silk apron completes the Sunday attire. A chatelaine is usually added.

No. 29. Dutch girl, from the Island of Mark.

No. 30. Turkish girl.

No. 31. A woman of Albania.

No. 32. A woman of North Holland.

No. 33. Jane Seymour coif.

No. 34. Charity girl. Black stuff gown; white linen cap; apron; red badge on left side of bodice.

No. 35. Moorish girl. Black velvet bodice and skirt, trimmed with white galloon; apron in muslin, enriched with gold thread and variegated silks; girdle of geranium-red cord with tassels; red satin under

sleeves; rows of large beads fall on the muslin chemisette; cap and veil in toile Colbert, embroidered and also edged by a fringe of gold beads.

No. 36. Lady of Tangiers.

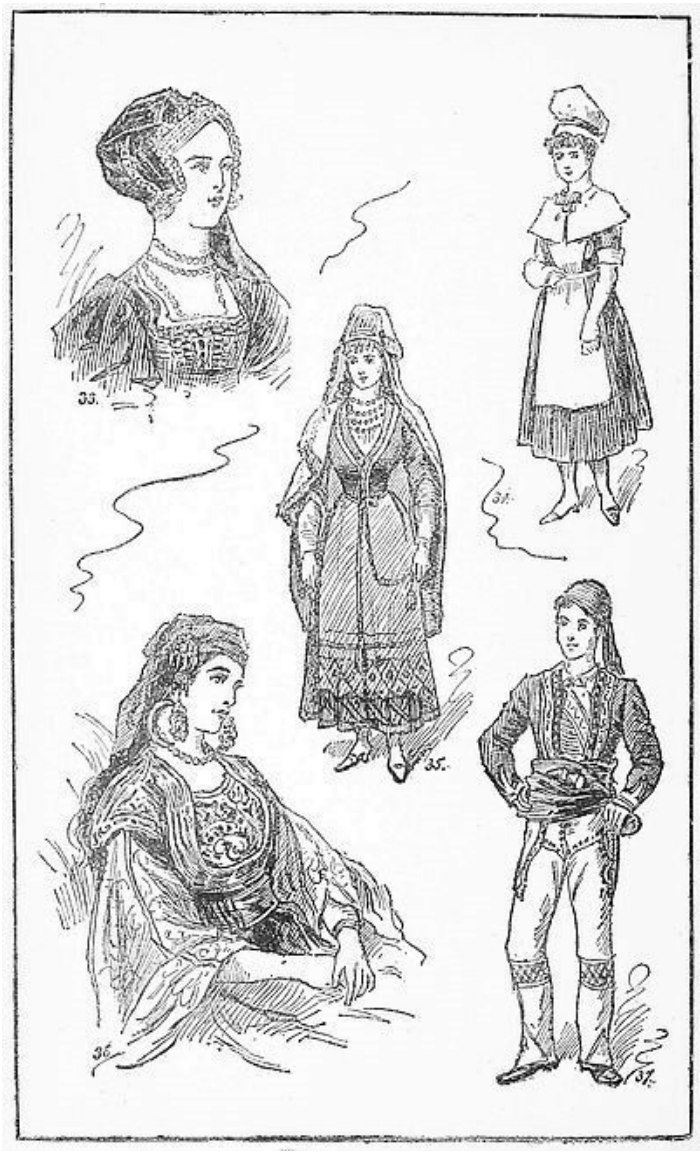
No. 37. Servian youth. Green woollen trousers, with bands and golden spangles; blue velvet jacket, trimmed with golden embroidery and grelots; vest in red and blue striped material bound by embroidery; red cashmere scarf, with revolvers passed through; red fez.



23. 24. 25. 26. 27. *W. J. WELCH. PHOTO GRAVEUR. 25 WELLINGTON ST. STRAND.*



28. 29. 30. 31. 32. *W. J. WELCH, PHOTO GRAVEUR. 25 WELLINGTON ST. STRAND.*



33. 34. 35. 36. 37. *W. J. WELCH. PHOTO GRAVEUR. 25 WELLINGTON ST. STRAND. W.C.*

No. 38. Tellemarken, Norway.

No. 39. Mecklenburg.

Nos. 40, 41. Brittany.

No. 42. Welsh. Among the different costumes of Wales, there are few more picturesque and elegant than that of Gwent and Morganwg, which ancient district includes the present counties of Monmouth and Glamorgan; and, although now rarely seen, it is by no means extinct. The hat is beaver, which, although so called, was formerly made of the skin of the hare. The brim is sufficiently wide to cast a shade over the eyes and brow, which artists well know is so peculiarly becoming to the face; and from the hat being set on the head to incline downward (higher behind than before), this artistic effect is still more striking. The genuine Welsh cap has a border either of muslin, with narrow edging of lace, or for special dress, the whole border of good thread lace; and without a personal trial few could believe how the combination of such a hat and cap beautifies plain women, and still further improves the beautiful. The handkerchief is worn with the point behind to the waist, which is of natural and moderate length. The handkerchiefs are, for general use, blue and white, or pink and white, cross-barred, with a border, are worn double, and tightly pinned across the chest; for special occasions they are often scarlet and yellow, or blue and white. The gown has sleeves to the elbow, and for elderly persons often turns the elbow. The bodice is tight and low, and fastens in front, being pinned across under the handkerchief, the gown being open before. The skirt (if skirt it can be called) does not extend farther than an inch or two beyond the hips; it is very full behind, and has loops along the edge through which a tape is run, which draws it together, and is tied to another loop which

is fixed at the back, in the centre of the waist in the inside. This part of the gown is not much longer than the petticoat, so that when it is drawn up only an inch of the petticoat is seen below, and sometimes it is even with the petticoat. The apron is of black and white or blue and white check—the Welsh national checks being totally different from the Scotch plaids, the only similarity consisting in both having cross bars. The strings of the apron are often passed through a loop which is attached underneath the point of the handkerchief, crossed behind and tied before, not being too wide to allow the coloured petticoat to be seen at the sides. The petticoat is moderately full, and short enough to show the ankles. The shoes, black leather with strong soles, used to be invariably set off with large buckles, which nearly covered the front of the instep; the shoes being high and fastened by the tongue of the buckle, but those worn without buckles had small leather ears on each side, with a hole in each, which tied over the instep. In cold weather, or when required, long sleeves of the same material as the gown, or coloured printed calico, or of knitted black wool, are added, or long-armed black mittens; and a cloak with a hood is thrown on. In the present instance the gown is orange and black, the petticoat violet and black. The present costume admits of many other varieties of ancient national Welsh patterns, both in colour and design, still made in the same district.

No. 43. Mecklenburg.

No. 44. Norway, Sætersdal. The men wear striped trousers, reaching almost to the throat, and showing a white shirt under the arms. A sort of very short jacket covers the shoulders, and closes across the

upper part of the chest. To the uninitiated, it appears quite a riddle how they put this peculiar garment on. The jacket worn by the women is of equally curious cut. It opens horizontally across the bust to show a linen bodice, which again appears as a large stand-up collar on the throat. The hair is gathered into a net decorated with ribbons, which entirely hides it, and falls to the shoulders. With their short petticoats and jackets, braided with galloons and studded with silver buttons, a bright-coloured wrapper fastened to one shoulder, and draped round the waist, a Sætersdal girl presents a picturesque appearance.



38. 39. 40. 41. 42. 43. 44. *W. J. WELCH. 25 WELLINGTON S^T. STRAND. PHOTO GRAVEUR.*



45. 46. 47. 48. 49. *W. J. WELCH. PHOTO GRAVEUR. WELLINGTON ST. STRAND.*

No. 45. French Lady, Reign of Henry I.

No. 46. Lady, Reign of James I.

No. 47. Italian Gentleman, XVI. Century.

No. 48. Maidservant, Reign of Henry VI. Costume in two shades of grey merino; large apron, handkerchief, and headdress with long flowing veil in fine white nainsook. (Wingfield.)

No. 49. Gentleman, Reign of Henry VI. Shirt of printed velvet, with tabbard of white Italian satin sheeting, bordered with black fur; worsted tights; hat of printed velvet, with long drapery of soft silk; bag pouch. (Wingfield.)

No. 50. Lady, from Saloniki, Macedonia.

No. 51. Girl from Ploaré, Brittany. The petticoat or skirt is generally of white flannel, bordered with a scarlet band above the hem, made very full and short to show the buckles on the shoes. The body or jacket consists of scarlet, blue, violet, or red cloth, cut tight to the shape, open in front, the sleeves long, turned up at the wrist with a deep cuff, and encircled with a sort of arm-band above the elbows. The facings of the bodice, cuffs, and arm-hands are trimmed with a braiding composed of black velvet ribbons embroidered with coloured worsteds. The apron is either a deep mulberry or orange colour, and fastened with an ornamental sash tied in a bow at the side, with a separate pocket for the knitting ball. The chemise, fastened in front with a brooch made of coloured bugles and glass beads, terminates in a kind of plaited ruff, and a small ebony crucifix is suspended by a velvet band from the neck. The headdresses vary in shape. The women of Bignan wear close fitting caps of white linen, and cover them with a sort of conical flap-cap, made of a coarse starched cloth, like brown holland, which

serves the purpose of a bonnet.

No. 52. Flemish costume at the time of Rubens.

No. 53. Caucasian Girl. The costume consists of a caftan made of bright coloured silk or satin, buttoned in front, and reaching to the knees, with a belt, richly embroidered in gold and silver round the waist. In winter an overcoat of heavier material, without sleeves or collar, open in front and falling down to the ankles, is worn over the caftan. Very picturesque is the headdress or cap of conical shape, gorgeously embroidered with gold and silver tinsel. A long white veil descends from the point of the cap nearly down to the heels. This veil is likewise worn without the cap, fastened to a kind of diadem in the forehead. From underneath the cap or veil issue long plaited tresses of black hair studded with coin jewellery. Elegant bottines of morocco leather, tightly fitting to the leg, like stockings, and dainty slippers, complete the outfit.

No. 54. Woman of Bethlehem. A dark blue dress contrasts well with the scarlet tunic worn over it in graceful folds, and with the head covering of spotless linen, which frames in the face, just leaving room for the display of Oriental coin jewellery on the forehead and round the neck.

No. 55. Lady of Eleusis, Greece. A maize-coloured silk veil, picturesquely draped, covers head and shoulders, just to show two strings of gold coins on the lovely forehead of the oval face. A long white robe, girded round the waist with an embroidered belt or sash, envelopes the figure like the ancient chiton. The waist is covered with chains of coin jewellery, and an apron of violet silk, striped in two tints, is attached to the belt. But the great *pièce de résistance* of this becoming costume is a gorgeously

ornamented jacket, likewise of white material, with semi-tight sleeves, embroidered, as our illustration indicates, in fanciful patterns, with dark red or black silk interspersed with gold and silver threads. Similar costumes to that of the women of Eleusis, and only slightly differing in cut and colours, are worn in all the northern provinces of the kingdom. In Athens a bright red scarf girds the waist, and silk of the same colour is used for the embroideries on jacket and petticoat. In Bœotia a green veil is worn, and the ornamental stitchery executed in a variety of colours, red prevailing.



50. 51. 52. 53. 54. *W. J. WELCH. PHOTO GRAVEUR. 25 WELLINGTON S^{T}. STRAND. W.C.*



55. 56. 57. 58. 59. *W. J. WELCH. PHOTO GRAVEUR. WELLINGTON S^T. STRAND. W.C.*

No. 56. Spanish Girl. The short petticoat is generally of bright yellow, rose coloured, or green silk, trimmed either with bands of black velvet or with a deep flounce of black blonde. The tight-fitting jacket is made of black velvet, trimmed with gold or silver lace, and buttons to match. The material for the apron and for the neckerchief consists of muslin with a border of white blonde. The hair forms a plaited chignon on the back of the head, and is adorned with the high Spanish comb and with hair pins, with tops of gold or silver filigree.

No. 57. Spanish Toreador. Royal blue plush or velvet jacket and trousers, richly embroidered in silver and ornamented with silver fringe. Red silk sash. Red cloak and pink stockings. Blue plush cap. Heavy silver epaulettes and embroidered shirt.

No. 58. Modern Greek. In the picturesque national costume worn in modern Greece hardly any trace can be found of the ancient dress. The richly embroidered cloth jacket, worn over skirt and bodice of ordinary cut, cannot be compared with the ancient

chitonion, although it serves the same purpose. For fancy balls this costume is most becoming, if the proper combination of colours, quite optional, even in Greece, is selected.

No. 59. French Farmer's Wife, time of Henri III. The close-fitting pointed bodice, of a red material, is laced in front over a band of green silk; the square habit shirt is of fine linen, terminate in a lace-edged lawn ruff corresponding in colour with the long white sleeves; and the ample apron covers the front of a dark-coloured petticoat. The tablier headdress, worn over the hair combed back, is made of a double piece of black satin, stiffened by a stout lining.

SUPPLEMENTARY LITERATURE.

Bernard Roth: 'Dress: its Sanitary Aspects, a paper read before the Brighton Social Union; with additions and 8 full-page illustrations.' London. 1880. 2*s.*

T. Frederick Pearse: 'Modern Dress and Clothing in its relation to Health and Disease.' London. 1882. 2*s.*

Henry Carr: 'Poisons in Domestic Fabrics.' London. 1880. 6*d.*

Ardern Holt: 'Fancy Dresses described; or what to wear at Fancy Balls.' London. 1882. 5*s.*

THE NURSERY.

The Room.—The English nursery should have, wherever possible, a southern aspect, for the sake of catching the sun's rays to the fullest extent. The prospect from the windows should be cheerful, and there should not be large trees in the immediate vicinity. The sanitary conditions necessary for the house demand extra attention in the nursery, as the young inmates are more prone to suffer from evil influences, and have not the change of air and scene which their elders enjoy. Hence a change of room is very beneficial during the day, and the day room should not be the sleeping room if it can be avoided. A few hours daily in the morning room or drawing room with the parents are productive of both material and moral good. Plenty of houseroom is an excellent rule, too often forgotten in taking seaside lodgings, in the expectation that the children will be out all day, which the state of the weather turns into disappointment. The nursery should be at the top of the house, but not, of course, just under the roof, as such a position is the coldest in winter and hottest in summer. The temperature of both day and night nurseries should be kept as nearly as possible at 60° F., and thermometers should be placed in the rooms for guidance. The height of the room should not exceed 10 ft., or it will be more difficult to keep at an equable temperature. A well ventilated room measuring 15 ft. square and 9 ft. high should suffice for sleeping a nurse and infant and 2 young children. No double-bedded nursery should be less than 15 ft. square. Children between 7 and 10 years may sleep out of the nursery, and above that age the sexes should be separated. A bedroom 14 ft. long and 8 ft. wide will admit a bedstead 4 ft. wide between the

wall and door. The fireplace, never absent, should be in the opposite wall beyond the foot of the bedstead. The door should be hung so that when opened it does not admit an indraught of cold air upon the bed. The windows, never quite closed at the top in summer, should have shutters, linen or jute (not woollen) curtains for winter use, and green roller blinds for summer use. The walls are best painted or washed with distemper; if papered, bold patterns and bright colours (especially green) must be avoided, and a coat of varnish should be applied. The ceiling should be tinted sufficiently to destroy glare from the sun or gas. The floor should be stained all over, and varnished under the beds and carpets; the latter, best being Dutch or Kidderminster, should not cover the whole floor, especially under the beds. All furniture and fittings should be free from sharp edges and corners.

Clothing.—This is exceedingly important in very young children from their being especially sensitive to cold. They feel changes from warm to cold, and from cold to warm, much more severely than older persons do. The cold of winter and the east winds of spring are very apt to bring on colds and coughs which may end in serious disease; on the other hand, very great heat is equally bad for them, diarrhœa and convulsions always increase as the weather gets hotter. It is a very serious mistake to think that children have great power of resisting cold, and that they are strengthened and hardened by exposure to it; no error is attended with more fatal results. A child's clothing should keep it warm at all seasons; the extra winter clothing should be put on early in the autumn and continued until late in the spring. The most trying and dangerous time is when the wind is high, particularly when it blows from the

north and east. Flannel is the best material for inner garments, which should be made to cover the upper part of the chest and neck, so as not to leave these most delicate parts exposed to cold blasts. Neglect of this leads to bronchitis and croup, and sows the seeds of consumption. With any tendency to diarrhœa, a flannel binder should be worn round the bowels. The clothes should fit loosely and easily, and put no restraint upon free movement of limbs and body; and allow room for constant and rapid growth. Use a needle and thread or a button instead of pins. Unusual skin irritation may arise from damp under clothing, especially when soda has been used in washing the linen, and only imperfectly removed in rinsing.

The summer outfit for a young baby would include a binder, small cambric shirt, long flannel petticoat, which, being double over the chest and back, is a great protection from the cold, and keeps the legs very warm; a white washing petticoat and robe, not heavily trimmed, and of fine light material; this is quite sufficient. In winter add a knitted woollen spencer, or, what is prettier, a high long-sleeved merino vest, with a fine white cambric guimpe over, prettily tucked and trimmed, with very narrow lace at neck and sleeves. A short-coated baby requires a merino vest, high in winter, low in summer, cambric shirt, small stays, either quilted or made of jean, on to which the flannel petticoat is sewn, white washing petticoat and frock. In the winter there should be in addition a warm white woollen knitted petticoat and bodice in one, not skimpy, but long and full, and knitted with fine soft wool, not the common heavy sorts. The little stays should also be lined with flannel in the winter, and a high white guimpe worn over the vest, unless the white frocks happen to have

been made high. Flannel or merino frocks can of course be substituted for washing ones; but, as long as the child dribbles, the latter are much more suitable, as, even when old, they always look well, and to keep a little child sweet, plenty of clean things are essential.

Until a baby can walk, the petticoats and frocks should come over the feet and woollen or silk boots be worn. If a child suffers from the cold, have the little shirt made of silk longcloth, which is warmer than anything of the same weight. Silk boots are warmer than wool, and easily knitted. High merino combinations would be excellent, but they are costly, and apt to be worn soiled. Head flannels are preferable to caps in almost all cases, though some contend that babies who wear caps for the first 2 months are much less liable to colds in the eyes. The greatest safeguard against catching cold out of doors is a large white silk handkerchief, to be worn all the year round, folded crosswise, and put on like an old woman's shawl, crossed in front and tied behind; if, after the pelisse or jacket is on, you pull this up all round the neck, the child will rarely take cold. Full-skirted pelisses are preferable to jackets for children under 3. When a child is sitting up in a perambulator, a pelisse will pull down all over the feet, whereas a jacket only comes as far as the knees. Nothing equals a merino pelisse lined with flannel, full, and for a small baby long enough to come over the feet about 2 in.; the cape should also be lined with very thin wadding, and have a silk lining.

Cashmere or silk hoods, lined with flannel when cold, are better than fur or woollen. In winter, gaiters and flannel knickerbockers must be added, or, for a child that cannot walk, woollen gaiters that end

in a bag, to tie up over the diapers. Fur jackets are unhealthy, producing undue heat, thereby weakening the child, and being very uncomfortable and heavy for running in. Unless there is any tendency to weakness in the ankles, strap shoes are best, both indoors and out; where the ankles are weak, very tight boots are better. The time of changing the knitted boots to regular leather shoes, with socks, entirely depends upon whether the child is forward or not. Fat, heavy children should never be put to their feet early, therefore they may wear their first boots longer than light active ones; probably 7-8 months is quite early enough for the change for any child; but in this matter, as in many others, mothers disagree.

When out of doors, infants up to 10 months old should wear the hoods already described, and warm woollen overdresses made to fasten at the back, as babies' arms are very easily dislocated, and in garments which fasten down the front, they have to be forced dangerously back into the sleeves. In cold weather young infants should have veils over their faces and mouths. The best things for this purpose are old-fashioned Brussels lace veils, doubled; woollen veils are apt to irritate. Children over 10 months should wear jackets out of doors. Capes are very injurious; they hang entirely from the neck and shoulders, and are apt to open, leaving the chest exposed, and admitting cold air to it and the armpits. Woollen jackets are as a rule preferable to fur unless the latter is very light; for winter wear they should be made long enough to nearly reach the ankle, and should fasten with hooks and eyes down to the very bottom. Children able to walk should have woollen gaiters over their legs when they go out in winter. Choose head gear always of the lightest kind: warm

and close fitting in winter; cool and shady in summer.

Washing.—Never put a child to bed dirty. The whole body should be washed every day. Young babies and infants should be bathed and well washed every morning in warm (96°-98° F.) water, and thoroughly well dried afterwards. As they grow older, the water need not be so warm, but it should not be quite cold during the cold weather. In summer cold water is best. Have a large tub and plenty of water. Beware of a chill from draughts while washing and drying the child. Young infants are best washed after their first meal, older children before breakfast. A clean skin is all important; if not washed away, the perspiration dries and remains on the skin, chokes up the pores and sets up an irritation which frequently ends in some positive skin disease. Dry the skin quickly and thoroughly, rub it briskly, and do not leave off until it is perfectly dry; a half dried skin is sure to be made rough and sore very soon by the wind, and the daily morning wash should be a stimulant and tonic to the whole system, helping to make it vigorous and healthy. Sponges are generally used for washing children, and as long as they are not used for any other purpose, there is no objection; but remember that a sponge is very liable to convey infectious diseases and impurities. Some medical men recommend a piece of fine flannel, instead of a sponge. Use the purest soap. Very young infants should have no soap applied near their eyes, as it is liable to produce severe inflammation in them, not to speak of pain from the irritation of soap. It is particularly necessary to attend to the cleanliness and dryness of the napkins; the discharges from the bowels and bladder of a baby are very irritating, and if a wet and dirty napkin is allowed to remain

applied to the skin it soon makes it sore, the skin gets inflamed and peels off, and these sores take a long time and much care to heal. The tender skin is soothed and protected by the use of violet powder after being washed. Some toilet powders are, in a degree, antiseptic. French chalk, white fuller's earth, Taylor's Cimolia, and sanitary rose powder (containing borax) are among the best. Iron or wire guards are indispensable to nursery fireplaces. It is well to wash and dress a baby near a fire; but never allow the child's eyes to be exposed to the glare of the fire or its head to be heated.

Air and Exercise.—Children should never be kept indoors simply because the weather is cold; if they are properly dressed, the cold will do them no harm, unless they are already out of health. Even drizzling rain is not to be feared, and the children may be taken out in frosty weather, or slight sleet, and even when the snow is thick on the ground, provided their boots are waterproof, falls not to be feared, and garments all changed on returning home. Fogs and high winds, especially east winds, are to be avoided. Let the little ones be out in the air as much as possible. In winter they should go out in the morning from 10.30-12.30, and in the afternoon from 1.45-3 o'clock. In summer they should be out from 8.30-10.45 in the morning and from 4.30-7 o'clock in the afternoon; their meals must be managed so as to leave these hours free. In winter they should have dinner ¼ hour after returning from their morning airing, and should sleep in the afternoon from 3.30-5 o'clock, when they should have another meal. In summer they should have a very light meal on returning from their morning walk, and be put to sleep at about 11.30, dine at 3 o'clock, and have supper at 7.15. Of course young infants require to be

fed more often than this, and cannot be kept out continuously for so long; but they can be taken in for a few minutes, fed, and then brought out again.

Perambulators are a doubtful blessing. A very young child ought to be carried in the arms for the first 6 months; it is so much warmer for one thing. The nurse's arm, changed at short intervals, should project beyond the baby's head at the back to protect it from passers by. After 6 months, perambulators may do very well, provided the child is carefully put in, which is very rarely the case. If seated facing forwards, a cold will be the natural result, without taking such care as is beyond the ordinary nursemaid. Every watchfulness must be used to prevent young children getting chills; never let them sit on the grass, nor on a seat which is exposed to the wind in the intervals of play. When they return home warm do not remove their overclothes in a cold room: nothing is more certain to produce ill effects.

Once or twice a day an infant should be set free from all hampering binders, &c.; and laid down on a soft rug on the floor to kick and sprawl to its heart's content. This is the finest exercise, much better than all the jumping and romping, which only makes a baby giddy and over-excited. Do not be in too big a hurry to teach a child to walk; lay it on its back and let it kick about as much as it likes while it is very young. A little later it may crawl and creep about in perfect safety, but when a child is made to stand before its legs are strong enough to bear it, they are very likely to give way and become bent—the body is too heavy for the weak bones of the legs, and they become deformed.

As the child advances in age and strength, means of a healthy exercise should be provided in the

nursery. Beyond the infantile stage of life, the movements of the child become more and more "purposive." They are performed for definite purposes, and to effect ends which are clearly mapped out in the child's mind. Hence, as these movements are of more decided character than those of infancy, "games"—which merely represent play with a purpose—are naturally indulged in. The young child does not "play" aimlessly and listlessly, as is too often supposed. If a child is provided with a ball, nothing delights it more than some defined amusement with that toy. It will aim at effecting some particular plan—as, for example, knocking down an object, or catching the ball in its rebound. Possibly the ball is the best plaything for the child just emerged from its infantile state. Freedom of movement is encouraged in such an exercise, and there is, besides, little danger of fatigue or undue prolongation of this exercise. The child should never be set down to regular exercises, or to any stereotyped course of mild gymnastics, until it has reached its seventh or eighth year. Nursery gymnastics and the use of swinging bars, the trapeze, and allied apparatus will only tend to injure the child if they are used before the age of 7-8. The movements these exercises excite and demand are too severe for young children, whilst, on the contrary, they are well adapted for boys and girls of 8-12 years of age. The same caution applies to the use of "dumb-bells," which are well adapted for boys and girls of 10-11 and onwards, but are injurious to younger children.

Sleep.—Children require much more sleep than adults. They require to be kept very warm when sleeping; the natural warmth of the body is less during sleep than at other times. The hours of

sleeping should be made quite regular: this is easy to manage if you begin with a baby at once; they soon acquire regular habits, and in the matter of sleep and feeding, this regularity of habit cannot be begun too soon: a bad habit is difficult to break. For the first few weeks a baby should sleep almost constantly, only awaking at regular intervals to be fed. After the first 2 months it lies awake longer, and is fed less often—it should then be put to sleep for at least 2 hours in the forenoon, from 10-12 or thereabouts, and again in the afternoon for at least an hour. But too much sleep during the day at and after this time spoils the rest at night, which is the most important time for rest. For the first month a child is better to sleep with its mother, after this it may be put into a crib, but never cover its face with a handkerchief, and never have curtains to the crib—they cause the child to breathe its own air over again and always do much harm. Place the crib where no draught can reach it, and let the bedclothes be warm but light. Uneasy sleep is a sign of ill health. An hour's sleep before dinner should be allowed to children of 4-5 years, after this it may be discontinued. Put them to bed at night between 6-7 o'clock, and they will generally sleep 12-14 hours. Never wake a child suddenly, the change should be gradual. When a child awakes in the morning it should not be permitted to lie long in bed; take it up and dress it, and so you may get it into the regular, healthy, and most valuable habit of early rising. After the child is up let the mattress be well shaken, and have the sheets and blankets thrown over the back of a chair or off the bed, and exposed to the air for an hour or two, that they be thoroughly dried and ventilated. Open the window freely.

Feeding.—Every mother should make it her duty,

as it is her privilege, to nurse her baby at the breast. The only exceptions to this rule are those cases in which, because of special delicacy or disease, they are forbidden by the doctor to do so. Whenever, from any cause, the child cannot be brought up on the breast, the only food which should be given to it for the first 7-8 months is the milk of the cow or goat. Milk contains all ingredients necessary for the growth and nourishment of the child; and nothing can take its place. A child's stomach has not for many months the power to digest foods which contain much starch, such as cornflour, arrowroot, sago, and others; these foods irritate the stomach and bowels, while the child is being starved for want of the only food it can digest. Milk may be given either from the breast of the mother, or from the bottle. If from the latter, care must be taken not to give the food when either too hot or too cold. Dollond, of 1, Ludgate Hill, has introduced a good thermometer for this purpose, on which thick black lines indicate the right temperature. Breast milk is infinitely to be preferred. Let the child have as much breast milk as possible, and only make up the deficiencies with the bottle. The child should be put to the breast early, within the first 12 hours. The first milk is different to what comes afterwards, and helps by gently acting on the bowels to prepare the passages to properly digest the fully formed milk. Instead of doing this nurses are far too apt to administer a dose of castor oil, which is quite unnecessary and wrong. If the milk has not yet come sucking will help it; and if the child cries with hunger, a little weak milk and water may be given with a spoon. The child should be put to the breast *regularly* at stated intervals—every 2 hours during the day, and less often at night.

The nursing mother should take sufficient good

food, but should not drink all sorts of foods at all hours, under the idea that she will thus make more milk. She is more likely to upset her digestion, and injure the quality of her milk. The secret of good nursing lies in keeping in the best health possible: take plenty of fresh air and rest, and sufficient plain, unstimulating food. Any violent nervous excitement, such as anger, fright, anxiety or grief is sure to affect the child. If the mother's health remains good, she may continue to nurse her child for about 9 months. If the child is thriving well, and has cut several teeth, and especially if the mother's health begins to suffer, nursing must be at once given up. Nursing beyond a year does harm to both.

Weaning should take place, then, at or about the tenth month. It must be done earlier (*a*) If the mother's health is suffering, or if she is attacked by any acute disease; (*b*) if she becomes pregnant again while nursing the child; (*c*) if the child is not sufficiently nourished upon the breast milk, yet refuses to take other food. This happens when the milk is too thin and watery, although it may be in sufficient quantity. Carefully watch the condition of the child, and do not rely too much on dates or teething; wean a child gradually, choosing a time when the child is in good health. Begin by lessening the number of times it is allowed to take the breast; thus giving it time to get used to and to relish other food. Reduce by degrees to one breast meal a day; and after about a week, this too must be given up.

Great mortality is found among infants brought up on the bottle, due to the wrong sort of food being put into the bottle. As to the bottle itself, the old-fashioned kind with a cork on one side is the best, because they are simplest, most easily kept clean and

sweet, and when they are used, the child must be held in the proper upright position. However near perfection a bottle may be, it is liable to become a source of disease. Rubber parts absorb milk, or in a crack in the material a small quantity may adhere, and undergo fermentation, and the best-directed efforts to keep the tubing clean may not prevent this happening. In the glass part this does not occur readily, as it can be thoroughly cleansed, and there is no risk of absorption. If 2 bottles are used, one can be in operation while the other one is being cleaned. The manner most likely to prevent bad consequences is to thoroughly wash out the bottle after it has been used in tepid water, and then again wash it with water and soda, then thoroughly dry bottle and tubing, and put them in the open air, as on a window-sill, where they can have both sun and air. Of course, the stopper should be out of the bottle. Another method is to allow the bottle to remain in lime-water till next it requires to be used. In cleaning out tubes a brush attached to a strong wire is needed.

Cow's milk is the best substitute for a child's natural food. But in order to make cow's milk as like the mother's milk as possible, you must dilute it with water and add some sugar. At first the proportions should be at least equal parts of milk and water, with a small quantity of sugar; if the milk be very poor, a dessert spoonful of cream may be added to each meal with benefit. As cow's milk soon turns acid, a tablespoonful of lime-water in each bottle is often useful in making it agree better with the child. This is particularly advisable in warm weather. Boil all milk intended for the child's use as soon as it comes into the house. Where there is any doubt about the purity of the water, boil it too. After the first 6

weeks, the proportions should be ⅔ to ⅓ water; and after the fourth month the milk may be given plain. For at least the first 7 months the child should have no other nourishment whatever. Smell the bottle before you put a fresh meal into it, and if there is the least sourness about either bottle or nipple, wash it until it smells fresh and sweet. Feed at regular hours —every 2 hours during the day, and twice during the night, for the first 6 weeks: after this every 3 hours is often enough, but then the quantity of each meal must be larger. Never give a child a bottle merely to keep it quiet; you damage both stomach and character. The food should be as near the heat of the body as possible, i.e. at or about 98° F. Cold milk delays digestion, and does injury. If the child is allowed to lie on the back, it gets the milk too fast, and indigestion follows. If good cow's milk cannot be got, Swiss condensed milk is useful, but it must not be given too strong; ½ teaspoonful to a teacup of water is plenty to begin with. For the first 4 months it is an excellent substitute for ordinary milk, and most children thrive on it; but do not continue its use too long. If the child is thriving and has cut several of its front teeth, at the age of 7-8 months, not earlier, farinaceous food may be given once or twice a day. Still, foods which contain much starch are to be avoided, such as arrowroot, sago, corn-flour. The best to begin with is oatmeal gruel, well-boiled and strained, or, as a change, milk thickened with a rusk or well-baked flour; Chapman's entire wheat flour is excellent, and to be preferred to ordinary wheat flour, as it contains the phosphates of the wheat, and a peculiar ferment which changes starch into sugar.

Cow's milk and Robinson's patent barley (prepared by Keen, Robinson, and Bellville) is recommended for use by Dr. Pye Chavasse in his work entitled

'Advice to a Mother,' as the best artificial food for infants, stating that "children apparently dying of starvation, soon after taking it, quickly pick up flesh, their bodies fill out, they sleep, they loose all pain," &c. To a good tablespoonful of the patent barley, mixed with a wineglassful of cold water, add one-and-a-half gills of boiling water, stir this over the fire while boiling for six minutes, and then feed the infant. The same proportion of milk may be used instead of water when the baby is weaned. Alternately with Robinson's patent barley, Robinson's patent groats may be used with good results.

Some of the more expensive artificial foods are prepared in such a way that the starch is rendered soluble and easily digested, effected mainly by the addition of malt and the employment of heat. But if oatmeal and plain wheaten flour agree with your children use them. These farinaceous meals should be given once, or, at most, twice a day, remembering that the greater part of a child's nourishment should still be milk.

In those rare cases where milk cannot be taken by a child, often barley-water, mixed in equal quantities with the milk, will make it agree, by lessening and softening the curd; sometimes the whey of the milk, separated from the curd by rennet, and made richer by adding 1 part cream, which contains no curd, to 4 of the whey, makes a digestible food. Sometimes it is necessary to feed for a day or two on rice water, with the boiled rice pounded and mixed in it; but such cases are serious, and demand medical advice.

When a child has cut most of its front teeth—that is to say, towards the end of the first year, it may be given once a day a meal of a meat broth with barley

in it, or of gravy and bread crumbs. The broth should be made by cutting up the meat finely and letting it stand for 2-3 hours in cold water and then boiling it. At about the same time, or a little later, a lightly-boiled (much better raw) egg may be used instead of the broth, once or twice a week; or a well-boiled mealy potato, carefully mashed and mixed with good meat gravy. No solid meat food should be given to a child under 2 years of age, nor until it has cut all its teeth, for the simple reason that until its back teeth are ready for use, it is unable to masticate such food so as to prepare it to be digested in the stomach. After this a little meat well-cooked may be given to a child occasionally; but it should not form part of its every-day food. It is a great mistake to give weakly and delicate children much animal food; for the first 3 years, the less they have the better. The best food is not that which contains most nourishment, but which is best adapted to the digestive organs. Whenever animal food is given, it should be minced very fine, or bruised in a mortar, to make up for non-mastication. Bread-and-butter, oatmeal porridge, milk, rice, and light puddings should form the staple diet. Avoid stimulants, tea, cakes, and pastry. The plainer and simpler the food, the stronger and healthier will be the child. Compel children to eat slowly; and only allow them to eat at meal times.

Teething.—The number of first or milk teeth which a child gets is 20; they come in regular order, and at definite intervals; 8 front teeth, 4 above and 4 below, called “incisors”; eye teeth, 2 above and 2 below, called “canines”; and 8 back teeth, 2 above and 2 below on each side, called “molars.” The order in which they ought to come is:—the two lower middle incisors at about the seventh month, seldom earlier; followed in a few weeks by the 2 upper middle

incisors; almost immediately afterwards, the other 2 upper incisors, one on each side of the middle ones; a week or two later, the two other incisors in the lower jaw come through, so that all the incisors generally appear before any of the other teeth, and, being smaller than the others, are generally cut without much trouble; by the end of the tenth or eleventh month, after an interval of about 2 months, the first 4 molars appear, and occupy 2 months, more or less, in making their way through the gums; after another interval of 2-3 months, the eye teeth begin, and are fully cut by the end of the eighteenth or twentieth month; this is followed by another period of rest, after which the 4 back molars come, and soon after the end of the second year the first dentition is complete. Teething is a natural process; but the period in which it is going on is a time of change from one mode of living to another, so that when a child is teething, it requires more than ordinary care. Its bowels must be kept in good order, rather too loose than too confined; give it abundance of fresh air, and avoid changes of diet just when the teeth are coming through; cooling drinks of milk and water, or barley water, are useful to allay the thirst, and cool the hot mouth; warm baths at night relieve feverishness which is often present; if the gums are swollen and inflamed, a touch of the lance will be productive of great relief. While the teeth are "breeding" in the gums, the irritation may be reduced by gently rubbing them, or by giving the child a crust or indiarubber pad to bite; but shortly before they break through the gum the mouth is so tender that the child will allow nothing to go near it, and it is just at this time that lancing is of most service.

Illness.—Infantile disorders within the range of

domestic medicine are chiefly diarrhœa and constipation. The former, in a suckled child, will probably be due to the condition of the mother, who should carefully regulate her own bowels, taking a simple aperient, like castor oil or rhubarb if necessary. Diarrhœa, with bottle feeding, may arise from sour food: boil the milk, mix it with barley water instead of water, make it weaker, and add 2 tablespoonfuls lime-water or a few grains soda bicarbonate to every ½ pint food. See that cold to feet or body is not the cause. For constipation, generally occurring in bottle-fed infants, reduce the food, omit lime-water, and change one meal a day from milk to thin oatmeal gruel. Avoid medicines, except perhaps 30 gr. manna in 1 tablespoonful distilled water, or 1 tablespoonful fluid magnesia in the food of one meal for a day or two, or castor oil if a severe case. Gentle injection of a little warm water is an excellent thing in stubborn cases. Vaccination is a paramount duty hardly requiring mention. Especially beware of chills during convalescence. Exposure to cold after scarlet fever brings dropsy and kidney diseases, and consumption and bronchitis follow whooping-cough and measles.

Medicines kept should be under lock and key, for obvious reasons. The following may be found useful: —Ipecacuanha wine and powder, say of the former 2 oz. and of the latter 1 dr.; grey powder, 1 dr.; castor oil 6 oz.; antimonial wine, 1 oz.; sulphate of zinc, 1 dr.; fluid magnesia, 6 oz.; lime-water, by the gallon, if the infant is brought up by bottle; laudanum or solution of morphia, 1 oz.; Bow's liniment, or camphor liniment; spongio-piline, for application of fomentation or as a poultice. Lint, oiled silk, and gutta-percha tissue, with 6 oz. carbolic lotion, strength 1 to 40. These are mostly for use by the

medical attendant; amateur doctors should restrict themselves to giving a dose of castor oil or fluid magnesia.

Moral Training.—Why do women intrust their young children to the care of low-minded ignorant girls, when least able to take care of themselves, yet exercise so much caution to prevent familiar intercourse with servants and inferiors in later youth? With proper treatment, plenty of well-bred and well-educated girls could be found to take nursemaids' places, to the great advantage of both children and nurse. Obviously, no girl who is not fit to be a companion, an intimate companion, of the mother, is fit to be the guardian and guide of that mother's children. The nursemaid should be a girl or woman of culture, and not be expected to do anything menial. Early training of children is of great importance. Be with them as gentle, loving, and patient as you can be, but at the same time be firm. Never deceive a child, and never let it weary you into granting a request you have once refused as injudicious. Teach it from the first to bear and to forbear, to obey at once, and to be courteous; the little wretch who snatches anything he fancies, and howls like a monkey if crossed is a pitiable little object, the victim to his parents' folly, who were too selfish to give themselves the trouble and vexation of training him.

Never allow children to be rude and unceremonious to each other because they are brothers and sisters. Be extra careful of your language and manners before children. Never lose your temper with them, never frighten them, and above all things do not strike a child on the head; there is a certain portion of the body especially

intended by nature for receiving castigation. Never flatter nor pet a child, nor allow self-admiration to grow upon it. Reduce children's parties to sensible hours—3-7 for the little ones, and not later than 9 for the older ones—and provide more sensible amusements and less empty show and finery. Dancing, magic-lanterns, shadows, and scores of simple games will occur to every one. Avoid all toys which are painted or gaudily coloured.

One word about foreign nurses. They are often engaged with the object of early commencing the acquirement of a foreign language, generally French. But it must not be forgotten that the class of girl obtainable as a nurse is not likely to be capable of teaching the refined language or accent. These nurses may be engaged through the International Institution, 69 Berners Street, London, W.

THE SICKROOM.

The Room.—The rules which apply to dwelling rooms generally have a double importance in the case of the sickroom. The sanitation, ventilation, warming, and lighting, all demand extra care and attention. A southern aspect is preferable to any other; the room should be cheerful, spacious, and

lofty, and subject to the invaluable effect of sunshine. It would be desirable for all houses, even of moderate size, to have some one corner suitable for a sickroom. If space admits of such a room being entirely isolated from the rest of the house, so much the better; but much may be done by securing two rooms opening into each other, with hot and cold water supply within easy reach, and a closet properly placed. When necessary, the room should be kept clean by dusting with a damp cloth, rubbing the floors in the same way.

Ordinarily, the chimney is the best ventilator, especially when the fire is burning, which increases the upward draught. Never stuff up chimneys: and except in very warm weather, always keep a fire in the sickroom. It is not always easy to maintain at the same time proper warmth and ventilation. But as a person is not liable to take cold when well covered up in bed, a little of the window may almost always be kept open, without fear of its doing harm, especially if a piece of fine gauze be gummed or tacked across the opening so as to break the force of the entering air. In ordinary sickness the best temperature is 62°-70° F. It should not be allowed to vary much, and as feeling is often deceptive, it is always advisable to keep a thermometer in the room.

For the removal of slops, the ordinary paraphernalia of the housemaid should be completely excluded from the sickroom, as both noisy and disgusting. All vessels when used, instead of being put under the bed, must be immediately removed and emptied outside, and brought back carefully rinsed, and, when necessary, deodorised with a little Condy’s fluid. Allow no confusion of medicine bottles, soiled glasses, spoons, and such

matters about the room: those in immediate use should be kept arranged ready to hand; all others should be removed.

Even with the greatest care fires will burn down low, and it is necessary to have some means of restoration at hand. Few people know how valuable wine corks are for this purpose; they should always be saved, and a few kept in a corner of the coal basket. Orange and lemon peel likewise, when well dried, make capital fire revivers; and rather than that the fire in a sickroom should be allowed to go out, use a lump of white sugar or a sprinkling of brown, which will create in a moment a bright flame and revive the dying embers. Employ a pointed hard wooden stick instead of a poker; it makes so much less noise. Let a basket take the place of the coal-scuttle, and let its contents consist of fair-sized lumps, about as big as a French roll; a housemaid's glove should be at hand to put these on with. This is the provision for the day. For the night small paper bags, such as fruiterers use, should be filled with about 1 lb. of small coal. This does not burn so fast or make so much flame as the lumps, whilst the feeding of the fire by these means divests the process of noise.

As little furniture as possible should encumber the room. No foot-stools, boxes, or baskets should be in the way, to be tripped over; no knick-knacks crowded on tables or mantelpieces to harbour dust, take up room, or tumble down with a crash. Various forms of sickroom furniture, adapted for confirmed invalids and serious surgical cases, are made by Alfred Carter, 97 Holborn Viaduct, and by Robinson and Sons, Ilkley, Yorkshire, whose catalogues will be worth getting.

Of carpets, the less the better; but if any are used, mere strips or rugs are best, as they are easily taken up and shaken, or cleaned. Curtains should be got rid of, especially if of woollen or stuff; cotton and linen should be used for any sofa or chair coverings.

Windows should be made to open easily from both top and bottom, whilst some contrivance is necessary to prevent any rattling noise from either window-frames or outer blinds. Venetian blinds, imperfect at the best, are quite unsuitable for a sickroom, being always noisy, and sure to admit alternate rays of light. Nothing wakes many people so quickly as light —a mere crevice unprotected is often enough. In the evening, be sure that the light of the lamp or candle does not fall in the patient's eyes; there is nothing more distressing. Gas in a sick room is not healthy; a Queen's reading-lamp, with a green shade, is pleasant for a stationary light, and a candle for moving about.

Real quiet is of paramount importance. Even "noiseless" crockery can now be obtained. The principle adopted is that of noiseless tyres to wheels, made of rubber, such tyres being fitted to the bottoms of the jugs, basins, &c.

One thing that would give great pleasure to many a bedridden sufferer is a looking-glass—sometimes two may, from the position of the bed, be necessary —fixed so as to reflect all the passers-by, or to show a patch of bright flower garden, bringing some of the outside life into the sickroom. Ferns growing beneath a bell glass, where they need no care or attention after they are once planted, may also be introduced. Plants in pots and cut flowers will occur to every one; it only remains to observe that growing plants, for their own sake as well as for the patient, should

be moved out of the room at night, and that cut flowers from the side of a fever patient must be burnt in the room when they are dead, and not carried into any other part of the house.

The Nurse.—The *Lancet* insists that there is no more excuse for a nurse making a "guy" of herself than for her being decked out in vulgar finery, with her hair got up after an elaborate style which it would take her half the day to arrange. Print dresses of pretty pattern, or grey alpacas, according to season, with a light white cap, linen cuffs and collars, scrupulously white and clean, and a coloured neck ribbon, would be infinitely preferable to the black costumes of the sisterhoods. The heavy woollen dresses worn by some sisterhoods are not all that is desirable in a sanitary point of view. They do not "show dirt," it is true; but it would be better if they did; and in their folds it is not impossible that germs of disease may be carried about. It may be laid down as a rule that nothing in a nurse's dress that rustles, creaks, flaps, or catches can be in place. It is evident that this rule forbids silk dresses, stiff stays, trailing robes, and ornaments that are likely to throw things down. High heels are, of course, quite out of the question, as is any fashion which interferes with easy movement on the part of the nurse. Quietness, softness, usefulness are the points to be aimed at in the costume of a nurse; and if brightness can be given by a ribbon, the brightness may well be superadded. A nurse should wear no rings, and her nails should be kept cut very close. The sleeves of her dress should admit of being turned or rolled up above the elbow.

Never think any change in the patient's manner or appearance too trifling to tell the doctor of it.

Unimportant as you may deem it, it may be the very symptom he is watching for. Tell the doctor everything fully and truly, and above all, obey him implicitly. Never act against his orders, or tamper with them in any way. If you think any change in treatment judicious, ask his opinion first before trying it, but do not do things unknown to him. In this watchfulness and strict obedience lie the chief difference between professional and amateur nursing, and also too often the great advantage gained by employing the former over the latter. The several symptoms should be written down by the nurse from time to time on a slip of paper, always at hand, for the doctor.

Always save whatever has been vomited by a patient for the doctor to see, and be able to give information as to when the vomiting took place, whether directly after food or liquid had been taken, or not; notice whether there was much straining or retching before actual vomiting occurred, also if it was preceded by pain, and the situation of the pain. Remove the vomit from the room immediately.

In the case of coughing, observe whether it comes on in paroxysms, or is incessant; whether it is dry and hard, or moist and accompanied with expectoration; whether it is worse at any particular time, and is attended with pain. If there is expectoration, this should be kept for the doctor’s inspection. If blood is brought up, note whether it is coughed up, vomited, or brought up from the back of the throat or mouth; remark whether the expectoration adheres to the side of the spitting-cup, or flows easily.

The number of times the bowels are moved in the 24 hours must be noted, and whether the motion is

attended with pain, griping, or straining; also the colour of the motion, and, if the patient passes worms, whether they are round or flat, tape, or small and thread-like. Note in what quantities urine is passed; also how often, whether with any discomfort or pain either before or after, its colour and consistence, and if there be any deposit, its colour also.

Do not forget to give messages of inquiry, as sick people think much of such kindnesses. Do not read letters out without reading them to yourself first; you may come upon some passage about the patient that you do not care to repeat, and your hesitation will make him anxious and uncomfortable. In convalescence books are often a difficulty, and require most careful choosing. Something not exciting, but thoroughly amusing, is generally the best thing—the lightest novel you can find. In any case, be careful not to read too long at a time; the strain of listening and attending is very tiring. In extreme weakness, when there is nothing to be done, say something from time to time to take off the sense of loneliness, but do not ask unnecessary questions or touch your patient—it is very tiring; and never at any time lean against the bed and shake it, and do not put anything heavy over the patient's feet; the weight tires, and a hot bottle warms much more effectually.

Remember that the process of settling for the night takes a long time, and be sure to begin early. Some people sleep better in the first part of the night, and you should notice the hour at which the patient gets sleepy, and arrange accordingly; if kept awake long past that hour, a restless night will be the consequence. It is never wise to wake the patient,

even to give medicine, except by the doctor's orders. You should have a small tray arranged with all the things you are likely to want in the night, except medicines. By means of the judiciously-placed screen, anything that has to be brought in can be quietly handed over the top without a sound. Door-hinges and handles should be carefully eased and oiled.

Real quietude means the absence of all excitement, and it must be remembered that anything out of the common will tend to excite the mind of a sufferer. Do not, therefore, walk on tip toe, for this, in addition to its unusual elaboration of the gait, invariably causes a certain amount of creaking. Speak in low tones, but do not whisper. A whisper will often awake a sleeper who would not be disturbed by an ordinary conversation; and never say "hush!" Let your clothes and foot covering be of as noiseless and unobtrusive a character as possible, and instead of gliding and tottering about like a rickety ghost, do not hesitate to walk. If you have occasion to say anything in the room, say it so that the patient can hear it if he wishes, and do not let him be aware of your conspiring privately with the others, especially at the door. The door has much to answer for. If it be visible from the bed, people open it cautiously, put their heads in and slowly withdraw again. If, as is more frequently the case, it is screened by the bed curtains, mysterious openings and shuttings are heard, unattended with any apparent ingress or egress, and *sotto voce* colloquies going on outside. When you enter, do so honestly and at once. Do not spend 5 minutes in turning the handle, thereby producing a series of irritating little clicks, finally terminating in a big snap, with which the door flies open. If the latch be at all rusty, a handle

that is slowly wound back in this way will often stick, and either require to be rattled back in position, or, if left as it is, may start back suddenly, after a time, of its own accord, with a report like a pistol shot.

A bracket or table on the landing or in an adjoining room, where one can keep a basin, water, and a cloth for washing cups, &c., can nearly always be managed; and even if one has to carry everything up and down stairs, the comfort to the patient of systematic, dainty cleanliness more than repays the trouble. Some nurses seem to think it enough to place anything used outside the sickroom door, trusting to a chance maid seeing it and carrying it off. But this proceeding often worries the patient most exceedingly. He or she lies there and fidgets over the chance of that stray cup being whisked over by a passing skirt, with an ominous clatter and smash; and though this probably does not happen, the expectation of it keeps the mind on tenter-hooks, and prevents needful rest.

Let visitors sit between the door and the patient, getting the benefit of the air and not between him and the fire, thus getting in the direct current of foul air rushing towards the fireplace; they should be well in sight of the patient, and never admitted at meal times. While talking to the patient it is better to sit by the side of the bed and as near the pillow as possible, so that you may converse easily, while your face and body are turned in the same direction as his. By this means you can make all necessary observation of his features without enforcing the arrest of his eyes on your own, which is so embarrassing and disagreeable to one lying in bed, and is almost unavoidable when facing him. Keep

him in as comfortable a position as possible, by all means, but do not be too demonstrative in smoothing the pillows and little offices of that sort. Fidgety attentions will worry and do more harm than downright neglect.

The Bed.—The best kind of bed for the sick is a small iron bedstead, about 3½ ft. wide and not too high, with firm, level, spring mattress, and light warm covering, avoiding large heavy linen counterpanes, which, though oppressively weighty, give but little heat. It should be placed in such a position as will be most out of draughts, and at the same time convenient for the nurse in performing personal services for the patient. It must never have either side against a wall, nor be between the door and the fire. It is a point of some importance, especially in cases of long illness, to arrange the position of the bed so that the sick person can see the fire or look out of window. A second bed, or hammock, or stretcher on wheels, is often very useful for shifting the patient on to while airing and making the other bed.

Good bed-making is imperative in sickness, and nothing is a better test of a nurse's capacity than the way she keeps her patient's bed. Some nurses are eternally fidgeting till they work the unhappy invalid into a frenzy. Others, again, in their dread of disturbing him, let the patient toss everything to the wildest confusion, trusting to one grand and general clearing up to set matters right. A good nurse keeps things straight almost unconsciously, taking advantage of any chance the patient gives to smooth out the crumpled sheet, or tossed bed-clothes, with a strong even pull, or to replace a heated, crushed pillow with a fresh cool one (though careful that, if

cool, it is not chilly). Remember when smoothing a sickbed never to jerk or twitch the clothes, and be always sure your attempts do not endanger anything that may be lying on the bed, and whose downfall would most certainly disturb and flurry the invalid. A wide bed in a measure is a substitute for having 2 beds, as considerable relief may be obtained by using alternate sides of the bed; moreover, you can cool one side when the patient is on the opposite side, by turning back the clothes so as to let the air reach the lower sheet. Bed linen should always, if possible, be exposed to the open air, in the sun and wind, before using, as this freshens it most effectually, whilst a drop or two of good lavender or rose water sprinkled on sheet and pillow-case add greatly to the pleasantness. The best way of making a bed so as to give the least possible disturbance to the sick person, and prevent bed sores, is laid down in these rules:—(1) Keep the sheet below the patient perfectly smooth; (2) wash the parts where the bone is prominent daily with soap and warm water, dry them well, rub them over with a little spirits of wine or whisky to harden the skin; (3) change the patient's position frequently; (4) never let him lie on a blanket; a freshly-made bed, a good sponge over with vinegar and water, would often, after a restless, sleepless night, have the good effect of making the patient fall into a sound sleep. It is best to make a good lather with the soap, and not to use much water. Zinc-powder and boracic acid powder are often used to powder the back after the washing.

A very common torment of invalids is the weight of the bed clothes. They are heavy, but not warm. For the rich, blankets and eiderdown quilts are easily obtained; but for the poor, paper is far better than many more costly coverlids. It is by no means

necessary to spend money on a paper blanket, though these are excellent; a few sheets of brown paper, or even newspapers, pasted together to the size of the bed, add greatly to the warmth and practically nothing to the weight. If it is not the beat possible covering, it is very good, and absolutely costless.

It is often necessary to change the sheets without disturbing the patient. This can be done either from side to side or from head to foot. The former method consists in loosely rolling up the soiled sheet sideways, from the side of the bed where there is most unoccupied space, until the roll can be pressed against the patient's side. The clean sheet, previously loosely rolled up from side to side, is then unrolled over the uncovered part of the bed, until the clean roll lies by the side of the soiled one. The patient is now lifted over on to the clean sheet, the soiled sheet is taken away, and the spreading of the clean sheet is completed. The second plan is to roll up a clean sheet loosely from end to end. Beginning at the head of the bed, the soiled sheet is rolled down from underneath the bolster, and the clean sheet unrolled after it, and arranged in its place. The shoulders of the patient should then be raised a little, and the soiled sheet rolled down from under them, while the clean sheet is unrolled to follow it. The hips, and lastly the legs and feet, are to be gently raised one after another in a similar manner, the soiled sheet taken away at the foot of the bed, and the unrolling of the clean sheet completed.

With paralysed and other helpless patients, frequent washing or sponging is more necessary, and the draw-sheet becomes useful. This consists of a small sheet folded lengthwise 2 or 3 times, so that

when placed beneath the patient it may reach from the middle of the back to the knees. One end of the folded sheet should be the part first used, the rest being loosely rolled up to within a few inches of the patient's side. As the sheet becomes soiled, the unused portion is unrolled sufficiently for the soiled part to be drawn from under the sick person, and a clean part substituted. The soiled portion is rolled up as it is withdrawn, and secured by a safety-pin. A piece of waterproof sheeting or a strip of thin oil-cloth passed beneath the draw-sheet still further protects the bed.

Bedding and pillows should not be too soft, otherwise the patient is continually sinking into hollows, and becoming hot and restless in consequence. When a patient needs to be propped up, the greatest mistakes are made. Pillows are jammed and wedged in at the patient's back till he is completely built in. A cheap and simple pillow which doctors strongly recommend as a support in such cases is made of chaff, or chopped straw, and stuffed hard. It is covered with any cheap material, and is shaped like a writing desk—that is to say, it is made to slope. It should be a little longer than an ordinary pillow, and should be 8-12 in. deep behind and 3-4 in. in front. Ordinary pillows (1 or 2) placed upon this as a basement make a capital back-rest for persons suffering, say, from bronchitis. Such a rest has many advantages: it does not give way, hence the patient no longer finds himself from time to time in a deep hole; it allows the arms and shoulders free movement; it is also cooler, and permits more frequent change of posture. In propping a patient up it should always be remembered that the back needs support as well as the head and shoulders.

A very great comfort to sick people, especially to those who have to be left much alone, is to be furnished with some simple arrangement by which they can raise themselves into the sitting posture and so maintain themselves with slight effort. This can be attained by fixing a length of strong webbing to the foot of the bed, and placing knots upon it at intervals, so as to enable it to be more readily and firmly grasped. A netted bed-rest, 3 yd. in length, is a very simple and useful contrivance; its main use is the same as that of the knotted webbing, but by allowing it to pass round the back of the invalid, and spreading it out, it makes an exceedingly pleasant bed-rest, fashioned on the principle of the hammock. A swing bed-rest has several advantages. It is very cool, and allows a free play of air on all sides of the patient, which is a very important advantage. It permits, moreover, considerable movement, and does away with the fatiguing restraint of keeping the body in one position. If the ventilation through the network be too great, or the weather be cold, a pillow can be placed against the patient's back, within the rest. Instead of the rest being netted, it may be made of strong towelling, which will bear rougher usage. Its strength and serviceability will be increased by stitching here and there bands of webbing; and at each of its narrower ends strong broad tapes must be fastened, by which it can be secured to the foot of the bed. Such netted bed-rests can be had (5*s.* 6*d.* each) at the Depot for Ladies' Work, 16, King Street, Manchester.

Bedridden patients, and those who are paralysed or otherwise reduced to a condition of great weakness, often complain that they are continually slipping down in the bed. Often a box or footstool is slipped in at the foot of the bed, that the patient's

feet may be pressed firmly against it to prevent slipping. But this cannot be long continued where the legs are weak, for the muscles become exhausted, the knees give way, and then the slipping goes on just as badly as ever. This can be prevented, if a little round pillow, 3-4 in. only in diameter, be fixed so that the patient, though lying down, as it were sits upon it. Such a pillow, to answer its purpose, must be tied in its position very securely, and this may be done by a piece of webbing attached to each end, and tied either to the head or sides of the bedstead.

Following is a way to make pillows with paper stuffing. Use any sort of paper, and tear all into small square or oblong pieces. Then roll each piece between the finger and thumb into a tiny spiral, exactly as if beginning to make round spills. It is very little trouble to do. It is a most suitable occupation for blindman's holiday, or for people with weak eyesight; and the pillows, as may be supposed, are far more elastic than if made of the same paper, flat. Of course, it is most suitable for an under pillow, if one has a choice; but so long as there are so many unfortunate invalids without any pillows at all, the plan is worthy of remembrance.

A table to stand on the bed is very convenient for trays, &c. It can be bought ready made, and is not at all expensive, or a very little ingenuity is needed to make one. About 2 ft. long, hollowed out on one side, and 1 ft. broad, is a good size. The legs may be 6-7 in. high.

The bed can be refreshed and aired by raising and lowering the clothes so as to produce a fanning motion. To turn a pillow without fatiguing the patient, put the hollowed palm of one hand at the back of his head while with the other you quickly

reverse the pillow and replace it. To lay a bed with a waterproof sheet for temporary use, first make the bed with a blanket beneath the under sheet, and then spread the waterproof, a blanket and another sheet, without tucking in. When done with, it is only necessary to draw out the waterproof with its blanket and sheet, leaving the patient on a fresh sheet. No amount of care will keep crumbs out of a sickbed; they catch in every fold and frill and pass up the sleeves, and demand a search after every meal in which bread figures. To avoid rucks in the under sheets, stretch it tight on the mattress and fasten it down with safety pins.

Sickroom accessories.—These are of a varied character, and will be described under separate headings.

Poultices. Linseed.—The great art of poultice-making consists in applying it to the patient sufficiently hot, and, therefore, it is advisable to warm all the materials before beginning. Put the linseed (crushed or meal) before the fire or in the oven for 20 minutes to heat. Use by preference a tin bowl, and scald it with boiling water; then pour in as much boiling water as will be needed for the poultice, sprinkle in the hot linseed with one hand, and stir vigorously with a knife to the required thickness. To judge of this requires some practice. A poultice should be somewhat moister, if applied to an open wound, than if it is intended to relieve some internal pain; but in no case ought it to be sufficiently moist to stick in patches to the skin of the patient. The next step is to take a square of rag or paper ½ in. larger all round than the poultice is intended to be; spread the linseed on this about ½ in. thick, leaving the edges clear; fold the rag over on

each side, and apply at once, covering with a pad of cotton wool and a layer of indiarubber or oil silk to keep the heat in. It is a good plan to oil the face of the poultice with a feather, as this effectually keeps it from sticking to the skin, even if it is not well mixed, and it is better than to put the poultice into a muslin. If, however, the muslin is preferred, on no account should a bag be made, for the poultice cools while it is being put in. A large piece of old linen, folded over at the back, like a parcel, keeps the linseed in, and makes at the same time a pad to cover it. Failing linseed meal, you can use either oatmeal or bran; if oatmeal, then boil it with the water like porridge. A poultice should be larger than appears absolutely necessary. It is intended to allay pain and inflammation, and as the pain probably extends beyond the inflamed part, a large poultice should be made to cover the inflamed part. Dr. Atkinson says that meal deprived of its oil is far better than that from which the oil has not been extracted. The latter does not retain its heat as long, and, unless covered by some fabric, is not so easily removed as the poultice made from the former. The exhausted meal takes up more water, and retains its heat longer. In making a poultice, the meal should be thoroughly stirred with a spoon while boiling water is gradually added, and when of proper (rather soft) consistence, should be spread on linen. The ability to bear the heat on the back of the hand is a good test of the degree to be used. The poultice should be applied directly to the skin, without intervening fabric, and be covered on the outside with good oiled-silk. A teaspoonful of laudanum may be sprinkled on the surface to increase its anodyne effects, or in place of water may be used a boiling infusion of camomile or poppy-heads. When the skin

is inflamed, 3 grs. sulphate zinc or alum may be added to each oz. of water. A solution of 1-40 of carbolic acid may be used instead of simple water in the case of sloughing wounds. Once in 4 hours is a good rule to follow in changing poultices on the chest, the front and back being covered by separate poultices, and only one should be removed at a time. A fresh one should be ready when the change is made. Frequent changes are most grateful in cases of abdominal pain.

To relieve spasm, as in colic—intestinal, biliary, or renal; to relieve inflammation of the pleura (lining membrane of the chest), the lungs, the liver, or other organs, it is essential to apply the poultice as hot as possible, while protecting the skin from being scalded. In order to do this, a flannel bag should be prepared, a convenient size being 12 in. by 8; this should be closed at 3 edges and open at the fourth; one side of it should be 1-1½ in. longer than the other, and it is convenient also to have 4 tapes attached at the points which form the corners when the bag is closed, in order to keep the poultice in position. Besides this, another strip of flannel should be prepared of the same breadth as the length of the bag, and long enough to wrap round it once or oftener. Crushed linseed, bowl, and spoon should be got together, and the spoon and bowl thoroughly heated by means of boiling water; the poultice should then be made with perfectly boiling water, and rather soft. As soon as it is ready, it should be poured into the bag, previously warmed by holding it before the fire; the flap which is formed by the longest side of the bag should now be turned down and fastened in its place by a few long stitches with a needle and thread; it should then be quickly wrapped in the strip of flannel (also previously warmed), and

fastened *in situ*, if necessary, by means of the tapes. It may be covered outside with a sheet of cotton wool. In this way the poultice may be applied boiling hot to the skin without burning; the 2 layers of flannel which are at first dry allow the heat to pass very gradually indeed to the skin; as the moisture of the poultice soaks through them they become better conductors, and the heat passes more quickly, but the increase is so gradual as not to cause any painful sensations whatever, but only one of soothing and comfort. The poultice also naturally keeps much longer hot, and the necessity for changing it arises much less frequently. The difference between the effect of a poultice made in the ordinary way and in the manner just described is sometimes exceedingly striking. It is, perhaps, less marked in cases of inflammation than in those of spasm.

Bread.—In a small and perfectly clean saucepan have a teacupful of boiling water. Add breadcrumbs, or the crumb of a stale loaf: 1½-2 oz. will be sufficient for this quantity of water, and let it soak over the fire for about 5 minutes. Then turn it into a piece of rag, and spread it of suitable size and evenly. This plan ensures its being hot.

Mustard.—If a mustard poultice is wanted it can be made in the same way as linseed, save by adding a certain proportion of dry mustard to the linseed. Some persons prefer to boil a little mustard in the water that is to be used. Dr. Tyson, of Philadelphia, recommends the addition of molasses to mustard in making plasters. This furnishes a mild persistent counter-irritant which can be worn for hours. Leaves of so-called “mustard paper” may be made as follows: The mustard must be deprived of all fatty matters; the adhesive agent must contain neither

alcohol, resin, nor fatty matter; nor must it be of the nature of a plaster. Submit the mustard farina to strong pressure, and wash with sulphide of carbon or petroleum essence. Spread on paper an adhesive liquid formed of a solution of 4-5 parts caoutchouc in 100 parts mixed carbon sulphide and petroleum essence. Sprinkle over the freshly coated paper by means of a sieve, the prepared mustard. Pass between two rollers, and afterwards gently warm to promote volatilisation of the liquid solvents used. Cut to pattern as required.

Court Plaster.—This is generally bought. To make it, soak isinglass in a little warm water for 74 hours, then evaporate nearly all the water by gentle heat, dissolve the residue in a little proof spirits of wine, and strain the whole through a piece of open linen. The strained mass should be a stiff jelly when cool. Now stretch a piece of silk or sarcenet on a wooden frame, and fix it tight with tacks or pack-thread. Melt the jelly and apply it to the silk thinly and evenly, with a badger-hair brush. A second coating must be applied when the first has dried. When both are dry, apply over the whole surface 2 or 3 coatings of the balsam of Peru. Plaster thus made is very pliable and never breaks.

To make it without silk, mix enough collodion with castor oil to render it elastic when dry, the oil having profusely been rubbed with some zinc oxide. Into this mixture dip glass plates, and, after drying, redip and redry 2 or 3 times, or until a film of suitable thickness is obtained. Upon this paint the usual solution of isinglass to give it adhesiveness, and, after again drying, separate it from the glass.

Applying cold to the Head.—Take one fold of cotton or linen rag, soak it in cold water, the colder the

better, squeeze dry and apply it as rapidly as possible. Do not take a large piece of cloth folded several times, and keep squeezing it in your hand till it is quite hot and then put on. One fold of cloth, the thinner the better, dipped often in the cold water and rapidly applied gives great relief in headaches, for example. If you can procure ice put a piece in the water. Ice is sometimes ordered to be kept constantly on the head; to keep it from melting, wrap it up in flannel, or put it in sawdust, and in a cool place. To break ice, use a large needle. Ice-bags can be bought for 3*s.*-4*s.*, or it may be put in a bladder and applied to the part, or a bag may be made of guttapercha and chloroform. By putting a little chloroform along the edges and folding them over, you can make a very useful bag for ice; the ice should be broken in small pieces before being put in the bag, and be removed as soon as it melts.

Fomentations.—A very good, perhaps the best, plan is to put a piece of flannel, folded 4 or 5 times thick to the required size, into a potato-steamer over boiling water. In this way it soon becomes hot, and little or no wringing is necessary. Where a potato-steamer is not to be had, however, the following plan should be adopted. Take a strong towel or cloth, or a piece of ticking, and pin or tack a deep hem in each end. Into these run two short, strong sticks—anything will serve: a couple of iron spoons, and even a small poker, such as is called a “curate,” though this last is rather long for choice. Lay the towel, or “wringer,” as it is technically called, over a large basin, so that the sticks hang outside; place the folded flannel in the middle, and pour boiling water over. The flannel can easily be wrung dry by one pair of hands, and if it is not made by the bed side, it can be carried there without fear of cooling in the

wringer. Sometimes opium or turpentine is to be added. The quantity of either to be used will be prescribed by the doctor, and it should be sprinkled on the side of the flannel that is to go next the skin, immediately before applying it to the patient. The flannel should be covered with wool and oil-silk, just as a poultice is covered. Fomentations are, in many cases, as efficacious as poultices, and they possess, besides, the advantage of being easier to make, and of costing practically nothing, since the flannels can be used repeatedly. For the very poor, the cost of linseed for poultices is often a serious item. There is no danger of scalding if the flannel is squeezed so dry that it cannot drip nor wet the palm of the hand.

Another plan is described as follows: Take your flannel folded to a required thickness and size, dampened quite perceptibly with water, but not enough to drip, and place it between the folds of a large newspaper, having the edges of the paper lap well over the cloth, so as to give no vent to the steam. Thus prepared, lay it on the stove or register, and in a moment steam is generated from the under surface, and has permeated the whole cloth, heating it to the required temperature.

Blisters.—Blisters and leeches should only be used under medical direction. Before the application of either, the part should be well washed with soap and warm water. Then, in the case of the blister, it has only to be slightly warmed before the fire and left on until “it rises,” and a good-sized vesicle has formed (which will usually be in about 8-10 hours), when the water must be let out by snipping the skin with the point of a sharp scissors—a perfectly painless operation—and the blistered surface dressed with spermaceti ointment spread on soft lint.

Leeches.—Leeches can generally be induced to bite by putting a few drops of milk or blood on the spots they are intended to take. They will usually fall off of themselves when filled, but if they remain on too long they must not be pulled off, but a little salt shaken on them, which will soon make them let go. Another simple and easy way of detaching leeches is to drop a few drops of camphor julep (mist. camph.) on the part, when they will soon relinquish their hold. The bleeding from their bites will also generally stop without interference. If it should continue to an undesirable degree, the nurse may nearly always stop it by making gentle pressure over the bite with her finger, or applying a little powdered alum or the muriated tincture of iron (tinctura ferri perchloridi). Never leave a patient for the night until all bleeding has completely ceased. The bleeding may be increased, when desired, by fomenting with warm water.

Enemas.—A nurse is often required to administer an enema or injection—which in many conditions of disease is a most valuable method of treatment. Be careful not to disturb or uncover the patient until quite certain that you have arranged ready to hand everything that will be required. Almost any variety of injection apparatus answers the purpose sufficiently well, but in using the rubber ones care must be taken to squeeze out all air from the bulb before commencing, else the air will be forced in by the first compression. The most convenient position for the patient is lying on the left side. Then the nozzle of the instrument, having been well greased and warmed, should be passed slowly and carefully into the bowel, the point being directed slightly backwards. On no account whatever must the least force be used. If there is any difficulty or pain in

introducing the tube to the required distance, the nurse must wait for a minute or two, when, in all probability, the opposing muscle having become relaxed, it will pass in easily and without pain. The injection should then be given very slowly and quietly, and without any jerking or irregularity of motion, especially if it be desired that it should be long retained; it must be stopped immediately if the patient calls out that he can bear no more. Enemata are generally either nutrient or purgative; but occasionally other medicines are given in this way. The nutrient are of extreme value, as it sometimes happens that, when nourishment can be taken in no other way, sufficient may be supplied by this means to tide over the period of danger. A good nutritive enema may be made as follows: The yolks of 2 fresh eggs well battered in about ½ pint strong beef tea, or in 2 tablespoonfuls (half a canister) of Brand's extract of beef, dissolved in warm milk. About ½ wineglassful port wine, or 1 tablespoonful brandy may be added in cases of extreme exhaustion. It should be given at about blood heat—100° F. An active purgative enema may be made with: 4 tablespoonfuls castor oil, 1 teaspoonful oil of turpentine, and about 1 pint well-strained gruel, or soap and water. An enema of plain soap and water often answers very well.

Clinical Thermometer.—In trifling ailments its use is for reference; in serious attacks it may give immediate warning that the physician is required; and even while the doctor is in attendance he often wishes observations regarding the temperature to be taken several times a day, in his absence, for his guidance and information. Following are a few illustrations of the uses to which the clinical thermometer may be put by any intelligent person.

The natural temperature of the human body is 98·4°F. and the little arrow on the thermometer indicates this normal degree of heat, so that when the index rests at the arrow, the natural temperature is proved to be present. It is the variations above or below the arrow that mark the presence of disease.

The agony of colic is well known, but it is generally of little danger in the absence of inflammation. In peritonitis (inflammation of the bowels), the temperature runs quickly up to over 101° F.; in colic it scarcely rises more than a degree, if even thus far, above the natural temperature. A severe pain in the side causes pleurisy to be suspected. If the temperature is normal, there is no pleurisy, and the pain is probably neuralgic. Diarrhœa may continue for a few days, and the patient feels so out of sorts that typhoid fever seems to have set in; but all the specific forms, such as typhoid, typhus, scarlet fever, diphtheria, or measles, are accompanied by such an increase of body heat as will probably send up the record to 101° F., or possibly 3-4° higher. A child with persistent vomiting, sore throat, and high temperature will probably in a day or so show the rash of scarlet fever. In any case, when a temperature remains above 100-101° F. for more than 1-2 days, without obvious cause, the doctor should be consulted. If the child has disordered stomach or sustained a chill, the thermometer will record fever; but, after a purgative in the one case and a tepid or hot bath in the other, the increased heat will be found to be gone, and with it any alarm which may have been felt. In the course of an inflammation or fever, the friends can be informed by the medical man what degree of heat he expects, and should this be exceeded the doctor should be informed of the fact. Indeed the clinical

thermometer is invaluable, especially to families at a distance from their medical adviser. It can be obtained from any instrument maker for 7*s.* 6*d.*-12*s.* 6*d.*, or more. Its application is a very easy matter. The bulb containing the mercury should be placed in the mouth or arm-pit; care should be had in the last case that clothes do not intervene between the instrument and the arm, and that it is so placed in the arm-pit as to be completely surrounded by skin. The patient must then press the arm gently to the side so as to retain the instrument, and in 5 minutes the thermometer will show the body's temperature.

Dollond, 1 Ludgate Hill, London, E.C., sells an improved Lens Clinical Thermometer. The importance of the "lens" front cannot be over estimated, for with such a thermometer there is no difficulty in reading off the temperature even in the dull light of a sickroom, for the thin thread of mercury is magnified quite twenty times its size. This thermometer is made with a contraction in the tube near the bulb, which prevents the mercury returning, until shaken down. The price of this thermometer is 7*s.* 6*d.*

W. H. Harling, 47 Finsbury Pavement, London, E.C., is the maker of an excellent clinical thermometer with lens front, which registers the temperature in the space of a single minute. It is furnished with a metal case having a bayonet fastening, and costs only 8*s.* 6*d.* The same maker supplies also ordinary clinical thermometers, in cases, at prices ranging from 3*s.* 6*d.* upwards. Other sickroom requisites are noticed on p. 1007.

When used to take the temperature of patients suffering from infectious disease, the thermometer should be disinfected by being washed in "Sanitas"

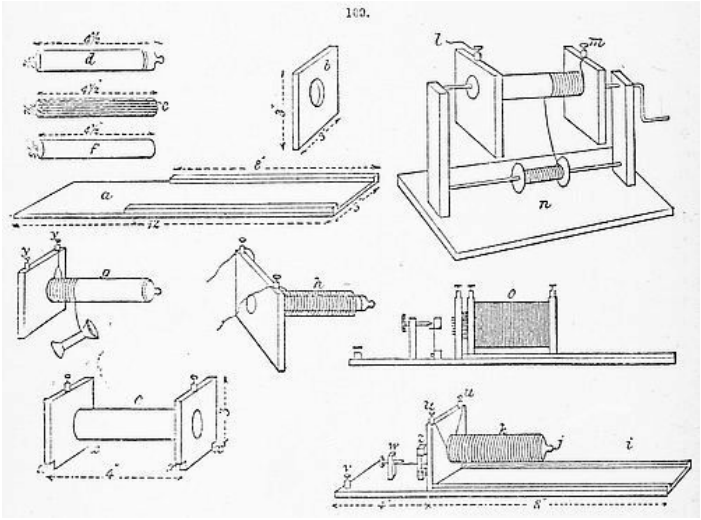
or carbolic acid solution after each time of using. In taking the temperature under the tongue, the index should be “set” as directed, and the bulb should be placed as far back under the tongue as convenient and agreeable; the mouth should then be kept shut, and the patient should breathe through the nose: 3 minutes are sufficient for taking the tongue-temperature. In the arm-pit the thermometer should be left for 5 minutes and the fore-arm should be made to lie across the chest, so that the thermometer may thus be made to rest in a sheltered position.

Temperatures should be taken in ordinary cases at 8 A.M. and 8 P.M.; 2 o’clock is a convenient hour for a third observation. Variations in temperature occur in healthy persons, but such change does not usually amount to more than 2° or 3° F. What is to be regarded as deserving of attention under the ordinary circumstances of life is a fall below 97°, or a rise above 99·5°. In fevers, as a rule, the temperature does not rise above 106°; but in fever a heat of 108°, continuing even for a very short time, would be regarded as a most dangerous symptom. A very high or very low temperature must be looked upon as dangerous; should it be excessive either way, the case will probably prove fatal. A very sudden change is suspicious, and very frequently dangerous. In children, however, the presence of indigestible food in the intestinal canal may suffice to cause a rapid rise in the temperature. After the temperature has been stationary for some time, or has commenced to fall, a fresh rise may herald the advent of some complication, or the approach of a new disease. An unexpected fall may denote hæmorrhage, exhausting diarrhœa, or the perforation of the peritoneum or pleura (lining membranes of the abdomen and chest). A considerable rise during the course of a

disease which is not generally regarded as febrile—viz., in tetanus, epilepsy, and cholera—usually precedes death.

Making a Medical Coil.—Procure a well-seasoned walnut board about 21½ in. long, 3 in. wide, and ⅜ in. thick. From this cut one length 12 in. long for the base board *a*, and 3 pieces 3 in. square (like *b*) for the coil heads; when cut, a fillet 8 in. long must be nailed or screwed on the two sides of the base board (as shown in *a*); these fillets should be ¼ in. square section. Corresponding square nicks must be cut of two of the square heads (as shown at *x* in *c*). All the woodwork when thus squared and finished should be soaked for ¼ hour in melted paraffin wax, and then rubbed dry while still warm.

Obtain a thin brass tube (known in the trade as "triblet tubing") about ½ in. diameter, 4½ in. long; turn up a short plug and button to fit one end of this tube and serve as a handle (see *d*). This may be fastened to the tube by driving in 3 fine brass brads, and filing off the heads flush with the tube.



109. Home-made Medical Coil

Cut up about 100 lengths of straight iron wire (best soft annealed) No. 22 gauge, say, about 4½ in. in length; fill the brass tube with them as tight as you can fit them; cut them all to the same length (they must protrude a little beyond the tube). Now draw out about 2 in. of the iron bundle and wrap it tightly round with twine, leaving about ½ in. free. Draw more out, and continue wrapping until you have wrapped to within ½ in. at each end of the bundle. Tie the string, and withdraw the bundle from the brass tube. Melt a little solder in a ladle, dip the ends of the iron bundle into soldering fluid (zinc dissolved in hydrochloric acid), and then at once into the melted solder. Allow the bundle to cool; file off the superfluous solder, so that the bundle will just enter freely into the tube. It should appear like *e* when the string has been removed.

The next operation is to make a good stout paper tube, also about 4½ in. in length, into which the

brass tube *d* can slide easily. To make this, put a few turns soaped writing paper round the tube No. 1, then roll and glue seven turns of good stout brown paper, 4½ in. in length, round this writing paper, or else it will be difficult to draw out the tube. This paper tube *f* must be allowed to dry thoroughly while still on the brass tube *d*. When quite dry, it must be slipped off, the writing paper lining drawn out, and then it must be soaked for a few minutes in melted paraffin wax.

The iron bundle should also be allowed to stand in melted paraffin wax for some time, and then stood up to drain in a warm place. This will prevent rusting. When quite cold, all superfluous paraffin having been removed, a strip of brown paper, ½ in. wide, is rolled round one extremity of the iron bundle, until it is of such a diameter as to fit tightly into the paper tube *f*. This paper strip must be cut off at this point and glued tightly round the end of the iron bundle. The brass tube *d* is then slipped over the iron bundle until it just reaches the little paper collar just made. The brass tube and bundle together are pushed, button end first, into the paper tube *f*; and when the paper collar round the iron bundle is just about to enter the paper tube, it is to be well served with hot glue and forced into the tube. The whole must now be allowed to dry and set thoroughly.

Taking one of the 3 in. heads (the one which has not any nicks in the sides), bore a centre hole with a brace and centre bit, just large enough for the paper tube *f*, with its iron core, to fit tightly (see *b*). Putting a little thin good hot glue round the free extremity (the end opposite to that at which the brass enters), push it into the hole in the square head, until it projects about ⅛ in. on the other side. This must be

allowed to dry thoroughly before proceeding to the next operation.

Now proceed to wind the primary coil. To this end, take about ½ lb. No. 24 silk-covered copper wire, and wind it round the tube, as shown at *g*, from end to end, in continuous layers, taking care to put a sheet of paraffined paper between each layer, and also to baste each layer with melted paraffin wax before winding on another. About 4 layers will thus be got on, and an even number of layers must be aimed at, so as to get the 2 ends of the wire at the same extremity, and able to fasten them under the binding screw *y*. To effect this, before screwing down the said screws, the ends of the copper wire are stripped of their covering and wound once round the screw of the binder. Free ends of wire, at least 6 in. in length, must be left for attachments, &c. This is shown at *h*.

This primary coil, with its iron core, sliding brass tube regulator, &c. may now be fastened to the base board by means of 2 screws from underneath, as shown at *i*, at 4 in. from one end, and therefore 8 in. from the other. One of the free ends of the primary wire is brought to one of the binding screws *v*, while the other connects to the clapper *z*. A short piece of wire connects the platinum screw pillar *w*, to the other binding screw, which is not visible, as it is behind the platinum pillar. At this point it will be well to try the working of the primary coil. For this purpose, couple up the 2 binding screws on the base board with a good bichromate cell. Connect the two binding screws *u* in *i*, with the 2 brass handles intended for use. Screw up the platinum screw *w* till the clapper *z* begins to vibrate. Now hold the handles in your hand. As long as the brass tube *j* is entirely

over the iron core, little or no sensation is perceptible. If an assistant pulls out the tube, little by little, the current will be found to increase in strength until the regulator tube is quite out.

The secondary coil now demands attention. A paper tube, precisely similar to *b*, but of such a size as to slide easily over the primary coil *i* is prepared, and paraffined. This must be cut exactly the length of the coil *k*, leaving the knob *j* projecting. The 2 square pieces of board in which the nicks were cut (*c*) must then have central holes cut in them to take this paper tube, and then glued, one at each end of the said tube, as shown. Two small binding screws are then to be inserted in the centre of the upper edge of each square. A bung is now placed in each end of the tube, and a ¼ in. iron rod pushed through both, to serve as an axle. This is then mounted on 2 standards, as shown at *n*; and beginning by attaching one end of the uncovered wire to the binding screw *m*, about ½ lb. No. 36 silk-covered copper wire is now carefully coiled on, being most diligent in avoiding kinks, breaks, or flaws of every description. Each layer must be paraffined and separated from its neighbour by paraffined paper. When the quantum of wire has been laid on, the finishing end is connected to the binding screw in *n*. The last coil should be covered with paraffined paper, and finally covered with a jacket of good silk velvet. The secondary coil is then complete, and may be slid in its place over the primary coil *o*. When it is quite over the primary, the secondary current will be at its strongest, if the metal tube regulator is drawn out; it will be weaker as the metal tube regulator is more and more inserted; or may be even more delicately regulated by sliding the secondary coil itself more or less over the primary. The secondary coil, while the primary is

being excited with a freshly made pint bichromate, will give a ½ in. spark when the regulator is out and the secondary coil right over the primary. This will pass easily through a dozen persons. (S. R. Bottone.)

There are various other sickroom appliances demanded in special cases which do not require description here. Most may be had of such well-known firms as Salmon, Ody & Co., 292 Strand, and Savory and Moore, 143 New Bond Street.

Feeding patients.—A nurse should bear in mind these two leading facts; that while in sickness there is usually a greatly increased tissue-waste, and consequently an increased necessity for nutriment, there is almost always a decreased appetite, or no appetite at all—often such a repugnance to food that, if left to himself, the patient would prefer taking none at all. Hence, although the medical attendant may decide what is the most suitable form of nourishment, on her devolves the more difficult task of inducing the sick person to take it. With this view, she must exercise all her ingenuity to tempt and encourage him, by bringing everything in the neatest possible form. On no pretext whatever should there be any cooking in the sickroom; nor should she take her own meals there; nor should any food be left standing near the patient. On the contrary, though his nutriment must be brought to him frequently—more frequently, of course, the less he can take each time—and punctually, it should only be in such quantity as he is likely to consume; and immediately that is done, everything in connection with food should be removed from sight and smell until the next time.

The nurse must devote much of her attention to

the subject of diet, observing carefully the patient's appetite, and attending carefully to the quantity of food and the effect of it. The sense of taste of many people is very acute when they are ill, and you must take care that the spoon in the arrowroot, which looks perfectly clean, does not taste to the patient of the soup for which it was used last. Eatables should not be kept in a sickroom: if you are obliged to have anything within reach, put it under a cover; a tumbler turned over does very well for biscuits or jelly, and for larger things a bell glass is useful; tin boxes, the next best thing, generally make a noise when they are opened. The water given to a sick person should not only be boiled and allowed to cool, but ought always to be filtered. It should frequently be changed, as it quickly absorbs the impurities with which the air of a sickroom is charged, and becomes injurious, if not dangerous to drink. In cases of faintness, where stimulants are not ordered, the patient should be made to sip some liquid slowly; the mere effort of sipping accelerates the action of the heart.

When solid foods cannot be taken, the best kinds are those which contain the most nourishing properties in the smallest and most easily digested form. Prominent among these is well-made beef tea: not the greasy watery broth which so often goes by that name, but nearly pure beef juice which has been slowly extracted, with the addition of little or no water, from fresh lean beef. A good substitute may be found in Bovril, which has the great advantage in an emergency of being immediately procurable at a chemist's or grocer's. Home made beef tea takes a long time to prepare properly, and even then it is deficient in staminal properties, whereas Bovril contains the entire nutritious constituents of pure

beef, of which it takes 40 lb. to make 1 lb. of Bovril extract. Of equal value is milk; which, especially when combined with bread and butter, is very nourishing, and forms a most valuable article of sick diet. If it seems to disagree, or curdle on the stomach, it can generally be prevented doing so by the addition of about ⅓-¼ its bulk of lime-water. These may be varied by mutton broth, chicken or rabbit jelly, eggs in any form—plain, in custard, or in pudding with arrowroot and sago—and real turtle soup; which latter is, however, so terribly expensive as to be outside the reach of most people. Jellies made with gelatine, which contains scarcely any nutriment, are almost useless; and tea should be given only as an indulgence when specially wished for, and then it should be very weak, and with plenty of milk. All food given to the sick should be very fresh, of the best quality, and most carefully cooked.

Boiled Flour Gruel.—Where the illness has been long and tedious, and the strength reduced, the following will be found very useful: To prepare the flour, put into a basin as much as it will hold, pressed tightly down. Then tie a cloth over it, and allow it to boil hard for 6 hours. Then take off the cloth, and let the flour stand in the basin till next day, when remove the crust which will have formed, and put the remainder away in a covered jar. For use, mix 4 tablespoonfuls flour smoothly into a paste, then pour on it ½ pint boiling milk or water, and boil for 10 minutes, constantly stirring to avoid lumps. Brandy, sherry, lemon juice or cream may be added, according to taste. Gruel may also be made from baked flour, but it is not so easy of digestion.

Rice Gruel.—1 oz. each rice, sago, and pearl barley boiled in 3 pints water, which, in 2 hours, generally

reduces it to 1 qt. Strain and flavour to taste. This forms a good nourishing diet, especially with the addition of a little isinglass.

Onion Posset or Gruel.—This has been found very efficacious for colds, and is made with Robinson's groats with the addition only of an onion, which should have been previously boiled for 6 hours. The yolk of an egg well beaten is an improvement.

Chicken Broth.—The younger and fatter the birds are for this the better. It is made by immersing the legs, neck, and trunk of a fowl into just as much water as will cover them, and boiling gently for an hour. The white meat makes a delicious entrée if cut up finely and treated as a veal mince. Potato flour is useful for thickening in cases where boiled flour is not handy; but home-made things are always the best, as the ingredients are known.

Oyster Fritters.—Remove the beards, and put each oyster into a tablespoon, and fill with a batter made as follows: 1 oz. rice flour mixed with 2 tablespoonfuls water, 1 teaspoonful vinegar, and 2 salad oil, the yolk of an egg, and a little salt and pepper. Allow the batter to stand, and just before using, beat the white of an egg to a stiff froth, and mix with it. Fry the oysters covered with the batter in boiling fat, turn them, place them on blotting paper to drain; serve on a hot dish, and garnish with slices of lemon, and thin rolls of brown bread and butter alternately.

Potato Chops.—Mash nicely with a little milk, butter, pepper, and salt, any potatoes left from the day before, spread evenly over a boned loin chop previously sprinkled with finely chopped fried mint. Fry to a golden brown in boiling fat, then place it on blotting paper to remove the superfluous grease.

Garnish with fresh mint and watercress.

Jellies and Creams.—The following recipes were published by Mary Hooper, in the *Queen*:—

When jellies and creams are ordered for sick people in families where there is not a good cook, they are usually obtained from the confectioner; but this is not at all in the interest of the invalid, and efforts should be made to provide his diet from the home kitchen. An idea prevails that it is very troublesome to make jelly. It is not at all necessary to clear the jelly through a bag for invalids, nor indeed for ordinary domestic use. By a little care in the use of citric acid, which is perfectly wholesome, a jelly nearly as bright as that which has been cleared with eggs may be produced. In some cases, jelly without wine is required for invalids, when coffee, cocoa, or Seville orange jelly will probably be useful. It is difficult to make these jellies palatable without making them sweet, and they will only keep a short time. If the doctor does not object, or where it is desirable to give stimulants in a disguised form, a very small quantity of absolute alcohol may be used, and it will obviate the last-named disadvantages.

Milk jellies, or creams, whenever they can be taken, are an excellent form of diet, and are very easily prepared by the following recipes. For those who require a quickly-made cream, “Nelson’s Blanc mange” will be found very useful; it merely requires to be dissolved in milk or water, and in a very short time is ready for use. This blanc mange is made of very rich milk, and tastes equal to that prepared at home with cream. The unflavoured blanc mange should, as a rule, be selected for invalids, as any home-made flavour can be added to it. These flavourings—lemon, Seville orange, almond and

vanilla—are very easily prepared by infusing any of the three first-named in gin, the latter in brandy. As these are more digestible than any which can be bought, it is well worth while to take a little trouble in the matter. It is sometimes necessary to tempt the appetite of an invalid by a pretty looking dish, which is also nice and nourishing. Such a dish can be easily made by the recipe for Alexandra Cream.

Simple Jelly.—Soak 1 oz. gelatine in ½ pint cold water for 1 hour or more. It is an advantage to soak gelatine overnight when convenient, because it is then more easily dissolved. Boil 6 oz. lump sugar in 1 pint water, skimming it until clear; then throw in the soaked gelatine, let it boil slowly for 5 minutes, removing all scum as it rises. Dissolve in a basin ¼ oz. citric acid, in lump, in ½ gill boiling water, pour the jelly on to this, when more scum will rise, which should be carefully taken off. Now add 1 gill wine and a little lemon flavouring, and, when nearly cold, put the jelly into a mould. Lemon juice can be used instead of the citric acid, but the jelly will not then be so bright.

Cocoa Jelly.—Mix 1 dessertspoonful cocoa in ½ pint water, stir over the fire until it boils, sweeten it with ¼ lb. lump sugar, or according to the taste of the patient. Stir into it, whilst boiling, ½ oz. gelatine, soaked in ½ pint cold water for some hours, flavour with vanilla, and stir occasionally until the jelly begins to set.

Coffee Jelly.—Soak ½ oz. gelatine in ½ pint cold water, dissolve it in ½ pint very strong coffee, sweetened to taste. Extract of coffee can be used to flavour this jelly, and answers well.

Porter Jelly.—Procure a cow-heel (which should be thoroughly cleaned) and 2 calves' feet; wash them

in cold water, and put them into a pan with 5 pints water, and let them boil until the meat leaves the bones; strain the liquor through a hair sieve, and let it stand for one night in a cool place. Next morning put the stock into a pan with 1 lb. loaf sugar, ½ pint porter, the juice of 4 lemons with their rinds cut very thin, and the well-beaten whites of 8 eggs. Let all boil together till it rises to the top of the pan; then throw in a teacupful of cold water; then let it boil slowly about 20 minutes, at the expiration of which time add 1 wineglassful brandy. Boil 5 minutes longer, then lift the pan from the fire, and let it remain at the side of the fire, to keep hot. In about ½ hour the scum will collect in a lump, leaving the liquor quite clear. Run it into moulds.

Port Wine Jelly.—Take ½ pint port wine, 2 oz. isinglass, and ½ lb. white sugar candy. Let the ingredients be put together in a jar and stand for 6 hours; then put the jar into a saucepan of water, and as soon as it boils take it off the fire and strain through muslin; when cold it is fit for use.

Restorative Jelly.—Put into the jar in which the jelly is to be kept 2 oz. isinglass, 2 oz. white sugar candy, ½ oz. gum arabic, and ½ oz. nutmeg grated. Pour over them 1½ pint tent or port wine. Let it stand 12 hours, then set the jar in a saucepan of water, and let it simmer till all the ingredients are dissolved, stirring it occasionally. The jelly must not be strained. A piece the size of a nutmeg to be taken twice a day. If nutmeg is not liked, any other spice will do as well to flavour it.

Blanc Mange.—It is better, if possible, to soak the gelatine for this cream all night, because it will then dissolve in warm liquid, whereas if it is only lightly soaked, the milk must be boiling. Warm 3 gills milk

or cream, and dissolve in it ½ oz. gelatine, previously soaked in ½ gill water. Sweeten to taste, and flavour with extract of vanilla. When nearly cold, stir into the blanc mange the whites of 2 or 3 eggs beaten to a strong froth. This blanc mange will be found light and nourishing in cases of great weakness.

Rice Cream.—(*a*) Boil 2 oz. fine rice in water for 5 minutes, strain it, and boil until tender in 1 qt. new milk. Rub the rice through a sieve to a pulp, and add to it any milk not absorbed in the boiling; ½ oz. gelatine to 1 pint rice and milk. The gelatine can be soaked and dissolved either in milk or water. Stir over the fire until mixed, sweeten and flavour to taste. Stir the cream occasionally until cold, then lightly mix in the whites of 2 eggs beaten to a strong froth; when on the point of setting put it into a mould.

(*b*) Make 1 pint milk or cream into custard with the yolk of an egg and 2 oz. sugar; then dissolve in it ½ oz. gelatine previously soaked. Mix with it 1 oz. rice which has been baked or boiled in milk until perfectly tender, flavour with vanilla, and add 1 teaspoonful brandy if liked. Rinse a mould with cold water, put the cream into it, and let it stand until firm enough to turn out.

Semolina Cream.—Soak 1 oz. semolina in 1 gill cold milk for an hour, boil it until soft in ½ pint milk. Dissolve ½ oz. gelatine, previously soaked in ½ gill water, in ½ pint boiling milk, sweeten it with 2 oz. lump sugar, flavour to taste, and when the cream is beginning to set, put it into a mould.

Alexandra Cream.—Make ½ pint rice cream (*a*) or blanc mange as directed in the foregoing recipes. Dissolve ½ pint Nelson's port wine jelly (sherry can

be used if preferred, but the colour is not so tempting), either adding water or claret, according to the directions given with the jelly. When both the cream and the jelly are on the point of setting, put first a layer of the latter into a mould, then of the former, and so on until all is used. (Mary Hooper.)

Beef Tea.—(*a*) Cut 1 lb. beefsteak into dice, rejecting all skin and fat. Put into a stewpan a bit of fresh butter the size of a bean, throw in the meat, and sprinkle over a small pinch of salt. Cover the stewpan closely, and set it on the range at a low heat to draw out the juices, which will take 20 minutes. Take care there is no approach to frying, as that would dry up the extract and destroy the character of the tea. About every 5 minutes during the process drain away the gravy as it comes; if the meat is fine and fresh there will be at least ⅓ pint, and when all is drawn set it aside, either to use as extract of beef or to be added to the tea when finished. Now put to the meat 1 pint water, and let it boil gently for ½ hour. Pour the tea off, but do not strain it, as such nourishment as it contains lies in the thick portion. Of course if a patient is unable to take any solid this rule will not apply, and the tea must then be strained either through a linen or flannel bag. Having drained off the tea whilst still boiling hot, put into it the juices at first extracted, and having taken off every particle of fat it will be ready to serve.

(*b*) Cut the meat into small pieces, cover with water, and simmer an hour. If it is allowed, 2 or 3 peppercorns and a minced shallot—it is milder than onion—will be a nice addition to the tea.

(*c*) Cut the meat into very small pieces, and put it in a jar having a closely fitting lid, with cold water. The jar can be placed in the oven for 1-2 hours,

according to the heat, or in a saucepan of water to boil for 1½ hour.

In all cases where it can be taken, beef tea should be slightly thickened, and especially when bread is refused. Boiled flour is best for this purpose; genuine arrowroot may also be used. The yolk of an egg beaten up in the broth-cup, and the tea poured boiling on to it, is excellent.

The meat from which beef tea has been prepared will make good stock, or be excellent if properly treated for the dinner of the family, who, be it remembered, have the chief of the nourishment in the fibre.

It is important in the preparation of beef tea to preserve the fine flavour of the meat, and to use such scrupulously clean vessels that no foreign taste can be imparted to it. The shin of beef should not be chosen for this purpose, for it gives more gelatine than juice. The best part is beefsteak or the neck; the first will yield the most gravy, and does not cost above 2*d.* per lb. more than the coarser portion of the ox.

The idea that beef tea should be boiled a long time in order to extract all the goodness of the meat is a mistaken one, for the gelatinous matter thus gained is of comparatively little value, whilst the delicate aroma of the tea is lost by long boiling.

Gruel.—Made as it should be, gruel is rarely disliked, and is more nourishing, and in many cases to be preferred to arrowroot—a thing most difficult to procure genuine, and very expensive. Made thin, as is customary, it is a comfort in sickness, is soothing to the stomach, and gives warmth to the body; made thick as a porridge it is the most

nourishing of cereal foods. Robinson's Embden groats, and Robinson's patent groats, prepared by Keen, Robinson, and Bellville, are the only kinds of which gruel can be properly made. They are entirely free from the acrid flavour which is so disagreeable in inferior preparations of oatmeal, make a most nourishing and digestible gruel, with the advantage of being easily and rapidly served up—if made from the patent groats, the Embden takes longer—ten minutes only being required in the process of cooking. Robinson's Embden groats were introduced about the year 1764 by Mr. Martin Robinson as an improvement upon the "whole gritts" then in use. In 1823 letters patent were taken out for a greater improvement known as Robinson's Patent groats, now in use in all parts of the world. Take of the patent groats one tablespoonful, mix into a smooth paste of the consistence of cream with a wineglassful of cold water, pour this into a stewpan containing nearly a pint of boiling water or milk, stir the gruel on the fire while it boils for ten minutes; pour into a basin, add a pinch of salt and a little butter, or if more agreeable some sugar, and a small quantity of spirits if allowed. If made with water, milk or cream can be added afterwards.

A delicious substitute for gruel is made as follows: 1 oz. each rice, sago, and pearl barley; put 3 pints water, and boil gently for 3 hours, when the liquor should be reduced to 1 qt. Strain it in exactly the same manner as groat gruel, and flavour with wine, brandy, or anything else that may be suitable. If made a little thicker, say with 1½ oz. each ingredient to 3 pints water, a jelly will be produced, which may be eaten cold with sugar, fruit, syrups, or preserve.

Arrowroot.—(*a*) To make plain water arrowroot,

with an Etna, put on ½ pint water to boil in the saucepan; mix, in a cup, 1 dessertspoonful arrowroot with a little water; pour the mixture into the boiling water, and cook it for 2-3 minutes, stirring all the time.

(*b*) Milk arrowroot is prepared exactly in the same manner. Some persons affirm that arrowroot should never be boiled, or it will lose its astringent qualities. In some particular cases, when strong astringents are needed, it should not be boiled, and should only have boiling water or milk poured upon it; but when the digestion is weak, it is better for the patient to take arrowroot cooked. Sifted sugar may be added according to taste; and in water arrowroot a little wine or brandy is generally given.

Pastry and Bread.—Any fat that is greatly heated decomposes, and gives rise to certain fatty acids that are sure to disagree with delicate persons. That is the reason why pastry and fried food are unfitted for invalids. Very plain pastry, made light with baking powder, is sometimes admissible; but a small egg or milk loaf with the inside taken out, and baked crisp and hot, is a much better substitute. Sponge cake is best of all cakes, because it is made without any butter. Bread should not be new, but may be baked crisp in the oven. Crust is often more digestible than crumb. A change in bread is easy to arrange; if it is only a change of shape, it is better than monotony. A French roll, loaves of baking powder bread, brown and white pulled bread, crisp biscuits, are easy to get in most places.

Puddings.—(*a*) Boil ½ pint milk with cinnamon, lemon, and bay leaves; add 2 oz. sugar, 1 oz. flour, a little salt, and 3 eggs; beat all together, and steam this custard in a plain mould or basin, previously

spread inside with butter; when done firm and quite cold cut into square pieces and dip in frying batter; drop separately in boiling fat, and fry a light brown colour, and dish them up on a napkin. (*b*) 6 oz. finely-grated bread, 6 oz. currants, 6 oz. sugar, 6 eggs, 6 apples, some lemon peel and nutmeg; let it boil 3 hours. (*c*) Weight of 2 eggs in butter, which beat to a cream, same weight of flour, same of pounded white sugar, the grated rind and juice of 2 lemons; bake ½ hour in a small flat pie-dish, with a rim of paste round the edge, serve with sifted sugar on the top, and send up very hot. (*d*) ½ lb. best beef suet, ½ lb. grated breadcrumbs, ½ lb. beaten white sugar, 3 eggs, well beaten and strained; the grated rind and juice of a large lemon, stick a mould with raisins, pour in the mixture, boil 2 hours.

Treacle Posset.—Heat ½ pint milk in the saucepan, and when in the act of boiling, pour in 1 gill (¼ pint) treacle. The milk instantly curdles. It must be taken off the spirit lamp and allowed to stand for 10 minutes, and then strained through a piece of muslin to separate the curds. This must be drunk hot. White wine, whey, and lemon whey, are prepared in a similar manner, only substituting a glass of sherry in one case, and a glass of lemon juice in the other, for the treacle. All wheys must be strained before they are taken.

Restorative Soup.—Take 1 lb. newly-killed beef or fowl, mince it very fine, add 8 fl. oz. soft or distilled water, 4-6 drops pure hydrochloric acid, 30-60 gr. common salt, and stir well together. After 3 hours the whole is to be thrown on a common hair sieve, and the fluid allowed to pass through with slight pressure. On the flesh residue in the sieve pour slowly 2 oz. distilled water, and let it run through

while squeezing the meat; there will be 10 oz. extract of meat, of which a wineglassful may be taken at pleasure. It must not be warmed to a greater extent than putting a bottle filled partially with it to stand in hot water. If the flavour be disagreeable, 1 wineglassful claret may be added to 1 teacupful.

Milk Toast.—Take 2 slices bread and toast well—that is, crisp. Take new milk or cream, also a bit of butter (varying according to toast required), and melt in a saucepan together. Then dip in the slices of toast, let them soak for a moment or two, lift on to a deep plate, and pour the remains of milk and butter on top. Serve very hot; add salt as required.

Hot Milk.—Milk that is heated to much above 100° F. loses, for a time, a degree of its sweetness and density; but no one fatigued by over-exertion of body or mind who has ever experienced the reviving influence of a tumbler of this beverage as hot as it can be sipped, will willingly forego a resort to it because of its having been rendered somewhat less acceptable to the palate. The promptness with which its cordial influence is felt is indeed surprising. Some portions seem to be digested and appropriated almost immediately; and many who fancy that they need alcoholic stimulants when exhausted by labour of brain or body will find in this simple draught an equivalent that will be as abundantly satisfying and more enduring in its effects.

Caudles.—The basis of all caudles is flour gruel, made either with water or milk, that made with milk being the most nutritious, while both are equally digestible. In cool weather a quantity of gruel may be made and kept in a cool place, and portions of it heated and used as required. When gruel enters largely into the diet, its acceptability to the patient

will be augmented by varying the flavouring or spice used in its preparation. If, therefore, a quantity is made plain, it can be sweetened and variously flavoured as it is heated for immediate use.

Cold Wine Caudle (a nutritious, digestible, and slightly stimulating food, useful in all sickness where starch and wine are not objectionable).—Make a good gruel by mixing smoothly 1 tablespoonful flour with ½ pint cold milk or water, and stirring it into ½ pint boiling milk or water; add a level teaspoonful of salt, and let the gruel boil for 5 minutes, stirring it to prevent burning. To ½ pint cold gruel add 1 egg beaten to a froth, 1 glass of good wine, and sugar and nutmeg to suit the palate of the patient.

Hot Wine Caudle (preferably to cold caudle generally, and useful in the same physical condition indicated in the preceding recipe). Heat ½ pint gruel; beat the yolk of a raw egg to a cream with 2 tablespoonfuls pulverised sugar; beat the white of the egg to a stiff froth; when the gruel is boiling hot, quickly beat a glass of good sherry or Madeira wine into the egg yolk and sugar, stir the hot gruel into it, and then add the beaten white of the egg. Work very quickly, and serve the caudle hot.

Cream Caudle (an equally valuable food with the two preceding caudles, useful under similar physical conditions). To 1 pint gruel add 1 glass good wine, 1 gill sweet cream, 1 tablespoonful noyeau or any good cordial, and sugar to suit the patient's taste. Use hot or cold, but preferably hot.

Digestive Foods.—Where the digestion is weak, as is generally the case in sickness, much benefit may be derived from partially digested foods. Maltose is a sugar which does not readily undergo acetous fermentation, and therefore will not give rise to

acidity and dyspepsia. This is a great matter, as cane sugar added to stewed fruit and milk puddings readily undergoes acetous fermentation in many stomachs. The lævulose sugar of fruit, like maltose, readily undergoes alcoholic but not acetous fermentation. Maltose being less powerfully sweet than cane sugar, a greater quantity is necessary to sweeten the pudding. If the raw starch, semolina, sago, or tapioca be first put in the dish by itself, and placed in the oven for an hour (taking care not to have it burnt by the oven being too hot), not only are the starch cells cracked, but a certain conversion of the starch into dextrine takes place. If to this be then added an equal quantity of ground malt and some hot milk poured on, and the dish be allowed to stand a few minutes before being put into the oven again, the diastase of the malt acts upon the farina and converts it into dextrine and maltose. Dextrine and maltose being soluble, the pudding is very thin. Such a pudding is admirably adapted for invalids and dyspeptics, as requiring scarcely any digestion in the body. For those with whom ordinary milk puddings produce acidity, such a pudding is specially suitable. Ground malt may be added to fresh milk, and forms an admirable food in cases of acute disease. Baked flour perhaps goes better with meat broths, to which it gives a high food value. (Well-baked flour requires but a touch of saliva to render it soluble, and, added to meat broths and gravy soups, renders them very nutritive.) Malt, being sweet, goes better with milk, or apple-water, or tamarind-water, or lemonade, and gives us a food which being all but independent of the digestive act, can be most usefully employed in the sickroom. Beef-tea (which alone is scarcely a food) and milk-and-seltzerwater pall upon the palate of the sick person, who craves variety just as do

healthy persons. The adoption of ground malt as a food will solve for us one or two knotty questions connected with feeding people when the digestive power is feeble. Drinks like lemonade, made with malt instead of cane sugar, would not only not go sour in the mouth and stomach, but would contain some phosphates and soluble albuminoids, and so form admirable beverages in feverish states. The many malt extracts now in the market are well adapted for such end. (*Lancet.*)

An excellent peptonising apparatus, for the predigestion of foods for the sickroom, is sold by Savory and Moore.

Drinks.—Orange-whey.—The juice of 1 orange to 1 pint of sweet milk. Heat slowly until curds form, strain and cool.

Egg-Lemonade.—White of 1 egg, 1 tablespoonful pulverised sugar, juice of 1 lemon, 1 goblet water. Beat together.

Sago-Milk.—3 tablespoons sago soaked in a cup of cold water one hour; add 3 cups boiling milk; sweeten and flavour to taste. Simmer slowly ½ hour. Eat warm.

Baked Milk.—Put ½ gal. milk in a jar, and tie it down with writing-paper. Let it stand in a moderate oven 8-10 hours. It will be like cream, and is very nutritious.

Punch without Liquor.—Take the juice of 6 oranges and 6 lemons, adding sugar to suit the taste. Put to this a quantity of pounded ice and some sliced pine-apple, pouring over it 2 qt. water. This is an agreeable summer beverage for anybody, sick or well.

Rice Water.—Wash 2 oz. best rice and boil it fast for ½ hour in 1 qt. water. Any flavouring may be added, or a small piece of stick cinnamon or shred lemon peel may be boiled with the rice, and sugar used according to circumstances. Lemonade made with rice water when cold is very nice and refreshing.

Gum Arabic Water.—Put into an earthenware jar 1 oz. finest picked gum with 2 oz. sugar candy and 1 pint water; set it in a saucepan of water, and stir occasionally until dissolved. This is very useful as a night drink for hectic cough, and will allay the tickling in the throat. It should be kept as hot as possible. The little French porcelain veilleuse is best adapted for this purpose.

Lemon Juice.—Few people know the value of lemon juice. A free use of lemon juice and sugar will always relieve a cough. Most people feel poorly in the spring, but if they would eat a lemon before breakfast every day for a week—with or without sugar, as they like—they would find it better than any medicine. Lemon juice, used according to this recipe, would sometimes cure consumption:—Put 1 doz. lemons into cold water and slowly bring to a boil; boil slowly until the lemons are soft, then squeeze until all the juice is extracted; add sugar to taste, and drink. In this way use 1 doz. lemons a day. If they cause pain, lessen the quantity and use only 5 or 6 a day until you are better, and then begin again with 1 doz. a day. After using 5 or 6 doz., the patient will begin to gain flesh and enjoy food. Hold on to the lemons, and still use them very freely for several weeks more. Another use for lemons is for a refreshing drink in summer, or in sickness at any time. Prepare as directed above and add water and

sugar. But in order to have this keep well, after boiling the lemons, squeeze and strain carefully; then to every ½ pint juice add 1 lb. loaf or crushed sugar, boil and stir a few minutes more until the sugar is dissolved, skim carefully and bottle. You will get more juice from the lemons by boiling them, and the preparation keeps better.—*Lancet.*

Linseed Tea.—Take 3 tablespoonfuls linseed, about 1 pint water, and boil for 10 minutes. Strain off the water, put in a jug with 2 lemons, cut in thin slices; put also some brown sugar. A wineglassful of wine is an improvement. This has been found most nourishing for invalids.

Barley Water.—Barley water is an important article in the invalid's dietary. Dr. Pye Chavasse, in his work entitled 'Advice to a Mother,' strongly recommends Robinson's patent barley, prepared by Keen, Robinson, and Bellville, of London. Take of the patent barley one ounce mixed with a wineglass of cold water, pour this into a stewpan containing nearly one quart of boiling water, stir this over the fire while boiling for five minutes, then flavour with a small bit of lemon peel or cinnamon and sweeten according to taste. Equal quantities of milk and barley water make a very nourishing drink, especially useful in feverish cases. Barley water should not be mixed with milk or syrup before required for use, as in a warm atmosphere it undergoes changes, and sometimes slightly ferments.

Almond Milk (an exceedingly nutritious beverage, useful in most conditions of illness).—Pour 1 qt. boiling water upon ¼ lb. shelled almonds, and when the skins soften rub them off the kernels with a clean towel; pound the almonds thus blanched in a mortar, putting in 3 or 4 at a time, and adding 4 or 5 drops

milk, as the almonds are being pounded, to prevent oiling—about 1 tablespoonful milk will be required for the ¼ lb. almonds; when the almonds are finely pounded, mix them with 1 pint milk, 2 tablespoonfuls sugar, a level teaspoonful salt, and the yellow rind of a lemon, and place the milk over the fire to boil; meantime, beat 3 eggs smoothly, and strain the almond milk into them, stirring the mixture as the milk is strained in; return it to the saucepan, and place it in another pan of hot water, over the fire, stirring it constantly until it begins to thicken; then remove it at once from the fire, strain it, and use it.

Barley Milk (a demulcent, refreshing, and nutritious beverage, useful in fevers and gastric inflammation).—Wash 4 oz. pearl barley in cold water until the water is clear; put it over the fire in a double kettle with 1 qt. milk and a level teaspoonful of salt, and boil it until the milk is reduced one half; then strain off the milk and sweeten to suit the taste of the patient. The barley may be used as food by adding to it a glass of wine and a little sugar.

Irish Moss Water (a bland, nutritious drink, excellent in feverish conditions and in colds).—Wash ½ oz. moss in plenty of cold water; then soak it for 10 minutes in 1 pint cold water; then add 2 pints cold water, 1 tablespoonful sugar, and 1 in. stick cinnamon to it, and boil it until it is about as thick as cream; strain it, add more sugar if it is desired, and use while warm. The yellow rind of a lemon may replace the cinnamon as flavouring.

Icelandic Moss Chocolate (a very nutritious drink, suitable for use when abundant nourishment is required).—Wash 1 oz. moss thoroughly in cold water; then put it over the fire to boil in 1 pint

water. Grate 1 oz. chocolate fine, mix it with ½ cupful cold milk, stir it into 1 pint boiling milk, and boil it for 5 minutes; then add it to the boiling moss, strain them together, sweeten them to suit the taste of the patient, and use the beverage warm.

Imitation Kumys (Koumiss).—(*a*) Fill into a strong champagne bottle, good, fresh, unboiled cow's milk to such a height that after the addition of 1 oz. granulated or powdered sugar, and after corking, there would still be left at least 1 in. of empty space below the cork. Before corking, add a piece of fresh compressed yeast, about the size of 2 peas, then cork and tie the cork firmly down. In place of compressed yeast, 1 teaspoonful good beer yeast may be taken. The contents of the bottle are well shaken, repeatedly, then the bottles are placed in the cellar, where they are turned up and down a few times during the day. From and after the fifth day the mixture is ready and may be drunk to about the twentieth day. It is best to prepare about 6 bottles full at a time, refilling each after it has been emptied and cleaned, so that the treatment, after being begun, may not be interrupted. On opening the bottles, the contents are very apt to foam over, hence the bottle should be opened while being held over a plate. It should never be opened where there may be any furniture or dresses about, which might be soiled by spattering. A good milk-wine or kumys should have a homogeneous appearance of the consistence of thin cream, should be effervescent when poured out, of an acidulous, agreeably vinous odour and taste, and should not be full of lumps, or taste like butter-milk. On first using kumys it produces loose bowels, but this effect soon passes off.

(*b*) 200 parts condensed milk, 2000 parts water, 2

parts lactic acid, 1 part citric acid, and 30 parts brandy are mixed and carbonated. Cork well and let it stand for 2 days in a warm room till it froths.

Administering Physic.—Never allow a bottle of lotion for external use to stand beside a bottle of medicine to be taken internally. Keep them entirely separate, and *keep all medicines in a place where children cannot by any possibility reach them*. One further piece of advice, which is unfortunately but seldom attended to, is deserving of attention, namely, after an illness has terminated either in recovery or death, *empty out all the medicine bottles*, and on no account retain any of them for future use. Spoons differ very much in size, and it is not wise to trust to them in measuring medicines. It is best to get a medicine glass or spoon, either of which can be got at a chemist's for a few pence. In giving sick people medicine there are 3 points which ought carefully to be remembered—namely, regularity, punctuality, and exactitude. Those intrusted with the administration of medicine to sick persons should *always* read the label of the bottle before administering the medicine. By doing so they will probably save themselves a lifelong reproach. An inhaler for taking medicated vapours in bronchial and catarrhal affections may be extemporised out of a pickle bottle fitted with a perforated cork and a bit of tube. A special apparatus (Dr. Felton's) is sold at 7*s.* 6*d.* by Savory and Moore.

To mask the taste of cod-liver oil:—(*a*) Use Allan and Hanbury's "perfected" oil. (*b*) Put a little salt in the mouth before taking the oil. (*c*) Add 30 drops sulphuric ether to the dose and take it quite cold. (*d*) Add a little iodoform and essence of anise; say 96 grm. oil, 20 c. grm. iodoform, 4 drops essence.

Quinine may be enclosed in gelatine capsules when otherwise refused. If in powder it is best mixed with a little milk.

Keep a separate measure and separate glass for administering such drugs as castor-oil, cod-liver oil, asafœtida, valerian, &c.

Pills should be placed well towards the gullet and washed down with a drink. Or they may be hidden in jam, or wrapped in rice paper, and then washed down. Powders may be mixed in jam, treacle, honey, milk, or water.

To remove the taste of nauseous medicines from the mouth chew a small piece of bread and spit it out.

The best times for administering medicines, according to the frequency with which they are ordered, are as follows:—

"Daily."—At 9 A.M. or at bedtime.

"Night and morning."—9 A.M. and bedtime.

"Twice-a-day."—10 A.M. and 6 P.M.

"Three times a day."—10 A.M., 2 P.M., 6 P.M.

"Every 4 hours."—10 A.M., 2 P.M., 6 P.M., 10 P.M., 2 A.M., 6 A.M.

Never wake a patient to administer medicine or food unless ordered to do so.

To apportion doses according to age, reckon 21 years and upwards as adults requiring full dose; then 17 will take ¾, 14 will take ½, 7 will take ⅓, 4 will take ¼, 3 will take ⅙, and 2 years or under will take ⅛ of the full dose.

Medicines are classified according to their general

properties, the following being the chief:—

Anæsthetics—produce insensibility to pain.
Anodynes—procure relief from pain.
Antiseptics—prevent putrefaction.
Antispasmodics—check spasms and cramps.
Caustics—destroy animal tissues by a kind of burning.
Collyrium—an eyewash.
Diaphoretics—induce perspiration.
Diuretics—increase the flow of urine.
Emetics—cause sickness (vomiting).
Expectorants—favour spitting.
Liniments—for rubbing in.
Narcotics—induce sleep.
Purgatives—cause very loose bowels.
Refrigerants—cooling.
Sedatives—calm the nerves.
Soporifics—induce sleep.
Styptics—arrest bleeding.
Tonics—increase the appetite and give a stimulus to the system.

The principal domestic remedies, with their doses (m. means minims, gr. grains, table. tablespoonful, tea. teaspoonful, dr. drams, oz. ounces, dess. dessertspoonful) and properties, are as follows:—

Aloes (compound decoction): 1-3 tablespoonfuls; pleasant purgative, useful in habitual constipation, and will often relieve headache.

Alum: 10-20 gr. in whooping cough and internal bleeding; 1 tea. (in treacle) as an emetic; 15 gr. in 10 oz. water as a collyrium; 60 gr. in 10 oz. water for gargles and injections; astringent (coddling the mouth) and styptic.

Ammonio-citrate of iron: 5-10 gr. in water; tonic.

Antimonial wine: 5-15 m. 3 times a day in bronchitis and fever, diaphoretic; 1 table. (for adults), emetic.

Aromatic chalk: 20 gr. in water checks diarrhœa.

Belladonna liniment (compound): externally applied on rag covered with waterproof for 12 hours as local remedy for rheumatism and lumbago; anodyne.

Bicarbonate of potash: 15-20 gr.; antacid; taken with lemon juice or citric acid as a cooling drink.

Bicarbonate of soda: 10-20 gr.; antacid; checks heartburn and stops diarrhœa.

Blue pill: 3-5 gr.; alterative; cures bilious attacks.

Borax: 1 in 24 parts water as a gargle for sore throat.

Calomel: 1-3 gr.; powerful purgative and alterative; taken for biliousness.

Camphor liniment (compound): stimulant liniment.

Carbonate magnesia: 5-30 gr. in milk; antacid, gentle aperient; useful for children.

Castor oil: ½ tea. (infants), 2 table. (adults), on milk, wine, or orange juice, or blended with glycerine or egg-yolk; most reliable aperient.

Chlorate potash: 10-20 gr., stimulant; 1 dr. with 4 dr. honey and 8 oz. water, gargle for sore throat; lozenges, overcomes effect of high altitudes on the respiratory system.

Chloric ether: 20-30 m. in water, cordial and antispasmodic; relieves cramp, violent cough, spasms, &c.

Chloroform: not to be inhaled or taken except in a doctor's presence; sedative; applied to rheumatism, stings, and toothache as an anodyne.

Citrate of iron and quinine: 3-5 gr. in water; tonic and binding.

Citrate of magnesia (granular effervescent): 1 dess. in tumbler cold water; cooling aperient.

Cream of tartar: 20-60 gr., diuretic and cooling; ½ oz. in 1 qt. of water, fever drink.

Dover's power: unfit for children; 5 gr. in wineglassful water, diaphoretic, checks diarrhœa and cures fresh colds; 3 gr. after meals prevents chest-ache.

Epsom salts: 1-4 dr. in water; purgative.

Essence of camphor: 30 m. in wineglassful water; exhilarating.

Essence of ginger: ½ tea. in wineglassful water; cordial stimulant, useful in chest-ache.

Essence of peppermint: 10-15 m. on sugar; exhilarating, warming and antispasmodic.

Extract of bark: 10-30 m. in wineglassful water; valuable tonic in neuralgia and fever.

Friar's balsam: ½-1 dr. with sugar and egg-yolk, stimulating expectorant; applied on cuts.

Glycerine: may replace sugar for sweetening drinks and medicines; much used for softening the skin.

Goulard's extract: 5 m. in wineglassful water as an eyewash; 1 in 40 of water, astringent, applied to bruises and sprains as a wash.

Gregory's powder: 1 tea. in wineglassful water, cooling mild aperient.

Grey powder: 3-5 gr. (adult); aperient, acting on the liver.

Ipecacuanha powder: 15 gr. emetic.

Ditto wine: 10-20 m., expectorant for coughs; 1 table. (adults), repeated at 10 minutes intervals, emetic.

Jalapine: 2-6 gr., aperient for children.

Laudanum: 10-20 m., anodyne and soporific; with equal quantity opodeldoc, applied as an anodyne.

Lime-water: antacid; checks infantile diarrhœa; mixed with sweet oil affords great relief when applied to burns.

Liquorice powder (compound): 1 tea., mild aperient, best for piles.

Milk of sulphur: 1 tea. rubbed up with milk, gentle aperient and cooling, useful in rheumatism and piles.

Morphia bimeconate: 5 m. increasing every 3 hours; most valuable sedative and soporific; applied as an anodyne after the part has been reddened by compound camphor liniment.

Muriate (chloride) of ammonia: 10 gr. in wineglassful water, good expectorant in bronchitis; 1 oz. with 1 oz. alcohol and 10 oz. water; stimulant lotion for sprains.

Nitrate of silver: 2-4 gr. in 1 oz. water, lotion for sore nipples; 20 gr. in 1 oz. water, throat wash in diphtheria.

Nitre (saltpetre): 5 gr. in saline draught, cooling and diuretic for fever; ¼ oz. in ½ pint barley water, gargle for inflamed sore throat.

Nitric acid (dilute): 10 m. with 5 m. tincture of

chiretta, 15 m. tincture of orange and 10 m. syrup in 1 wineglassful water, excellent between meal-times for convalescents.

Opodeldoc (soap liniment): excellent applied to bruises, stops swelling and discoloration.

Paregoric: 30-60 m., checks coughing.

Prepared chalk: 15-30 gr. repeated, with cinnamon and tincture of catechu, antacid and astringent for diarrhœa and cholera; made into a cream with water, cooling shield for burns.

Rhubarb: 1-5 gr., tonic to bowels; 10-20 gr., aperient followed by astringent.

Sal volatile: 30-60 m. in wineglassful camphor julep; antacid, antispasmodic, and exhilarating.

Santonine: 2-3 gr. on 3 alternate nights, followed by castor oil in the morning, expels threadworms from children.

Spirit of minderus: 15-20 m. in gruel at bedtime, excellent diaphoretic and cure for coryza (cold in the head); 20 m. in wineglassful water, eyewash; 1 table. in tumbler water, cooling lotion.

Spirit of nitre: 20-30 drops in wineglassful water, or 1 tea. in hot gruel at bedtime, diuretic and diaphoretic, for colds.

Sulphate of copper: 10-15 gr. in wineglassful water, rapid emetic in poisoning.

Sulphate of potash: 10-20 gr. with 10 gr. rhubarb and 15 gr. sugar in peppermint-water, mild aperient.

Sulphate of quinine: 1-5 gr. 2 or 3 times a day, tonic, useful in neuralgia, dyspepsia, weakness and fever.

Sulphate of zinc: 20 gr. in wineglassful water, emetic; 1 gr. in 1 oz. water, eyewash, astringent.

Sulphuric ether: ½-1 tea. in camphor julep, exhilarant.

Syrup of senna: 1 tea. (adults), mild aperient.

Tincture of arnica: with 4 times its bulk in hot water for fomenting bruises.

Tincture of chiretta: 10-30 m., tonic, useful in dyspepsia.

Tincture of colchicum: 10-20 m. at night after a light meal, diaphoretic, valuable in gout, rheumatism, and dropsy.

Tincture of henbane: 15-60 m., narcotic and anodyne.

Tincture of lavender (compound): 1 tea. with ½ tea. sal volatile in water, stimulant, antispasmodic, and exhilarant.

Tincture of quinine: 1-2 tea. in wineglassful water 2 or 3 times a day, tonic.

Tincture of rhubarb: 2-4 tea., cordial and purgative.

Tincture of squills: 1 tea. with wineglassful water, expectorant; take 1 dess. at short intervals to check coughing.

Tincture of steel: 5-15 m. in wineglassful water, tonic, astringent, and diuretic, good in weakness and dyspepsia.

Tincture of valerian: 1 tea. in camphor water, antispasmodic and stimulant, valuable in nervous headache.

Common Complaints.—Without making the least pretence to give such information as will enable the sick man to dispense with the services of the physician or surgeon, whose aid should be promptly sought, there are many matters which by careful study may enable the threatened attack to be warded off, and there are a variety of ailments and troubles which are not generally deemed of sufficient importance to be worth troubling a doctor about. It is these subjects which claim treatment here, and with which the following paragraphs will deal, leaving all special and serious diseases in hands which have been trained to the work.

Accidents and Emergencies.—The first piece of advice to every one is to attend a series of lectures given every winter by the St. John's Ambulance Association at very numerous centres all over the kingdom. This will convey an amount of knowledge and practical experience such as can never be attained by reading alone. Even Volunteers, who have gone through a course for the Army Hospital Corps, will do well to supplement it for every-day life with a course of St. John's Ambulance lectures.

When you have not witnessed the occurrence of an accident, make some inquiry of the bystanders or patient as to its cause before taking any other steps, as this will often indicate what kind of injury is to be looked for. Never proceed to lift or remove a patient with broken limbs or bleeding wounds till the necessary bandaging and staunching have been done: let traffic be interrupted, if need be, rather than risk converting a simple hurt into a fatal one.

The ordinary accidents and emergencies of every-day life will now be dealt with in alphabetic order.

Bites and Stings.—These may be divided into two classes—those of insects and those of poisonous or rabid animals.

Of Insects.—First remove the sting (of a bee or wasp) by pressing a small key on the spot, whereby the sting is forced into the hollow barrel; then apply any of the following lotions:—(*a*) Rub the bite of mosquitoes with a solution of borax in ammonia. (*b*) When bitten by midges, the best applications are oil of camphor and laudanum, equal parts, applied on lint; or (*c*) 6 oz. Goulard water, ½ oz. laudanum, applied on lint. (*d*) ½ dr. extract of belladonna; ½ oz. glycerine; 3½ oz. water; to be well mixed, and made into a lotion. The parts to be washed with a small quantity—about a teaspoonful or two at a time. (*e*) Goulard water mixed with a little Eau de Cologne makes an excellent wash for the skin in case of gnat bites. (*f*) Keep an onion always at hand, and instantly when bitten squeeze or cut it, so that the juice should flow into the puncture, rubbing it gently over the place; its effects are equally efficacious in the sting of a wasp or bee, always provided the sting does not remain in the wound. (*g*) Ipecacuanha powder is very effective in allaying the pain caused by the sting of scorpion, hornet, and wasp, also mosquito and midge bites. For scorpion stings, &c., make a paste of the powder with a little water, and apply it to the wound in a patch about the size and thickness of a shilling. (*h*) In bee sting, first remove the sting as quickly as possible with a forceps or by scratching with a finger, but never with the thumb and forefinger, because this squeezes more of the poison into the wound. Next squeeze the wound until a drop of blood comes out, and rub the place as large as a florin with an aqueous or dilute alcoholic solution of salicylic acid. The effect is still better by

injecting the salicylic acid into the wound with the hypodermic syringe. After this the spot is painted with collodion, to keep out the air. (*i*) Gnat bites, stings of wasps, bees, &c., may be cured by applying a tincture of minderus, laudanum, and Goulard water in equal parts. (*j*) Sweet oil, or camphorated spirit of wine, is a good thing to apply to bite of the mosquito. (*k*) One raw egg well beaten, ½ pint vinegar, ½ oz. spirit of turpentine, ¼ oz. spirit wine, ¼ oz. camphor; these ingredients to be well beaten together, then put in a bottle and shaken for 10 minutes, after which to be corked down tightly to exclude the air. In ½ hour it is fit for use. To be well rubbed in 2, 3, or 4 times a day. (*l*) The leaves of the common dock, bruised and well rubbed on the part affected, alleviate the pain. (*m*) For bee stings: after pulling out the stings, break some lettuce leaves close to the stalk, and apply the milk afterward. (*n*) Anything "strong," in a popular sense, will generally suffice to decompose and destroy an organic poison if instantly applied. This is why the juice of an onion answers the purpose. Anything equally pungent would do as well. (*Lancet.*)

Poisonous bites.—There is great similarity in the immediate treatment desirable in the bite of snakes and mad dogs, the object being to prevent, as far as possible, the absorption of the poison by the blood. In the same category come any poisonous wound, as from arrows, &c. (*a*) Buckland recommends the following outlines:—(1) Suck the wound, if possible, most vigorously, taking care that there be *no sores on the lips or in the mouth*. In all cases before sucking fill the mouth with oil or salt and water if possible. (2) Apply, if you can, a cupping glass, or cut off the tip of a cow-horn, cut the bottom level, apply it over the wound, and exhaust the air by the mouth; when

exhausted fill up the hole by means of a bit of wax or other material placed into the mouth before the operation of sucking is commenced. This is the mode adopted by the Kaffirs. (3) Wash the parts with hartshorn (ammonia). (4) Tie a ligature tightly above the wounded part. (5) Give doses of hartshorn and water as strong and as frequently repeated as the patient can bear them. (6) Send for the doctor as quickly as you can.

(*b*) Favourable results have followed using chloride of lime, a filtered solution of which was injected into the same place where the fatal virus (snakes') had previously been introduced. In 17 trials made in succession, the poisoned animal survived without the slightest disturbance of its healthy condition.

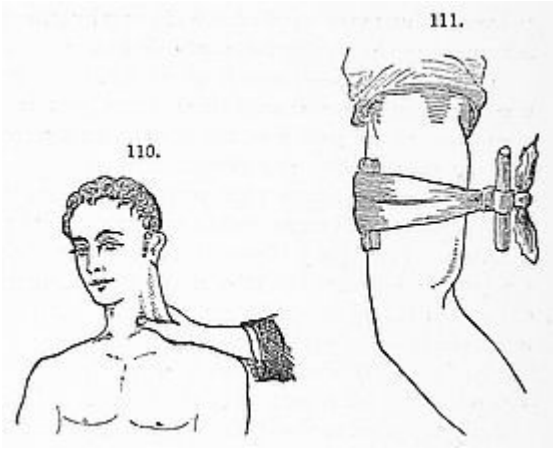
(*c*) First tie a ligature above the part bitten. Then slightly cauterise with a lucifer match. Next swallow tumbler of raw brandy, to be repeated whenever the feeling of sinking comes on, till the liquor (which goes down like water) is tasted, and begins to affect the head. Meanwhile the patient is to be walked about by two men by force if he cannot do so alone or wants to lie down, which would be fatal. (Sir R. Burton.)

(*d*) Permanganate of potash may be added to the list of antidotes, as it is said to counteract very effectively the poison of serpents, when an equal quantity of filtered (1 per cent.) solution of permanganate of potash is injected 1-2 minutes after the poison.

(*e*) Probably a vapour bath immediately after being bitten by a venomous reptile or rabid dog will be found to prove one of the best remedies, the intense perspiration induced carrying off the poison. Excessive exercise following a poisonous bite

generally effects a cure for this reason.

Bleeding.—Bleeding may result from a wound or from the bursting of a blood vessel, and may occur outwardly or inwardly. Bleeding from a wound may be arterial (coming from the arteries which carry the blood from the heart to the body and limbs), venous (coming from the veins which take the blood back to the heart), or capillary (coming from the capillaries which convey the blood to the extremities and surface of the body). In arterial bleeding, the blood is bright scarlet, and escapes in jerks, as if from a pump; this is highly dangerous. In venous bleeding, the blood is dark coloured, and flows away in an uninterrupted stream. In capillary bleeding, the blood leaks or oozes out. In some wounds all three kinds of bleeding will occur simultaneously. The foremost method of arresting external bleeding is by pressure, either on the wound itself or on the blood vessels feeding it, and in the case of a limb, it should be elevated above the body to retard the flow of blood towards the part. As the pressure is to be made on the vessels leading to the wound, it is obvious that in arterial bleeding the pressure must be between the heart and the wound, while in venous bleeding it must be beyond the wound.



110. Head bleeding. 111. Arm bleeding.

The simplest and readiest way to apply pressure is by the fingers. But first of all some knowledge of anatomy and physiology is necessary to guide the operator where to press. Bleeding from the head and upper neck requires pressure to be exerted on the large artery which passes up beside the windpipe and just above the collar-bone, as in Fig. 110. The artery supplying the arm and hand runs down the inside of the upper arm almost in line with the coat seam, and should be pressed, as shown in Fig. 111. The artery feeding the leg and foot can be felt in the crease of the groin, just where the flesh of the thigh seems to meet the flesh of the abdomen, and this is the best spot to select in the case of a male patient; but in the case of a female, unless the injury were very high up the thigh, it would be more judicious perhaps to apply increased pressure around the leg about half-way between the hip and the knee. Pressure with the hands will not suffice to restrain severe bleeding for any length of time, and recourse must be had to a ligature.

The simplest and most available form of ligature is a pocket-handkerchief or neck-wrap, or any other article of attire long and strong enough to bind the limb. Fold the article necktie fashion, then place a smooth stone or anything serving as a firm pad on the artery, tie the handkerchief loosely, insert any available stick in the loop, and proceed to twist it as if wringing a towel until tight enough to stop the flow of blood, as in Fig. 111.

In the case of bleeding from an external wound or sore on the body, employ direct pressure over the bleeding point. If the bleeding is from the interior of the nose or other cavity, apply cold water or ice over the bleeding part or near it, and keep the patient perfectly quiet on the back, or let the patient stand erect with head well thrown back. Injection of hot water into the nostrils is very effective. When the bleeding is from a diseased surface or ulcer, and direct pressure does not stay it, a compress should be soaked in a strong solution of alum, or in steel-drops, and again applied over the point which is bleeding. Should the wound from which the blood is coming be large and gaping, you may stuff firmly into it a compress of some soft material large enough to fill the cavity; but this should always be avoided if possible, as it prevents the natural junction of the sides of the wound, and is very likely to introduce the germs of poison. In any case of bleeding the patient may become weak or may faint, but unless the blood is flowing actively, this is not necessarily a serious sign, and the quiet condition of the circulation during the faint often assists nature in staying the bleeding, by allowing the blood to clot, and so block up any wound in a blood-vessel. Unless the faint is prolonged, or the patient is losing much blood, it is better not to hasten to relieve the faint

condition.

When blood is being coughed or vomited up in considerable quantities, ice or iced water or milk should be given, and the patient be allowed to breathe cool fresh air freely. If the blood is coming from the lungs, inhaling steam of turpentine and hot water mixed (2 tablespoonfuls turpentine to 1 qt. hot water) will often reduce the evil; apply cold wet cloths to the chest.

Broken bones.—Never move a patient with a broken bone till it has been suitably bandaged. Broken bones (fractured) are of three kinds—(*a*) simple fracture, when the bone is simply broken in one place; (*b*) compound fracture, when there is a wound in the flesh communicating with the broken ends of the bone; (*c*) comminuted fracture, when the bone is broken into pieces. The occurrence of a fracture may almost always be learned from the history of the accident, the patient having generally felt or heard the bone snap; other indications are deformity of the limb, such as shortening or bending, and on taking hold of the limb, you will find there is increased movability, and will hear and feel a peculiar grating caused by the broken ends of the bone rubbing against each other, called “crepitus”; also pain and loss of power in the limbs.

It is not imperatively necessary to do anything to a broken limb before the arrival of a doctor, except to keep it perfectly at rest, unless the patient must be moved; then, to prevent further mischief, the broken ends of the bone *must* be put in position and kept there. The first step is to pull the limb till the sinews and muscles stretch sufficiently to let the two ends of the bone meet each other. When this has been done, splints and bandages must be applied to keep the

ends from shifting again.

The treatment of a broken bone then consists of (1) carefully removing or cutting away, if more convenient, any of the clothes which are compressing or hurting the injured parts; (2) very gently replacing the bones in their natural position and shape, as nearly as possible, and putting the part in a position which gives most ease to the patient; (3) applying some temporary splint or appliance, which will keep the broken bones from moving about and tearing the flesh, for which purpose you may use pieces of wood, stick, tin, pasteboard, wire, straw, or firmly folded cloth, taking care to pad the splints with some soft material, and not to apply them too tightly, while the splints may be tied by loops of rope, string, pockethandkerchiefs, pieces of cloth, or any kind of cord; (4) conveying the patient home or to a hospital, meanwhile examining the loops to see that they do not become too tight by rapid swelling of the part.

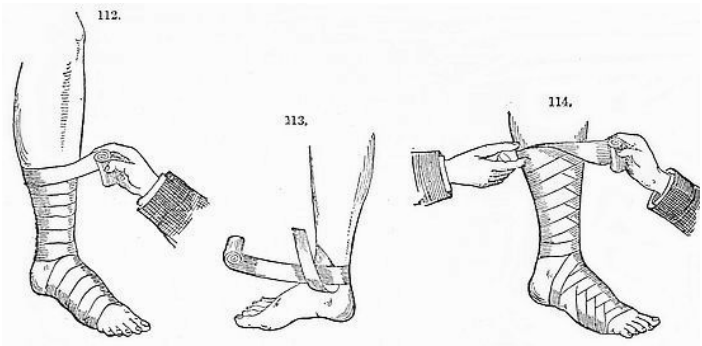
To get at a broken limb or rib, the clothing must be removed, and it is essential that this be done without injury to the patient. The simplest plan is to rip up the seams of such garments as are in the way. Boots must be cut off.

In a fracture of a leg bone, after setting the broken limb and putting it in splints, it should be bound to the sound leg at the knee and ankle, with rolled up coat for the sides and a piece of thin board or other substance for the front of the thigh. A broken arm, when in splints, requires the support of a sling, which may be made of a handkerchief fastened round the neck.

Bandaging can hardly be learned from a book—some practice is essential. Bandages are made of

unbleached calico, flannel, linen, &c., and are used as supports to the different parts of the body, as means of applying pressure, for fixing splints, dressing, &c., and for allaying muscular action. The chief kinds are the roller and the triangular bandages.

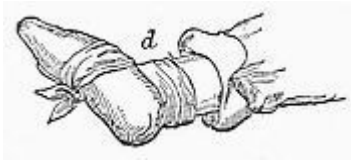
Roller bandages commonly have the following dimensions: Finger, 1 yd. by ¾ in.; arm, 3-6 yd. by 2½ in.; leg, 6-8 yd. by 3 in.; chest, 8-12 yd. by 4-5 in.; head, 4-6 yd. by 2½ in. To roll one of these bandages, first fold one end 2 or 3 times, as tightly as you can, making it into a small roll; take hold of this by the fingers of both hands, both thumbs being placed on the top of it, the rest of the bandage being held by another person, who keeps it moderately strained; by alternate movement of the thumbs make the roll revolve on its own axis, the fingers at the same time holding it in position between the hands; fasten the end by a stitch or pin, to prevent unrolling.



112. 113. Simple Spiral Bandage. 114. Reversed Spiral Bandage.

Roller bandages are applied in 3 different ways: (1) simple spiral, (2) reverse or recurrent, (3) crucial

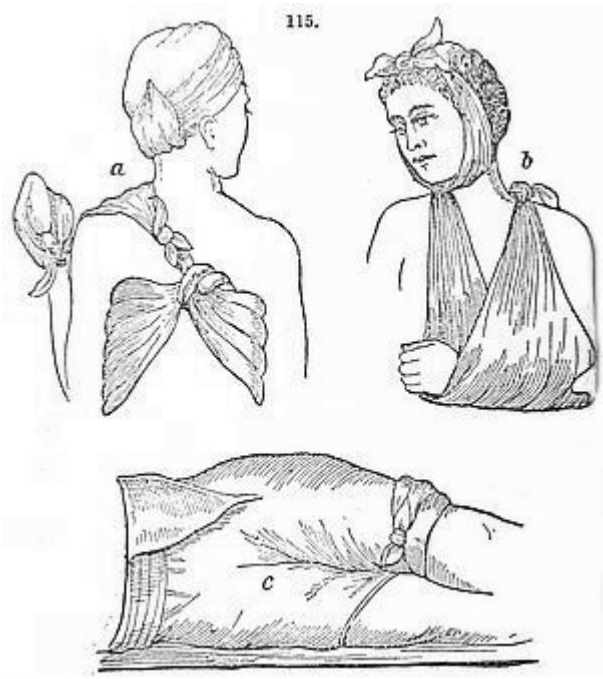
or figure-of-8. When first applying the bandage, leave the end a little long, so that when the first turn is made, by laying this end under, and bandaging over it again, it is prevented from slipping. The application of the simple spiral is shown in Figs. 112, 113, each turn overlapping the preceding one to the extent of about ⅔rds the width of the bandage. This simple spiral is generally replaced by the reverse spiral, Fig. 114, which differs from it in that the bandage is turned back upon itself each time it is carried round the limb; it is not easily learnt, and requires practice before it can be done well; the thumb or forefinger of the hand not holding the bandage should be laid upon the limb at the point where the turn of the bandage is to be commenced, the other hand turning the bandage back upon itself. The crucial or figure-of-8 form is generally used at the joints, and always when going over the ankle-joint in bandaging from the foot up the leg. Carry the bandage over the upper part of the joint, then down, under, and across the lower part, and then up over the upper part again. Remember always to bandage from within outwards; commence from below and work upwards; let the pressure be evenly and uniformly applied, but not too lightly; avoid all wrinkles in your bandage; reverse or turn a bandage over always on the fleshy side, and not over a bone; fasten it with a few stitches.



d Triangular Bandage on Foot.

The triangular bandage may well be represented in every-day life by an ordinary large

pockethandkerchief folded from corner to corner. Its application is almost endless and simplicity itself. A few examples of the manner in which it may be used are shown in Figs. 115, *a*, *b*, *c*, *d*; it is fastened merely by tying the ends in a double knot.



115. *a b c* Application of Triangular Bandage.

Broken ribs are of common occurrence, and give rise to great pain, because every time the injured person breathes, the ribs, rising and falling, allow the broken ends to grate against each other. A temporary method of relieving this pain and keeping the broken ends in apposition, is to roll a wide flannel or calico bandage tightly round the chest 3 or 4 times.

Burns and Scalds.—(*a*) In all but very slight cases of burns and scalds, the patient should be seen by a doctor at once, as the constitutional symptoms

consequent upon these accidents require skilled attention. With regard to the immediate local applications. The clothes having been most gently and cautiously removed (being cut in all places where they adhere to the burnt and scalded skin) and any blisters having been simply pricked, the surface should at once be covered with some unirritating substance which excludes the air and keeps up a good heat. For this purpose many things are advocated, such as flour, starch, a mixture of collodion and castor oil, and "carron oil" (equal parts lime-water and linseed oil). A smooth, thick layer of cotton wool should be laid over this, or failing that a blanket, but do not let the blanket touch any raw place without the intervention of a piece of fine linen rag soaked in oil, or it would stick, causing great pain when removed.

(*b*) Linen dipped in a solution of carbonate of soda or potash relieves the pain sooner than anything. The best form is a saturated solution of bicarbonated soda in either plain water or camphorated water; if applied speedily it is most effectual in immediately relieving the acute burning pain; and when the burn is only superficial, or not severe, removing all pain in the course of a very short time, and preventing the usual consequences—a painful blistering of the skin, separation of the epidermis, and perhaps more or less of suppuration. For this purpose, all that is necessary is to cut a piece of lint, or old soft rag, or even thick blotting-paper, of a size sufficient to cover the burned or scalded parts, and to keep it constantly well wetted with the soda lotion so as to prevent its drying. By this means, it usually happens that all pain ceases in ¼-½ hour. Where the main part of a limb, such as the hand and fore-arm or the foot and leg have been burned, it is best to plunge the part at

once into a vessel filled with the soda lotion, and keep it there until the pain subsides.

(*c*) The matter given off from burnt surfaces soon emits a very offensive odour. Therefore it is wise to mix an antiseptic substance with the remedies—e.g. carbolic acid or thymol, which not only prevent the bad odour from the suppuration, but also tend to alleviate the suffering. It would be well to always keep ready mixed an ointment for burns containing 1 per cent. thymol.

(*d*) The free use of soft soap upon a fresh burn will remove the fire from the flesh in very little time. If the burn be severe, after relief from the pain, use linseed oil, and then sift upon it wheat flour. When this is dried hard, repeat the oil and flour until a complete covering is obtained. Let this dry until it falls off, and a new skin will be formed without a scar.

(*e*) Take ice well crushed or scraped, as dry as possible, into the finest division; then mix it with fresh lard until a broken paste is formed. The mass is put into a thin cambric bag, laid upon the burn or scald, and replaced as required. So long as the ice and lard are melting there is no pain from the burn; return of pain calls for the repetition of the remedy.

(*f*) Whether the skin is broken or not, apply soft cotton or linen rags, dipped in a solution of Epsom salts, 1 oz. to the pint of cold water, and lightly bound over the burnt part or parts, the bandages to be kept constantly moist with the solution, and never removed till a cure is effected, which will be in 2-3 hours to 2-3 days, according to the severity and extent of the burning. While this application in all cases gives instant relief from pain, it is especially useful in removing the tendency to collapse and

nervous dread.

(*g*) Cover the place over at once with the preparation of chalk, called common kitchen whiting, mixed, either with sweet oil or water—oil is preferable—into a thick paste. Plaster it gently on with a brush or a feather about ⅛ in., or more, thick; taking care, if possible, not to break the blister, or blisters. Then cover the part affected with a piece of flannel, to keep the moisture in, and damp the layer of whiting from time to time with oil or water. If kitchen whiting cannot be procured, use flour instead; and if neither can be had, then cover the scalds or burns with bits of rag dipped in sweet oil, and lay plenty of cotton wool outside them. Change the dressings only often enough to keep the places clean, and then wash them off with a weak solution of carbolic acid.

(*h*) A method in use in the public hospitals of the city of New York, known as "glue burn mixture" is composed as follows 7½ troy oz. white glue, 16 fl. oz. water, 1 fl. oz. glycerine, 2 fl. dr. carbolic acid. Soak the glue in the water until it is soft; then heat on a water-bath until melted; add the glycerine and carbolic acid, and continue heating until, in the intervals of stirring, a glossy, strong skin begins to form over the surface. When wanted for use, heat on a water-bath, and apply with a flat brush over the burned part. Pour the melted mass into small delf extract jars, cover with paraffin-paper and tin-foil before the lid is put on, and afterwards protect by paper pasted around the edge of the lid. In this manner, the mass may be preserved indefinitely.

(*i*) Saturate a soft piece of fabric with alcohol, lay it over the burn, then cover it with cotton or finely picked oakum: it will allay the pain. Subsequently

disturb the dressing as little as possible; wet the dressing occasionally with alcohol. In burns from strong nitric acid, copious application of cold water, and even of such powerful bases as ammonia, potash, and lime in water, have no perceptible effect, except perhaps to increase the violence of the inflammation. But the effect of a dilute solution of sulphurous acid is astounding. In a very few minutes the blister will be reduced; the oxidising process of the acid will be completely arrested, the painful irritation removed, and in a short space of time the wound will heal. (A. Irving.)

In bad burns with lime, soap lye, or any caustic alkali, wash abundantly with water (do not rub), and then with weak vinegar or water containing a little sulphuric acid; finally apply oil as in ordinary burns.

(*j*) To recover a person in a state of insensibility from the effect of smoke, dash cold water in the face, or cold and hot water alternately. Should this fail, turn him on his face, with the arms folded under his forehead. Apply pressure along the back and ribs, and turn the body gradually on the side; then again slowly on the face, repeating the pressure on the back. Persevere with these alternate rolling movements about 16 times in a minute, until respiration is restored, A warm bath will now complete the recovery.

(*k*) In scalding by boiling water or steam, cold water should be plentifully poured over the person and cloths, and the patient then be carried carefully to a warm room, laid on the floor or carpet, or on a table, but not put into bed (as there it becomes difficult to attend further to the injuries), to await the doctor. If the patient complains of thirst, a warm, stimulating drink (such as tea) should be given, as

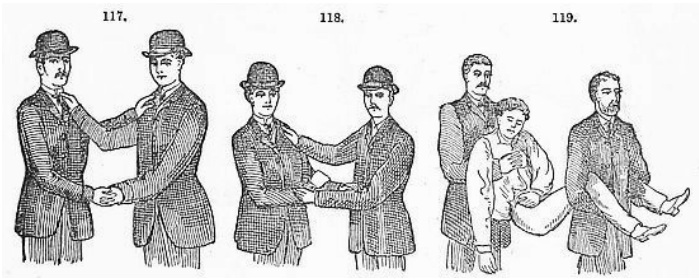
after severe burning the temperature of the body is sure to fall. Children sometimes receive serious scalds of the mouth and throat by swallowing hot fluid or steam from a spout. Medical assistance should be obtained without delay, as an immediate operation may be required to prevent death from suffocation. Until the arrival of the doctor the patient should inhale warm vapour, to relieve the fits of choking; the best way to make a person inhale vapour is to construct a kind of tent of blankets around the patient, and allow the steam from a kettle, to puff into it.



116. Supporting patient.

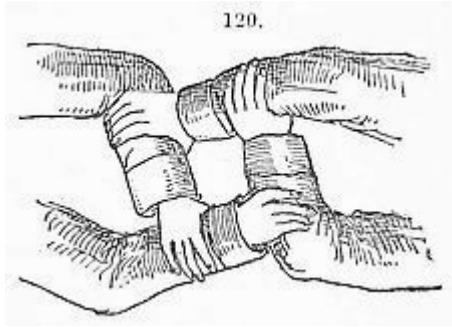
Carrying injured persons. (*a*) By Bearers.—If no conveyance can be procured or improvised, you can transport an injured person a short distance by human bearers. If only one is available, and if the patient can stand up, let him place one arm round the neck of the bearer, bringing his hand on and in front of the opposite shoulder of the bearer. The bearer then places his arm behind the back of the patient and grasps his opposite hip, at the same time catching firmly hold of the hand of the patient placed on his shoulder with his other hand. Then by

putting his hip behind the near hip of the patient much support is given, and, if necessary, the bearer can in this way lift him off the ground, and, as it were, carry him along. This is an admirable way of helping an invalid to walk up stairs. If the patient cannot stand, the only way in which one person can remove him is by getting him on his back; this is not practicable in a case of broken thigh (Fig. 116).



117. 118. 119. Methods of carrying a helpless patient.

When 2 bearers are available, the patient may be carried several different ways:—(1) In a sitting position, by the bearers joining two of their hands underneath his thighs, close to the buttocks, while their other two hands are placed round his loins and clasped together. The patient, if able, can help to support himself by clasping the bearers round their necks. (2) By 2 of the bearers' hands forming a seat and the other 2 arms a back support (Fig. 117). (3) By 3 of their hands forming a seat, while a back support is made by the remaining arm (Fig. 118). (4) A seat may be made with all 4 hands, and especially if the patient is able to sit up and help support himself by placing his arm over the shoulders of the bearers, he may be carried a long distance by this method. Fig. 119 shows another plan, and Fig. 120 indicates how the hands should grasp each other.



120. Forming a seat.

(*b*) By Stretcher.—To place an injured person on a stretcher and convey him properly requires 3 bearers, unless the distance be very great; 2 carry the stretcher, and a third attends to the patient, and changes place with one of the bearers if necessary. To lay a patient on it, put the foot of the stretcher at his head in a line with his body; 2 bearers then place themselves one at either side, join hands underneath the back and hips of the patient, raise him up, lift him backwards over the stretcher, and lower him on to it. The third bearer takes charge of the injured portion (limb or head), and steadies it with a hand on either side. The two bearers now take their places at the head and foot of the stretcher, lift it up, and carry it off; while the third walks at the side of it, as a safeguard to the patient. Observe the following rules in carrying a stretcher: (1) Carry it with the hands, or suspended by straps over the bearers' shoulders, never place it on the shoulders, because the patient might fall off, or even die, without the bearer observing it. (2) Do not keep step, i.e. do not put the same foot forward, then the motion of the stretcher remains even. The pace must be short (about 20 in.) and without a spring; the knees must be rather bent, and the hips moved as little as

possible. Jolting, hurrying, crossing ditches, &c., are to be avoided. Choose bearers of the same height, arrange the shoulder-straps so that the head may be carried a little higher than the feet.

Convulsions.—Till medical aid can be procured, put the child into a warm bath, in which you can bear your elbow. Sponge him well over, and put a sponge of cold water on his head.

Cuts and Wounds.—Wounds may be "incised" (made by a clean-cutting instrument), "punctured" (when the depth exceeds the breadth, as in stabs), "lacerated" (torn, and the lips of the wound irregular), and "contused" (effected by bruising). The chief points to be attended to are:—(*a*) Arrest the bleeding. (*b*) Remove all foreign bodies as soon as possible. (*c*) Bring the wounded parts in apposition, and keep them so, best done by means of strips of adhesive plaister, first applied to one side of the wound, and then secured to the other; these strips should not be too broad, and space must be left between the strips to allow any matter to escape; wounds too extensive to be kept together by plaister, must be stitched by a surgeon. For punctured and severely lacerated or contused wounds a surgeon should be sent for.

For washing a wound, to every pint of water add either 5 gr. corrosive sublimate or 2½ teaspoonfuls carbolic acid. If the acid is used, add 2 tablespoonfuls glycerine, to prevent its irritating the wound. If there is neither of these articles in the house, add 4 tablespoonfuls borax to the water. Wash the wound, close it, and apply a compress of a folded square of cotton or linen. Wet it in the solution used for washing the wound, and bandage down quickly and firmly. If the bleeding is profuse, a

sponge dipped in very hot water and wrung out in cloth should be applied as quickly as possible. If this is not available, use ice, or cloths wrung out in ice water.

Wounds heal in two ways.—(*a*) Rapidly, by primary union without suppuration, and leaving only a very fine scar; this only when the sides of wound can be accurately brought together, are not displaced by bleeding or exudation of matter, and when the wound is left quiet, protected from outward injury, and kept perfectly free from impurity. (*b*) Slowly, with suppuration, and the formation of granulations, and leaving a large red scar, as when so much skin has been destroyed that the edges of the wound cannot be brought together, or so lacerated and bruised that life is destroyed in them, or separated by blood or exudation of matter, or if the injured parts have been disturbed, or the wound has not been properly cleaned and disinfected. Want of cleanliness leads to putrefaction and the formation of matter, which separates the sides of the wound.

Drowning, Choking, and Suffocation.—The fatal termination to be avoided in all these cases is suspension of breathing, hence they may be classed under one head.

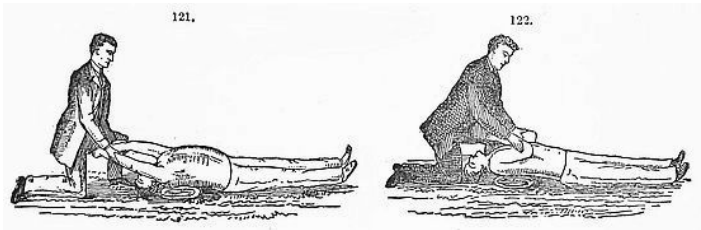
Drowning.—This is perhaps the most common, and embraces in great measure the remedies adapted to the other forms of suffocation. The first step is to send immediately for medical assistance, blankets, and dry clothing; but proceed to treat the patient *instantly* on the spot, in the open air, with the face downward, whether on shore or afloat; exposing the face, neck, and chest to the wind, except in severe weather, and removing all tight clothing from the neck and chest, especially the braces.

The points to be aimed at are—*immediately* the restoration of breathing; and, after breathing is restored, promotion of warmth and circulation. Efforts to restore breathing must be commenced immediately and energetically, and persevered in for 1-2 hours, or until a doctor has pronounced life extinct. Efforts to promote warmth and circulation, beyond removing wet clothes and drying the skin, must not be made until the first appearance of natural breathing; for if circulation of the blood be induced before breathing has recommenced, the restoration to life will be endangered.

To restore breathing, place the patient on the floor or ground with the face downwards, and one of the arms under the forehead, in which position fluids can more readily escape at the mouth, and the tongue will loll out, leaving the entrance to the windpipe free. The tongue may be easily kept extended by simply passing a small rubber band round it and the chin. The mouth and nose must be thoroughly wiped and cleaned from obstructions.

If breathing has quite or almost failed, means must be used to restore it; if not, proceed at once to promote warmth. There are several ways of inciting suspended respiration. The best, as requiring only one person, is Silvester's method, as follows: Place the apparently dead person flat on his back, raising his head and shoulders slightly by means of a folded article of dress. Standing behind him, grasp his arms just above the elbow, and draw them gently and steadily upwards over the head, keeping them in that position for 2 seconds; by this means the chest expands and air is drawn into the lungs (Fig. 121). Then carry the arms back again in the same way and press them gently and firmly against the sides of the

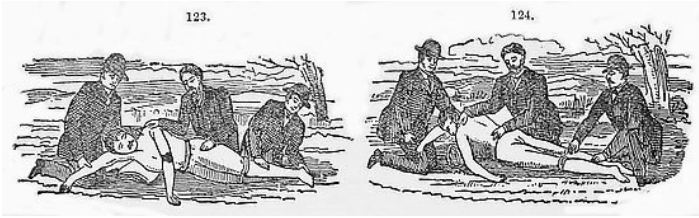
chest for 2 seconds; by this means the air is pressed out of the lungs again (Fig. 122). These movements are repeated carefully and perseveringly, about 15 times in a minute, till natural respiration begins. The first evidence of this is a sudden flush of colour in the face.



121. Inspiration (Silvester). 122. Expiration (Silvester).

When 2 persons are present, Francis's plan may be adopted, thus: The body of the patient is laid on the back, with clothes loosened, and the mouth and nose wiped; 2 bystanders pass their right hands under the body at the level of the waist, and grasp each other's hands, then raise the body until the tips of the fingers and the toes of the patient alone touch the ground; count 15 rapidly; then lower the body flat to the ground, and press the elbows to the side hard; count 15 again; then raise the body again for the same length of time, and so on, alternately raising and lowering. The head, arms, and legs are to be allowed to dangle down quite freely when the body is raised.

When 3 or more persons can assist, Marshall Hall's method is available. To excite breathing, turn the patient quite on the side, supporting the head, and induce inspiration and expiration by alternately rolling the body over on its face, and back again, at 15 seconds intervals, as shown in Figs. 123 and 124.



123. Inspiration (Marshall Hall). 124. Expiration (Marshall Hall).

As soon as a natural effort to breathe is produced, endeavour to restore circulation and warmth. Wrap the body in dry blankets and commence rubbing the limbs upwards firmly and energetically under the blanket or over warm clothing, which can generally be got from bystanders. Then put the patient into a warm bed, and cover over with hot flannels, applying bottles or bladders of hot water, or heated bricks, to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet. When the patient is able to swallow, give him warm fluids by spoonfuls—coffee, tea, brandy and water, wine—but not in too great quantities. Warm baths should never be used but when ordered by the doctor.

Choking.—When a person gets a fish-bone or other substance in the throat, at once insert a finger into the mouth and press upon the root of the tongue, so as to induce vomiting. If this fails, let the patient swallow a piece of soft bread. If the substance can be felt by the finger, insert 2 fingers into the mouth and bring it away, using the safeguard of putting some hard substance between the teeth. A medical man should at once be sent for. Repeatedly sucking lemons will help to dissolve the bone. A marble or similar article in a child’s throat may be dislodged by turning him heels upwards and shaking.

Suffocation.—Remove the patient immediately to the fresh air; dash cold water in the face and on the chest; keep up the warmth of the body, and apply mustard plaisters over the heart and round the ankles. If these means fail, without loss of time try artificial respiration, as already described.

Before entering a suffocating atmosphere to rescue persons, tie a towel soaked in vinegar and water over the mouth. Admit fresh air to the room if possible.

Fits, Fainting, and Unconsciousness.—These bear a strong outward resemblance to each other while due to very different causes. The latter are principally: (*a*) injuries to the brain, with or without fractures of the skull; (*b*) diseases of the brain (including fits), apoplexy, epilepsy, &c.; (*c*) poisoning by narcotics and by retention of urine (in kidney disease); (*d*) fainting (paralysis of the heart through fright, exhaustion, loss of blood, &c.).

In such cases gather a history of the occurrence, and note the position of the body and its surroundings; also whether the breath smells of spirits, which shows there has been drinking, but remember that other and more serious conditions (paralysis, injury to the brain, &c.) may co-exist with intoxication. Lay the body on the back, with the head low if the face is pale, as in faintness after great loss of blood. If the face is red, the head must be raised. If sickness sets in, incline the head at once, so that the vomited matters may not be drawn into the lungs. Undo all clothing round the neck. Allow free circulation of air round the patient. Remove the patient as quickly as possible to the nearest hospital or doctor on a stretcher.

In epileptic fits, recognised by convulsive spasms of the limbs and body, contorted and congested face,

foaming at the mouth, and bitten tongue, act on the rules just mentioned, and do all in your power to prevent the patient injuring himself, without attempting to restrain his movements. Lay something soft under his head, put something between the teeth, watch till the fit is over, and then remove him. In cases of fainting at once lay the patient flat, with the head brought to the same level as the body, to enable the blood more easily to circulate through the brain, for it is want of power in the heart to propel the blood to the brain that has caused the insensibility. If bleeding is going on, it must at once be arrested. As stimulants, eau de Cologne, sal volatile, ammonia, &c., may be used, but the important thing to remember is the position of head and body. Stimulation is apt to start afresh the bleeding arrested by fainting. In cases of snoring, with face flushed (apoplexy), undo clothing round the neck, keep the head raised, dash cold water on the top of the head, and apply hot-water bottles to the feet; send for doctor; do not give brandy.

Frostbite.—In serious frostbite or cases of exposure to intense cold, endeavours to restore life should be made with the greatest care. If you bring the patient suddenly into a warm room, death will follow certainly. Carry him carefully into a closed but cold room, and undress him with care for fear of breaking the stiffened limbs. If snow is to be had, cover and vigorously rub the whole body with it. If not, cover and rub with cold wet cloths or cold sand, or put him into a cold bath. Alternately with this try artificial means to restore breathing (as in drowning). When the patient begins to breathe naturally, and the limbs become less stiff, he should be carried into a moderately warm room and covered lightly with cold coverings and sheets. After this, he may be rubbed

by degrees with warm cloths, and the warmth of the room gradually increased. Then try by means of smelling-salts, ammonia, or ether, and slightly stimulating drinks, such as light cold wine, cold coffee or soup, to recall consciousness. Should any part of the body remain without sensation, blue, swollen, or blistered, there is great danger of mortification setting in.

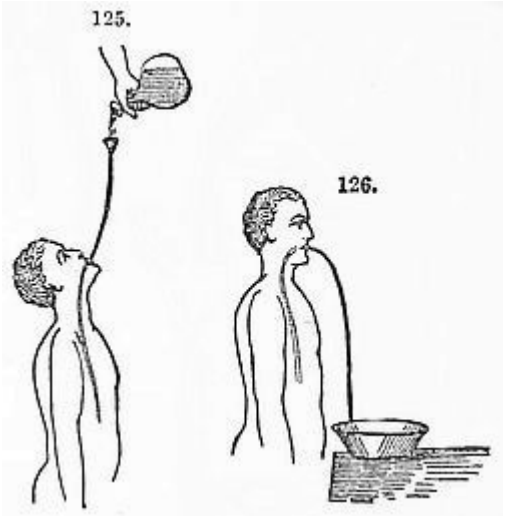
For after consequences, which recur most frequently in cold weather, apply balsam of copaiba, spread thickly on a piece of linen or muslin, the affected parts being covered with the application, which is allowed to remain over the night. By day, some of the balsam is to be spread over the affected parts. After one or two applications the pains cease and the redness disappears; whilst a few additional applications seem to give to the parts a power of resistance to frostbite.

Dr. Lapatin advises that fingers and toes which have been slightly frost-bitten, and which subsequently suffer from burning, itching, and pricking sensations, should be painted, at first once, and afterwards twice a day, with a mixture of dilute nitric acid, and peppermint water in equal proportions. After this application has been made for 3-4 days, the skin becomes darkened and the epidermis is shed, healthy skin appearing under it. The cure is effected in 10-14 days.

The members of the Austro-Hungarian Polar Expedition found most benefit from a mixture of iodine and collodion.

Lightning Stroke.—Apply cold to the head, and, if necessary, warmth to the extremities; rub the limbs well, and give stimulants as soon as the patient can swallow.

Poisons.—In all cases of poisoning, at once note the position and surroundings of the patient, and whether bottles likely to have contained poison are at hand. Send for the nearest doctor, and proceed immediately to get the poison out of the stomach by encouraging vomiting. Vomiting is often one of the first and most important signs of poisoning, and then only requires fostering by large draughts of warm water. If vomiting is not present, at once administer an emetic, such as sulphate of zinc in 20-30 gr. doses, 2 tablespoonfuls ipecacuanha wine mixed with warm water. In the absence of these, resort to mustard and water, a teaspoonful or two in warm water frequently repeated, or common salt and water may be used; vomiting may also be excited by tickling the back of the throat, and by freely drinking hot greasy water. A stomach pump must only be used by a surgeon; but a safe substitute, if the patient is conscious, is a piece of rubber tubing, about 3 yd. long and ½ in. diameter. Let the patient swallow about 2 ft. of this, then hold the free end of the tube above his head (Fig. 125) and pour down through a funnel 1-2 pints warm water, which will go direct into the stomach. By lowering the free end (Fig. 126) the stomach empties itself readily. By frequent repetition the cavity of the stomach is completely washed out.



125. 126. Stomach-tube.

Try to ascertain what the poison is, and proceed to administer antidotes. Most poisons may be grouped under two classes—narcotic and irritant; the former being mainly organic (vegetable) substances, and the latter chiefly minerals. In narcotic poisoning, vomiting must be induced or the stomach emptied in some other way, and means must be taken to prevent sleep ensuing, by walking the patient about, slapping with wet towels, dashing cold water in the face, &c.; give strong black coffee to drink (or with an enema); put icy cold compresses on the head, and mustard plaisters on the stomach and calves of the legs. In irritant poisoning, the poison itself is pretty sure to cause vomiting, which then need not be encouraged. To protect the stomach and gullet from the corrosive action of irritant poisons, bland and oily fluids, such as salad oil, egg-white, milk, flour and water, should be freely administered.

The following summary of poisons and antidotes will be found useful:—

Narcotic Poisons.

Poison.	*Antidote.*
Aconite, monkshood	emetics; warmth; rub the skin.
Alcohol, alcoholic drinks	emetics; cold douche; keep awake.
Belladonna, deadly nightshade	emetics; strong coffee; hot and cold douches alternately; artificial respiration.
Chloral hydrate	emetics; strong coffee enema; hot blankets, and water bottle to feet; artificial respiration; keep awake.
Chloroform	fresh air and artificial respiration; hot and cold douche.

Cyanide of potassium, prussic acid, laurel water, essential oil of almonds, benzol.	emetics; stimulants; cold and hot douche; artificial respiration.
Ether	as chloroform.
Fool's parsley	brandy; strong tea; warm applications to extremities.
Foxglove	emetics; stimulants; prolonged recumbence.
Hemlock	emetics; strong tea; warmth and rubbing; artificial respiration.
Henbane	a large spoonful of animal charcoal, emetics 10 minutes later, then brandy or coffee; keep awake.
Laburnum pods or seeds	5-6 gr. zinc sulphate as an emetic.

Meadow saffron	brandy; strong tea; warm mucilaginous drinks.
Mushrooms	emetics; stimulants; warmth and rubbing.
Opium, chlorodyne, Godfrey's cordial, poppies, soothing syrups.	emetics; hot coffee; cold douche; keep awake; artificial respiration.
Poison ivy {on the body}	apply a weak solution of sugar of lead.
Poison dogwood {on the body}	
Spurge laurel, mezereum	brandy and warm mucilaginous drinks.
Strychnine, vermin-killers	emetics; chloroform in an inhaler.

Yew berries	emetics; brandy; warmth to extremities recumbent position.

Irritant Poisons.

Acid—carbolic, creosote.	emetics; lime-water; salad oil; coffee.
Acid—oxalic, potassium oxalate, salt of sorrel, salt of lemon.	water containing chalk or whiting, but not ammonia, potash, or soda.
Acids—acetic, hydrochloric, nitric, sulphuric; spirit of salt.	abundance of water containing chalk, magnesia, sal-volatile, washing soda, or whiting; egg-white, milk, thick gruel.

Alkalies—ammonia, potash, soda.	water containing lemon-juice or vinegar; salad oil, milk, egg-white, gruel.
Antimony, tartar emetic	emetic if needed; plenty of strong coffee; egg-white, milk.

Arsenic, emerald green, fly paper	emetics; magnesia; warmth and friction; strong coffee; best antidote is moist peroxide of iron, which can be made by dissolving ½ oz. iron sulphate and ½ oz. potash carbonate (or ¾ oz. soda carbonate) separately in warm water and mixing, adding ¼ oz. magnesia — calcined if handy— dilute with ½ pint hot

	water, and drink very hot.
Bichromate of potash	emetics; magnesia, chalk, or whiting.
Blistering fluid	emetics; egg-white, barley water, gruel; not oil.
Bluestone	emetic if needed; milk, eggs, barley water, gruel.
Caustic, nitrate of silver	abundance of salt in water or milk, egg-white, barley water.
Chloride of mercury, corrosive sublimate	emetic if needed; raw egg beaten up in milk, gruel, arrowroot; strong coffee.

Iodine	emetics; plenty of gruel, arrowroot or starch.
Phosphorus, matches, rat poison	emetics; 10 drops oil of turpentine, every ¼ hour in gruel or milk with a little magnesia; egg-white, barley water.
Pyrogallol	emetics.
Sugar of lead, paint	emetics, zinc sulphate best; ½ oz. Epsom salts in water; egg-white, milk, barley water.
Turpentine, furniture polish	emetics; milk, egg-white, barley water.

White precipitate	emetics; coffee; egg-white beaten up in water, barley water, arrowroot.

Sprains.—A sprain is a sudden forcible stretching of the tendons or ligaments, or both combined, of a joint, and is always accompanied by most acute pain, and generally followed by rapid swelling. It is always tedious and troublesome, and hence often leads to more serious results; in all but very slight cases, a surgeon should be seen. Meantime give the injured part perfect rest, keep it in an elevated position, and apply cold water continuously, or immerse in water as hot as can be possibly borne, and after keeping it there for ¼ hour, frequently apply hot bran (or oatmeal and vinegar) poultices. As an embrocation, put ¼ lb. camphor in ½ lb. methylated spirits of wine; when dissolved, add 1 oz. oil of origanum, and rub the place night and morning, or use Elliman's embrocation. In many cases of supposed severe sprain, some of the bones forming the injured joint are broken, therefore it is wise to treat these cases by the rules for broken bones before removing the patient.

Sunstroke.—In cases of simple exhaustion, ordinary treatment is all that is needed. Removal to a cooler locality, the cold douche (but not too much prolonged), or the administration of stimulants, may be beneficial. Tight or oppressive clothing should be removed, and the patient treated as in syncope from other causes. Rest and freedom from exposure to

over-exertion, fatigue, or great heat, should be enjoined. In that form of sunstroke where the person is struck down suddenly by a hot sun, the patient should be removed into the shade, and the douche of cold water being allowed to fall in a stream on the head and body from a pump (or, as in India from the mussuck, or other similar contrivance), should be freely resorted to, the object being twofold—to reduce the temperature of the over-heated centres, and to rouse them into action. Mustard-plaisters and purgative enemata may be useful. If recovery be imperfect, and followed by any indication of injury to the nerve-centres, or by the supervention of meningitis, other treatment may be necessary according to the indications. Much exposure to the sun should be carefully guarded against; and, unless recovery be complete and rapid, the sufferer should be removed to a cooler climate, the most perfect rest and tranquillity of mind and body enjoined, and the greatest care be observed in regard to extreme moderation in the use of stimulants. (Dr. Fayrer.) For prevention, wear light head-gear with good protection to the nape of the neck; let the lining be double, one of green and the other of yellow material, and have ventilation holes at the sides and top.

Common Complaints:—

Brain worries.—To the broad question, Are people suffering from overwork? Dr. Samuel Wilks, Physician to Guy's Hospital, would have no hesitation in saying "No." His remarks on the subject are worth repeating. He proceeds:—"On the contrary, if both sexes be taken, I should say the opposite is nearer the truth, and that more persons are suffering from idleness than from excessive work.

Medically speaking, I see half a dozen persons suffering from want of occupation to one who is crippled by his labours. I have, therefore, very little sympathy with the prevalent notion that nervous and other diseases are due to overwork. As regards the community generally, or at least those of its number who come before the medical man on account of their ailments, my belief is that the explanation they offer arises from a delusion; and amongst girls, so far from any studies or other work being injurious, I could instance numerous cases of restoration to health on the discovery of an occupation. Very often, when a business man complains of being overdone, it may be found that his meals are very irregular and hurried, that he takes no exercise, is rather partial to brandy and soda, and thinks it not improper to half poison himself with nicotine every night and morning. The lady in the same way eats no breakfast, takes a glass of sherry at 11 o'clock, and drinks tea all the afternoon; when night arrives she has become ready to engage in any performance to which she may have been invited. When the man of business presents himself, with his nerves really overstrained, he is found to be a man of delicate or actually insane temperament. The rule, however, is that when a patient comes before me with his nerves unstrung, hypochondriacal, and goes through the whole machinery of his body to inform me of its working, previously committing all the facts to paper lest an important one should be forgotten, that man is getting rusty from having no occupation.... We forget sometimes what a formidable machine is the animal body, with its force-producing nervous system. The brain is an engine of many horse power; its energy must be accounted for in some way; if not used for good purposes, it will be for bad, and 'mischief will

be found for idle hands to do.' It is fortunate that, with many girls, the frivolities of life keep them idly busy, and so, having a safety valve, they are harmless to others and themselves; but let a girl occupy herself neither with what is useful nor with amusement, she falls into bad health, she becomes a prey to her own internal fires or forces, and every function of her body is deranged, as well as her moral nature perverted. Cases of this kind appear to me of the commonest order, and at the same time very difficult of cure, because the mother's aid can rarely be gained to assist the doctor; but, on the other hand, her sympathies too often only foster her daughter's morbid proclivities by insisting on her delicacy and the necessity of various artificial methods for her restoration, as well as her resistance to the doctor's advice for a more natural life, since she is sure it cannot be undertaken. Her daughter is too delicate for any of the occupations or modes of exercise proposed. What she requires is medical attendance, and to be alcoholised and physicked. It is remarkable, however, what a young lady can do under the power of a stimulus—as, for example, a gentleman lately expressed his surprise to me how his daughter, who could not walk many yards for a long time, owing to a pain in her back, was soon able to walk many miles a day when she procured the support of her lover's arm. It is from considerations of this kind that, when the superfluity of women, amounting to half a million, doomed to be unmated, ask for employment, I cannot deny it to them. The human body is made for work, physical and mental. The amount it can do is of course proportionate to the power of the machine; but, unlike all other machines, its strength is only maintained by use, as assuredly it rusts and decays by disuse. Just as the

muscles are better prepared for work by previous training, so the nervous system, whether it be the brain or spinal cord, becomes more energised by use. If healthy and vigorous persons be taken, there appears no absolute necessity for rest at all in the popular sense of the term. The rest required is gained during sleep, during meals, and necessary healthful exercise. It is only during sleep that the brain is actually inactive, although even then not absolutely, for at meals cheerful conversation keeps the mind employed, and even in our walks the attention is fixed on objects around. In times so occupied there are many persons whose minds are never idle, and who yet live to a good old age. Practically they have no rest, for when one object of study is complete, they commence to pursue another. It is by the happy faculty of diverting the powers into different channels that this is accomplished. Instances might easily be quoted of statesmen, judges, and members of our own profession who know no absolute rest, and who would smile at the suspicion of hard work injuring any man. I make it a custom to ask young men what their second occupation is—what pursuit have they besides their bread-earning employment. Those are happiest who possess some object of interest, but I am sorry to say there are few who find delight in any branch of science. The purely scientific man finds his best recreation in literature or art, but even in intellectual work so many different faculties are employed that a pleasant diversion is found in simply changing the kind of labour. For example, a judge after sitting all day, and giving his closest attention to the details of the cases before him, may yet find relief in his evenings by solving problems in mathematics. The subject of overwork, then, is one of the greatest importance to study, and has to be

discussed daily by all of us. My own opinion has already been expressed, that the evils attending it on the community at large are vastly over-estimated; and, judging from my own experience, the persons with unstrung nerves who apply to the doctor are, not the Prime Minister, the bishops, judges, and hard-working professional men, but merchants and stock-brokers retired from business, Government clerks who work from 10 to 4, women whose domestic duties and bad servants are driving them to the grave, young ladies whose visits to the village school or Sunday performance on the organ is undermining their health, and so on. In short, and this is the object of my remarks, I see more ailments arise from want of occupation than from overwork, and, taking the various kinds of nervous and dyspeptic ailments which we are constantly treating, I find at least six due to idleness to one from overwork."

For a long time it has been well known to the medical profession that in various critical states of the human system absolute silence, or the nearest possible approach to it, is not the least important condition to be secured. Accordingly muffled knockers, streets covered with straw or spent tan, and attendants moving about with noiseless step, are universally recognised as the signs and the requirements of severe disease. But the truth that noise is a contributor to the wear and tear of modern city life has scarcely yet been realised by the faculty, not to speak of the outside public. Consequently, while a zealous war is being urged against other anti-sanitary agencies, no general attempts for the abolition of superfluous noise have yet been made. We cannot, perhaps, give anything approaching to a scientific explanation why sound in excess should

have an injurious effect upon our nervous system. We feel that noise is distressing, exhaustive. The strongest man after days spent amidst noise and clatter, longs for relief, though he may not know from what. It may even be suggested that the comparative silence of the sea-side, the country, or the mountains, is the main charm of our summer and autumn holidays, and contributes much more than does ozone to restore a healthy tone to the brains of our wearied men of business. Indeed, if we consider, we shall find that this is the most unnatural feature of modern life. In our cities and commercial towns the ear is never at rest, and is continually conveying to the brain impressions rarely pleasant, still more rarely useful or instructive, but always perturbing, always savouring of unrest. In addition to the indistinct but never-ceasing sea of sound made up of the rolling of vehicles, the hum of voices, and the clatter of feet, there are the more positively annoying and distracting elements, such as German bands, organ grinders, church bells, railway whistles, and the like. In simpler and more primitive times, and to some extent even yet in the country, the normal condition of things is silence, and the auditory nerves are only occasionally excited. It is scarcely to be expected that such a change can be undergone without unpleasant consequences.

The question has been raised, why should some noises interfere with brain work by day and disturb our rest at night so much more than other? A strange explanation has been proposed. We are told that sound made incidentally and unintentionally—such as the rolling of wheels, the clatter of machinery (except very close at hand), the sound of footsteps, and, in short, all noises not made for the sake of noise—distress us little. We may become as

completely habituated to them as to the sound of the wind, the rustling of trees, or the murmur of a river. On the other hand, all sounds into which human or animal will enters as a necessary element are in the highest degree distressing. Thus it is, to any ordinary man, impossible to become habituated to the screaming of a child, the barking and yelping of dogs, the strains of a piano, a harmonium, or a fiddle on the other side of a thin party-wall, or the clangour of bells. These noises, the more frequently we hear them, seem to grow more irritating and thought-dispelling.

But while admitting a very wide distinction between these two classes of sounds, we must pause before ascribing these differences to the intervention or non-intervention of will. We shall find certain very obvious distinctions between the two kinds of sound. The promiscuous din of movement, voice, and traffic, even in the busiest city, has in it nothing sharp or accentuated; it forms a continuous whole, in which each individual variation is averaged and toned down. The distressing sounds, on the other hand, are often shrill, abrupt, distinctly accentuated and discrete rather than continuous. Take, for instance, the ringing of bells: it is monotonous in the extreme, but it recurs at regular intervals. Hence its action upon the brain is intensified, just as in the march of troops over a suspension bridge, each step increases the vibration. The pain to the listener is the greater because he knows that the shock will come, and awaits it. Very similar is the case with another gratuitous noise, the barking of dogs. Each bark, be it acute or grave, is in the highest degree abrupt, sharply marked, or *staccato*, as we believe a musician would term it. Though the intervals are less regularly marked than in the case of church bells, we still have

a prolonged series of distinct shocks communicated to the brain. All the other more distressing kinds of noise possess the characters or shrillness, loudness, and of recurrent beats or blasts.

As an instance of an undesigned, unintentional noise being distressing to those within ear-shot, we may mention the dripping of water. A single drop, whether penetrating through a defective roof, falling from the arch of a cavern, or issuing from a leaky pipe, and repeated at regular intervals, is as annoying as the tolling of a bell, the barking of a dog, or the short, sharp screams of a fretful infant. The only difference is that the noise is not heard as far. We may hence dismiss the “will” theory, and refer the effects of noises of this class to regularity, accentuation, and sharpness.

It is particularly unfortunate that the multiplication of sound should accompany, almost hand in hand, that increase of nervous irritability and that tendency to cerebral disease which rank among the saddest features of modern life. A people worn out with overwork, worry, and competitive examinations might at least be spared all unnecessary noise. Many persons cannot or will not understand how necessary silence is to the thinker. A friend of the writer’s, engaged in investigating certain very abstruse questions in physics, is often compelled to throw aside his work when an organ grinder enters the street, and suffers with acute pain in the head if he attempts to go on with his researches.

We should therefore propose, as measures of sanitary reform, the absolute prohibition of street music, which is more rampant in London than in any other capital in Europe. The present law, which

throws upon the sufferer the burden of moving in the matter, is a mere mockery. Another necessary point is the abolition of church bells. In these days of innumerable clocks and watches every one can tell when it is the time for divine service without an entire neighbourhood being disturbed for some 20 minutes at a time. Nonconformist places of worship collect their congregations without this nuisance. Further, all dogs convicted of persistent barking should be disestablished. And lastly, harmoniums, American organs, and wind instruments in general should be prohibited, except in detached houses. (*Journal of Science.*)

Chapped Hands.—(*a*) Some persons are sadly troubled with their hands cracking. It sometimes comes from a persons health; but there is one great thing to keep in mind—that is, every time you wash or wet your hands, be sure and dry them well. Always, after wiping them, hold them to the fire till quite dry. This is very important. As an outward application, spermaceti ointment, with a small quantity of lead acetate and some camphor well mixed is a good thing. Rub some well in at night on going to bed, and do not use strong soap.

(*b*) A mixture of 1-2 dr. hydrochloric acid to 4 oz. water for use in case of chapped hands, and even when the skin is cracked and bleeding, relieves the complaint at once, and if persevered in effects a cure.

(*c*) Into a 3 oz. glass-stoppered bottle pour ½ oz. pure glycerine; fill up with distilled water and shake. A few drops in the palm rubbed and distributed over the hands when nearly dry, after washing, will in a short time render the skin like satin. It is well to scald the bottle before filling, to check the development of vegetable organisms (“ropiness”). Do

not increase this quantity of glycerine, or it will make your hands sticky.

(*d*) One part (say 1 oz.) pure glycerine, 1 of Eau-de-Cologne, 2 of water; mix them in a bottle and use a few drops well rubbed in after every washing of the hands, and as frequently in the day as can conveniently be done.

(*e*) Mix equal quantities pure glycerine and pure water together, and add as much common salt as the liquid will dissolve. Rub this frequently on the cracked portions of the hands, giving an extra quantity just before going to bed.

(*f*) Salicylic acid and borax, each 1½ dr., glycerine up to 2 oz.

(*g*) Equal quantities carbolic acid and glycerine.

Chilblains.—(*a*) Chilblains are likely to be caused by sudden change from cold to heat or *vice versâ*. This will explain why the hands and feet, nose and ears, are mostly the parts affected, because they are the parts most prominently exposed to such changes. Invalids and scrofulous persons are more likely to suffer than the robust and healthy. As prevention is better than cure, care should be taken to protect the parts by substances which are non-conductors of heat. Woollen socks, stout boots, and warm gloves are safe preventives, and especially taking care not to warm the parts affected by cold by any other means than friction, and in case of persons predisposed to chilblains, the frequent ablution of the extremities in tepid water and the use of good yellow soap is advisable, bathing the feet and hands in tepid water slightly salted, every night, is a good antiphlogistic. Should these means fail, where the skin is not broken, use a liniment of 1 oz. camphorated spirits of

wine mixed with ½ oz. Goulard's extract; but the best remedy is a lotion composed of 1 dr. iodine in 3 oz. rectified spirits of wine, to be applied with a brush not more than once a day. Should the chilblain be broken or ulcerated a different treatment must be adopted—warm poultices ought to be applied, and discontinued after about 3 days; the sores must then be touched with the tincture of iodine once a day, and then dressed with basilicon ointment; when they begin to granulate freely, a simple dressing of the above ointment is sufficient to complete a cure. Care ought always to be taken not to let chilblains break through the skin, as they are very liable to mortify.

(*b*) Copper sulphate in solution is about the best thing to allay the itching before they break. Also is used with very good effect an embrocation composed of 1 dr. tincture of capsicum and 7 dr. soap liniment. After they have broken, the best application will be carbolic acid and linseed oil—1 part of the former to 5 of the latter, to be applied with a feather (the pure acid should be used for this). This is the most useful application for any open sore.

(*c*) 1 dr. sugar of lead, 2 dr. white vitriol, then add 4 oz. water; shake well before using. Rub well on the affected parts with the hand before a good fire; the best time is in the evening. Do not use this on those that are broken. This scarcely ever fails to cure the most inveterate chilblains by once or twice using.

(*d*) Quite effective for unbroken chilblains, but it might be poisonous to broken ones, so be very careful:—A small quantity of yellow soap is dissolved in very little water, then methylated spirit is added to just thin it a little, then add, while hot, tincture of iodine drop by drop, stirring it the while; when it begins to change colour there is enough; let get cold,

and apply night and morning, letting it dry on. It is only good while the spirit is in it.

(*e*) Take some precipitated chalk, and mix it in a mortar (or with a knife in a plate, but the first way is best) with some salad oil to something thicker than cream—about the thickness of Devonshire cream. At night apply it thoroughly over all the fingers, rubbing it in, and smearing it thickly on them, putting a pair of gloves on. Persevere every night.

(*f*) 6 gr. copper sulphate, ½ oz. Eau-de-Cologne, ½ oz. distilled water. To be applied twice a day with camel-hair brush. A capital remedy to arrest inflammation in chilblains.

(*g*) 2 oz. black bryony root, 10 oz. spirit of wine, 2 oz. water. Macerate 7 days and filter. Apply night and morning with a camel-hair pencil.

Cold Feet.—(*a*) There are two remedies—the hot bottle and lamb's-wool socks, either or both of which may be used. When we consider that during the day, whilst we are active, we wear stockings and shoes, does it not seem strange that at night, when the temperature of the air is lower, and when we are inactive, that our feet should have less covering than during the day? The reasonable plan is to have a special pair of socks for night use, putting them on when going to bed, and change them when getting up; the result will be better and more serene sleep, consequently we shall be more able to undergo our daily exertions. A good walk for ½ hour before retiring warms the feet, and sends a nice glow all through the body, and disposes to sleep. (*b*) Wear horse-hair soles winter and summer, as a remedy for cold and damp feet.

Coughs and Colds.—The *British Medical Journal*

remarks that there are several well-known processes by which a cold may be caught. As a disease, there is nothing so common; and yet it is only very recently that anything like an approach to a knowledge of its pathology has been attained. There is now, however, a large accumulation of evidence which points very strongly in the direction that “taking cold” is actually “being cold.” Colds are most frequently caught from a wetting. The clothes we wear are good non-conductors of heat, and so prevent the loss of body-heat which would occur without them. But let them become moist or saturated with water, and then they become heat-conductors of a much more active character, and a rapid and excessive loss of body-heat follows. Nothing is more certain, however, than that prolonged exposure in wet clothes is commonly followed by no evil results; that is, so long as there is also active exercise. The loss of heat is then met by increased production of heat, and no harm results. But let the urchin who has been drenched on his way to school sit in his wet clothes during school-hours, and a cold follows. No matter how inured to exposure the person may be who, when drenched, remains quiet and inert in his wet clothes, he takes a cold. Here there is an increased loss without a corresponding production of heat, and the temperature of the body is lowered, or the person “catches cold.”

The effect of exercise in producing heat is well known. Unless the surrounding air be of a low temperature and the clothes light, the skin soon glows with the warm blood circulating in it, and then comes perspiration with its cooling action. Here there is a direct loss of heat induced to meet the increased production of heat. Exercise, then, in wet clothes, produces more or less a new balance, and

obviates the evil consequences which would otherwise result.

The loss of heat is more certainly induced if the skin be previously glowing and the circulation through the skin, the cooling area, be active. Thus, a person leaves a ballroom with his cutaneous vessels (pores of the skin) dilated, and a rapid loss of body-heat follows, unless there be a thick great-coat or a brisk walk; if the clothes become moistened by rain, or be saturated with perspiration, the radiation of heat is still more marked. Such is the causation of the cold commonly caught after leaving a heated ballroom. It is probable that exhaustion is not without its effect in lowering the tonicity of the vessels, and so those of the skin do not readily contract and arrest the loss of heat.

A damp bed gives a cold, because the moist bedclothes are much better conductors of heat than are the same clothes when dry. The temperature of the body is lowered, and a cold results. Long exposure in bathing leads to similar consequences. The second feeling of cold in bathing tells that the body is becoming chilled, and that the production of heat is insufficient to meet the loss. A run on the river-bank, or a brisk walk after dressing, commonly restores the lost balance.

The plan of permitting the wet clothes to dry on the wearer is very objectionable. The abstraction of heat from the body by the evaporation of moisture in the clothes produces a marked depression of the body-temperature, and a severe cold. This is most strikingly seen in the effects of a wetting in the Tropics. The smart shower or downpour is quickly followed by a hot sun and a breeze, and the loss of heat under these circumstances is considerable. The

person is “chilled to the bone,” and the effects are felt for a long time afterwards.

Alcohol has been abandoned in Arctic regions. It dilates the cutaneous vessels and increases the loss of body-heat. The drunken man perishes of cold when the abstainer survives.

When the exposure follows a long continued warmth, the cutaneous vessels do not contract, but become dilated or paralysed, and then a large bulk of warm blood courses through the cooling surface, and a great loss of body-heat is entailed. Not only so, but the current of chilled blood passes inwards to the right heart and the lungs. Inflammations of the lungs are common along with severe colds; and this is possibly the explanation. Such inflammation is specially liable to occur if at the same time cold air be inspired. The cold respired air and the currents of chilled blood together, produce those vaso-motor disturbances in the lungs which, in their graver aspects, are known as pneumonia.

The practical considerations which are the outcome of this review of the pathology of cold are these. Never wear wet clothes after active muscular exertion has ceased, but change them at once; meet the loss of the body-heat by warm fluids and dry clothes; avoid long-sustained loss of heat which is not met by increased production of heat; increase the tonicity of the vessels of the skin by cold baths, &c., so educating them to contract readily on exposure—by a partial adoption, indeed, of the “hardening” plan; avoid too warm and debilitating rooms and temperatures; take especial care against too great a loss of heat when the skin is glowing; and prevent the inspiration of cold air by the mouth by some protecting agent, as a respirator. We can readily

understand how a respirator should be an effective protection against winter bronchitis in those so disposed. Of course, no one should, even in summer, dispense with the use of flannel next the skin, or some substitute, such as merino. It is as important at that period of the year, as in winter.

Dr. Graham gives the following advice: “When you come out of a cold atmosphere you should not at first go into a room that has a fire in it, or if you cannot avoid that, you should keep for a considerable time at as great a distance as possible, and, above all, refrain from taking warm or strong liquors when you are cold. This rule is founded on the same principle as the treatment of any part of the body when frost-bitten. If it were brought to a fire it would soon mortify, whereas, if rubbed with snow, no bad consequences follow from it. Hence, if the following rule were strictly observed—when the whole body, or any part of it, is chilled, bring it to its natural feeling and warmth by degrees—the frequent colds we experience in winter would in a great measure be prevented.”

To neglect the conditions upon which strength of constitution and purity of blood depend, and then strive to avoid in a sedulously careful manner the evil influence of colds upon the body, is like neglecting the substance for the shadow of health; or more properly, it is like one who starves his body, and then strives to keep quiet in order that his strength shall not be exhausted. Let food be taken, and the exhaustion from exercise will not ensue; let all the conditions of health be observed, and then the natural changes of the weather will fall harmlessly on the healthy functions of the body.

Occasionally a cold may be arrested, in the first

stage, by taking at the very outset, a hot bath on retiring to rest, with 10 gr. Dover's powder at bedtime, followed by a hot drink, such as a basin of hot gruel or a tumbler of hot toddy, with a dose of castor-oil in the early morning about 6 o'clock. It is well to remain indoors for the day. Should, however, these means fail, or the ailment have progressed too far before the remedy is applied, and the patient complains of soreness of chest, with cough and feverishness, then he should keep bed for 3 days. Mustard and linseed poultices are to be applied to the chest, warm diluent drinks are to be given, such as gruel, with honey and vinegar in it, to promote gentle perspiration, and to relieve the severity of the cough. Ipecacuanha wine, 10-15 drop doses in water every 4 hours, will be found useful in promoting expectoration. Laxative medicine will probably be necessary, and the diet should be light.

The Continental remedy, lime-flower tea or tisane de tilleul is made in a teapot in the same way that tea is made, substituting lime blossoms for tea leaves, and using about 4 times the quantity to make it. It is taken hot, and used for colds, coughs, &c., much in the same way that gruel, wheys, and possets are taken in England.

Dr. Ferrier, of King's College, communicates a remedy for cold in the head, which has been found effectual. It is a white powder used as snuff, and composed as follows:—2 gr. hydrochlorate morphia, 2 dr. acacia powder, 6 dr. bismuth trisnitrate. The whole makes up a quantity of powder, ¼-½ of which may be safely taken in 24 hours. Dr. Ferrier has twice cured himself of very severe colds by this means, once by the use of bismuth trisnitrate alone, which is a very powerful remedy for catarrh of the

mucous membrane, and is the most important ingredient in the above mixture. Others have used the snuff with perfect success. Instead of increasing the tendency to sneeze, it almost immediately begins to diminish it. (*Lancet.*)

Prof. Strambio, in a note to an Italian medical journal, says that, notwithstanding the failure of all remedies hitherto recommended for the immediate cure of a cold, he wishes to communicate to the profession the great success he has found attending a new one in his own person, and to ask them to test its efficiency. He found prolonged mastication and swallowing of a dried leaf or two of the *Eucalyptus Globulus* (Blue gum) almost immediately liberated him from all the effects of a severe cold.

In the treatment of persistent cold in the head, or nasal catarrh, when there is much discharge from the nasal passages, we are advised to use a spray-producer with the following solution:—1 gr. carbolic acid, 2 dr. glycerine, 2 oz. water. After the passages are clean, a small quantity of vaseline is melted in the bowl of the spray-producer, and 2-5 drops pinus canadensis mixture are added. This mixture consists of:—15 gr. pinus canadensis, ½ oz. glycerine, ½ gr. carbolic acid, 1½ oz. water. This is to be applied by the spray to every part.

Dr. Sheppard says, in respect to the use of hot water as a remedial agent in the treatment of inflammation of the mucous membranes:—"I have used hot water as a gargle for the past 6-8 years. In throat and tonsil inflammation, and in coryza (cold in the head), if properly used in the commencement of the attack, it constitutes one of our most effective remedies, being frequently promptly curative. To be of service, it should be used in considerable quantity

(½-1 pint at a time), and just as hot as the throat will tolerate."

Coughing is greatly under the control of the will, and children ought to be taught to try to restrain the inclination to cough; very often, by this very effort, the desire to cough will vanish. If it cannot be avoided, they should be taught *how* to cough. It is not in the least necessary to give way to coughing on every occasion, even though there be really something to expectorate, until the mucus or other irritating matter be within easy reach, and then one good, effective, deliberate cough will do as much, or probably more, for the relief of the individual, than perhaps a dozen repeated, noisy, resultless fits of coughing. The noise which accompanies the act can be greatly modified at the will of the individual. There are some people who make not the slightest effort to lessen this annoyance. In many cases the mouth may be closed, and in all the hand may be held before the mouth during the act, whereby considerable modification of the noise may be attained.

Avoid making use of any nostrum vaunted as a cure for all sorts of coughs and colds: all contain opium in some form, and may prove prejudicial to the complaint which initiates the cough. At the same time, a distressing cough calls for amelioration. There never can be harm in causing the patient to inhale steam from a sponge or basin of boiling water; or infusion of hops may be inhaled. Lozenges of various kinds are often useful, e.g. fruit, gum, glycerine, liquorice, marsh-mallow, tamarind, ipecacuanha, &c. Linseed-tea is a bland, soothing demulcent, useful in sore throat, and in allaying tickling cough.

The common mullein, *Verbascum thapsus*, has long been used in Ireland as a domestic remedy for consumptive cough, and Dr. Quinlan finds that when boiled in milk the patient takes the decoction readily, and experiences a physiological want when it is omitted. Its power of checking phthisical looseness of the bowels and the relief afforded to coughing are very marked, so that patients take hardly any other cough mixture. In early stages it appears to have a distinct power of increasing weight, but in advanced cases Dr. Quinlan remarks that he is not aware of anything that will do this except koumiss. (*Brit. Med. Jour.*)

Dr. Square recommends a solution of 1 part ethyl bromide in 200 of water as a remedy for whooping-cough. This is of similar strength to the chloroform water of the British Pharmacopœia, and its dose is the same, namely, ½-2 oz.

A German journal mentions a case of whooping-cough treated with turpentine by Ringk, of Berlin, with astonishing results. The patient was a little girl 3½ years of age, and a fatal issue seemed imminent. The doctor prescribed ol. terebinth., 10 grams; syr. altheæ, 80 grams; a teaspoonful every 3 hours. The next day the child was sitting up in bed, with a great slice of bread and butter in her hand, which she was eating and evidently enjoying. The cough had totally disappeared, and no evil results followed.

Following are a few simple recipes for expectorants, useful for winter coughs. The first is particularly suitable for young children:—(*a*) 1 fl. dr. syrup of squills, ½ fl. dr. gum acacia, powdered, 8 gr. ammonium chloride, enough peppermint water to make 2 fl. oz. Dose for a child, 1 teaspoonful every 2 hours. (*b*) For older children and adults, 2 parts

syrup of ipecac., 4 syrup of squills, 1 paregoric. Dose, ½-1 teaspoonful, repeated as often as necessary. (*c*) 1 oz. syrup of ipecac., 1 oz. syrup of tolu, ½ oz. paregoric, 1 oz. syrup wild cherry. (*d*) For hoarseness, Dr. Eichelberger gives the following, which he says is very good:—2 dr. tinct. chloride of iron, 4 dr. glycerine, 4 dr. water. Dose, ½ teaspoonful.

Sore throat is a constant accompaniment of some very serious disorders, such as scarlet fever, measles, smallpox, diphtheria, &c., but is most frequently the result of exposure to cold and damp, when the body is heated. It may be confined to the parts situated at the back of the mouth, i.e. the tonsils, palate, and pharynx, or it may extend a little further into the windpipe. The affection is an inflammation of the mucous membrane of the parts enumerated. Many cases speedily recover without any active treatment, provided the invalid will have patience for a few days, confine himself to the house, better to one apartment, and still better to bed, for a couple of days; avoid all conversation; apply a warm poultice to the throat, or a moist compress round the throat night and day. This last is made by wringing a piece of lint, or a pockethandkerchief, out of water sufficiently so that it does not drip, and it is of small moment whether the water be cold or warm; it is now applied to the throat, and covered with a piece of macintosh, and then a woollen comforter is put over all. Ice may be sucked continuously, if agreeable to the patient. If it be not, then a gargle of warm milk and water should be employed every hour. A smart aperient dose of Epsom salts or castor oil should be taken in the morning before breakfast, 1 tablespoonful salts in a tumblerful of hot water. If, under this treatment, the throat do not improve in 2

days, it has ceased to be a minor ailment, and the physician must be sent for.

A very painful form of sore throat is that called quinsy. It is inflammation of the tonsils, two glands situated at the back of the mouth. This inflammation is principally observed in changeable climates; and seems to attack, by preference, young adults. Children rarely suffer from quinsy. Persons who have once been the subjects of this ailment are very liable to a recurrence of the disorder. The most common exciting cause is exposure to wet and cold, with a chilly east wind.

Those who are liable to this form of sore throat, and know from the premonitory symptoms what is impending, ought at once to adopt preventive measures. These consist in using strong astringent gargles; in the administration of single drop doses of tincture of aconite, every hour, for half a day, and a brisk saline purgative in the morning, such as a dose of Rochelle salts. For gargle, one of the best is the old-fashioned homely mixture, consisting of 3 tablespoonfuls red wine (port or claret), 1 of vinegar, ½ teaspoonful powdered alum, and a little sugar, in a tumbler of cold water. This to be used every hour. If, however, the affection has gone too far for this abortive treatment, then the patient must be confined to bed; hot poultices must be kept constantly applied to the throat; steam from hot water should be inhaled often; a gargle of hot milk and water should be used hourly; and ice, if grateful, may be constantly sucked. A sal prunelle ball may be allowed slowly to dissolve in the mouth. The diet should be in semi-solid form, e.g. arrowroot made with milk, soup thickened with rice-flour, or better still, beef-jelly, if the patient can be persuaded to

swallow at all. If the abscess do not speedily rupture, and more particularly if both tonsils be simultaneously affected, then it may be necessary to call in the aid of the surgeon to lance it. The necessity for this will be evident by continued and increasing distress of the sufferer, great difficulty in breathing, and extreme restlessness and feverishness. In a first attack, too great delay ought not to be allowed to take place before getting professional assistance.

Every one has a cure for sore throat, but simple remedies appear to be most effectual. Salt and water is used by many as a gargle, but a little alum and honey dissolved in sage tea is better. An application of cloths wrung out of hot water and applied to the neck, changing as often as they begin to cool, has the most potency for removing inflammation. It should be kept up for a number of hours; during the evening is the usually most convenient time for applying this remedy.

For loss of voice in singers and speakers, Dr. Corson recommends the patient to put a small piece of borax (2-3 gr.) into the mouth and let it dissolve slowly. An abundant secretion of saliva follows. Speakers and singers about to make an unusual effort should the night before take a glass of sugared water containing 2 dr. potassium nitrate (saltpetre) in order to induce free perspiration. In similar circumstances this gargle may also be used:—6 oz. barley water, 1-2 dr. alum, ½ oz. honey. Mix, and use as a gargle. Or an infusion of jaborandi, made by putting 2 scr. of the leaves in a small cup of boiling water, drunk in the morning before getting up. The free sweating is said very quickly to restore the strength of the voice.

Constipation.—Short of mechanically obstructive

disease, there are many states in which constipation is the most marked feature. On the nature of these, apart from the mere symptom, the possibility of permanent relief by treatment must of course largely depend. We may procure comfort with a pill, but often we cannot retain it with many. Habit cannot be reformed or expelled by purges. Accordingly, when we proceed against the fault of habit, now under notice, we must take account of the constitution and circumstances in which it is formed. By so doing we do much to ensure the desired relief, though it may be that even then we fail somewhat of complete success. A bowel long deficient in activity, dilated irregularly, with torpid though thickened walls, does not soon, if ever, renew its original tone and contractility. The difficulty is a pathological one, and arises from structural as well as functional perversion. The natural efforts to obtain relief are hindered and enfeebled by the effects of some cause which may still be operative. If we would undo the past or prevent further mischief, we must seek and treat that cause. Aperients of different kinds, however potent at the time, are but temporary palliatives of discomfort so long as no pains are taken to trace the trouble to its origin. Whether it be a sedentary habit of life, an excess of food overloading and overworking the viscus, purgation draining and depleting it, gout, diabetes, struma, chlorosis, altering either the structure of the intestinal wall or the consistence of its contents, it must be sought for as a chief guide to the means of cure. It is not likely that constipation will ever form the chosen hobby of a specialist. A far too general view of medicine and its adjuvant sciences is necessary for successful treatment to encourage such appropriation. We are not, however, outside the

sphere of nostrums. There is in our time, if anything too much reliance on physic-taking for constipation. More might be done by appropriate dieting and by inculcating active habits of life than is customary. It may be noted, with regard to diet in particular, that a free use of simple fluids, as water, or mild mineral waters, is of distinct advantage in assisting both digestion and evacuation. There are also many aperient vegetable foods which, with the same end in view, we should like to see in daily use at the table. Almost any kind of wholesome fruit and green vegetable might thus be made serviceable. When, again, we come to medicines, we must remember that the disorder which we have to combat is a complex one. We cannot in this case, more than in any other morbid state, put a finger on one tissue as alone or invariably at fault. Thus in the costiveness of anæmia we have atony of the intestinal muscle combined with defective secretion, and both but part of a general tissue starvation; in the gouty disorder of elderly people the same conditions appear, though due to a very different dyscrasia; and so on. We may say, therefore, speaking generally, that no single drug can be relied on to meet the intestinal difficulty. An agent which aids secretion either of bowel or liver will not alone suffice. The long-inactive muscular coat likewise requires assistance. A free purge may have its value now and then, but when the object to be attained is the correction of a habit, a milder remedy used regularly is much more effective. To meet these various necessities, perhaps no combination is superior to the time-honoured union of belladonna with the compound rhubarb pill and nux vomica, or the most recent mixture of the fluid extract of cascara with the last-named drug. An agreeable change of remedy is afforded by many

aperient mineral waters. The effect of these latter, however, is unfortunately apt to pass off after a time, probably from their causing a too copious intestinal secretion. The action of saline or other enemata is not quite similar. More strictly local, and exerted rather on the fæces than the bowel, it gives relief without so much exhausting the latter by secretion or peristalsis; while the very rest which the colon thus easily obtains is itself a help to the recovery of normal nutrition and muscular tone. The chief points which we would therefore bear in mind, whatever the remedies used in combating the habit of costiveness, are the need for recognition of its primary cause, and the fact that its proximate condition is an atonic bowel. (*Lancet.*)

Dr. Mortimer Granville gives 3 prescriptions for habitual constipation. It is indispensable to regard persistent inactivity of the bowels, when not demonstrably due to other causes, as the result of, either defect of peristaltic action; deficient glandular secretion; or interruption of the *habit* of periodic evacuation.

When there is a lax and torpid condition of the muscular coat of the alimentary canal, we get food retained in the stomach or intestines until it ferments, or sometimes “decomposes,” with the result of distension, pain mechanically induced, and either eructations or incarcerated flatus. In a considerable number of cases this last-mentioned trouble is so great, and at the same time so masked, as to give rise to the impression that grave disease exists; whereas every anomalous symptom has quickly disappeared as soon as the muscular tone has been restored, and the contents of the bowels have commenced to pass naturally on their course. The

essential fault is partial, in some instances almost complete, loss of the reflex contractility of the muscular coat, so that the presence of ingesta at any part of the canal does not excite the intestine to contract and propel it onwards. It is worse than useless to employ ordinary aperients in such a condition as this; they only irritate without strengthening the nerves, on the healthy activity of which everything depends. When, therefore, there is the form of "constipation" which requires treatment, use a prescription something like the following; and it is, in the majority of instances, successful:—

Sodæ valerianatis gr. xxxvi.; tincturæ nucis vomicæ ♏ lx.; tincturæ capsici ♏ xlviii.; syrupi aurantii ʒiss.; aquâ ad ʒvj. Misce, fiat mistura, cujus sumatur cochleare magnum ex aquâ ter die, semihorâ ante cibum.

The second form of constipation, in which there is a deficiency of glandular secretions generally throughout the intestine, manifested by a peculiarly dry and earthy character of the dejecta when the bowels *do* act, may be treated by a mixture such as this:—

Aluminis ʒiij.; tincturæ quassiæ ʒj.; infusi quassiæ ʒvij. Misce, fiat mistura, cujus sumantur cochlearia duo magna ter quotidie, post cibum.

The third form, which depends chiefly on interruption of the natural habit of periodic discharge, often results from repeated failure to move the bowels, in consequence of one or other of the two preceding forms of this trouble. This may generally be relieved by directing a perfectly regular attempt to go to stool, and by the use of the following draught, taken the first thing after *rising* from bed—not on awakening—in the morning, as

nearly as possible at the same hour. It will be observed that it is not an aperient in the ordinary sense of the term. It is, as a rule, neither necessary nor desirable to continue it for longer than a fortnight. In most instances, it will be found to re-establish the normal habit in a week or less.

Ammoniæ carbonatis ʒj., tincturæ valerianæ ℥j.; aquæ camphoræ ℥v. Misce, fiat mistura; capiat partem sextam in modo dicto. (*Brit. Med. Journ.*)

The value of castor oil as a family aperient is undoubted. Referring to its use, Dr. Soper enlarges on the great advantages of a combination of castor oil and glycerine in equal proportions to act as a purgative. Glycerine has great therapeutic value, especially in its solvent properties, and this combination renders it especially valuable. In regard to castor oil, a great mistake is often made in the largeness of dose administered; in this mixture, only ½ teaspoonful is required combined with an equal bulk of glycerine. In all cases of chronic constipation, piles, &c., it has proved most useful. Also ½ teaspoonful doses in the early stages of bronchitis seem to promote exudation from the tubes, and is certainly expectorant. The great difficulty is the obstinacy with which the mixture becomes a mixture, as it can only be made by placing the bottle in hot water and violently agitating. By adding the oil to the glycerine gradually, and mixing the two in a mortar, the taste of the oil completely disappears. The following is recommended as a pleasant form for children:—1 dr. castor oil, 1 dr. glycerine, 20 drops tincture orange peel; 5 drops tincture senega; cinnamon water to make up ½ oz. mixture.

Consumption.—It is highly probable that adult mortality from phthisis might be considerably

reduced, if members of phthisical families, and persons of phthisical habit and tendency, could be induced to pursue an intelligent course of life. In wisely-chosen food, suitable exercise, well-adapted clothing, and pure air, are four distinct and potent details of every-day life, well within control, which may be turned to efficient account in the prevention of phthisis. Precautions, if they are to be effectual, must not be put off until signs of lung mischief become manifest. Then the evil can only be mitigated, not avoided. If consumption be apprehended, the daily diet should be rich both in nitrogenous flesh-forming and fatty constituents. The especial nutritive value of milk in such a case is universally recognised. Next to well-arranged daily food, exercise in the open air is of the greatest importance. On this point the late Dr. Parkes laid down the rule that “the best climates for phthisis are perhaps not necessarily the equable ones, but those which permit the greatest number of hours to be passed out of the house.” By well-adapted clothing, many of the chills, catarrhs, and pulmonary congestions which often lead up to consumption, might be prevented. The rules in this respect are well established. The feet should always be dry and warm; the covered parts of the body, excepting the head, should be clothed in suitable woollen fabrics; the underclothing should be kept of the same thickness all the year round, and variations of apparel to suit the changes of season be made only in the outer garments; and no constrictions or compressions should be allowed to hamper the respiratory play of the chest and abdomen, or to impede the circulation of blood through the lungs and heart. With regard to the respiration of pure air, it may be said generally that it is within doors that

the breathing of vitiated air is most likely to become dangerous, and is such a powerful excitant of consumption. (*Brit. Med. Journ.*)

No person, particularly if young, should be allowed to sleep in the same bed, or even in the same room, with a consumptive. No person should be allowed to remain for too long a time in too close or too constant attendance on a consumptive. Ventilation as perfect as possible should be secured. The expectoration of phthisical patients should be carefully disinfected. Those phthisical patients who are in the habit of mixing freely with other persons should wear one of those antiseptic respirators which are now to be obtained for a few pence.

Corns.—(*a*) Salicylic plaster has recently been put upon the market as a cure for corns, bunions, and thickened skins generally. The price is reasonable enough, but some may prefer to make it for themselves. Dissolve 2 dr. each of salicylic acid and common yellow resin in 6 dr. sulphuric ether, and paint the solution over belladonna or opium plaster spread on swan's-down. The mixture dries almost instantaneously, and the plaster is then ready for cutting up into suitable sizes for corns. Considering that the whole does not cost more than 3-4*s.* per yd., and that several thousand plasters may be made out of that quantity, it is cheap.

(*b*) Some corns are so painful that neither paint nor plaster can be endured, something of the nature of a shield alone giving relief. For such cases as these, the following wrinkle may be appreciated: Take a corn-shield, enlarge the diameter of the hole to a small extent by means of a knife or scissors, and apply in the usual way. Then place in the hollow thus formed over the corn, a small quantity of any of

the following solutions: Salicylic acid and extract cannabis indica dissolved in ether; or ½ dr. extract cannabis indica dissolved in 2 dr. liquor potassæ; or a saturated solution of iodine, or iodide of potash, in strong alcohol. The shield does the double service of taking the pressure of the boot off the corn, and at the same time preventing the liquid being rubbed off by the sock; while all these solutions penetrate the skin with more rapidity than the usual collodion preparation, and are consequently much more effective in their operation. The saturated solution of iodine often succeeds in removing corns and indurated epidermis when other remedies have failed, and the well-known solvent action of liquor potassæ is a sufficient credential to induce for it at least a trial.

(*c*) Many corns may be removed by a persevering application of the ordinary shield, which, relieving the pressure of the boot, enables nature to throw off the old skin. Acetic acid, too, is an excellent remedy for corroding the indurated epidermis; but it is necessary to protect the surrounding parts by means of a paper shield.

(*d*) Mix 16 fl. oz. collodion with 2 oz. (avoir.) salicylic acid, and, when this is dissolved, add 1 oz. (avoir.) zinc chloride. Keep it tightly stoppered and away from lights or fire.

(*e*) Three dr. euphorbium, 6 dr. powdered cantharides, 4 dr. Venice turpentine, 4 oz. alcohol. Macerate the euphorbium and cantharides with the alcohol for 48 hours, strain, and add the Venice turpentine; spread on French tissue-paper with a soft brush—size of each sheet about 18 by 24 in. This article is in much repute for the cure of corns and bunions, and the relief of gout.

(*f*) Dissolve 1 part salicylic acid in 40 of collodion: apply several times a week. The corn dissolves with little trouble.

(*g*) For hard corns apply at night a mixture of 1 part carbolic acid, and 10 of distilled water, glycerine, and soap liniment. Envelop with guttapercha tissue, and the corn may generally be removed the next morning.

(*h*) Gezou's remedy for corns and warts is prepared as follows:—30 gr. salicylic acid, 10 gr. ext. cannabis indica, ½ oz. collodion.

(*i*) Fasten a piece of lemon on the corn, and renew night and morning. Simple but very effective.

Diarrhœa and Dysentery.—Beyond everything stands a strict regulation of the diet. When the intestinal canal is in a diseased state almost any substance introduced into the stomach acts mischievously, and it is not infrequently necessary to suspend all food until the intestine is in a condition to bear it. Every solid article is then mischievous, but even fluids, by reason of their temperature, may act as prejudicially. In most cases taking a few spoonfuls of warm soup, or drinking a mouthful of cold water will immediately be followed by severe colics, and soon afterwards by evacuations. Only allow lukewarm soups or other drinks, and only by a spoonful at a time. Of course these stringent rules apply to very obstinate diarrhœa, and especially dysentery, for there are many cases of temporary diarrhœa in which the patients continue to eat fruits and the like, and still soon get well. Such cases must, however, not be taken into account, and it is always most prudent at the commencement of diarrhœa to cut off the supply of food as far as possible, and at all events to prohibit all articles likely to augment the

affection.

Opium is the most valuable medicine in diarrhœa, for it keeps the sphincter in a state of permanent contraction, a contraction which is often propagated to the large intestine, and the small intestine is unable to propel its contents far enough to induce the irritation which causes their expulsion. When, by reason of this contraction, these contents are retained, their amount may become considerably diminished by the absorption of the fluid. Frequently, however, there is no spot of the canal which is not so diseased as to prevent such absorption taking place, and then the diarrhœa will continue in spite of the opium and of the contraction of the sphincter. It appears, moreover, that opium, besides its action on the muscular portion of the canal, exerts, by contact, a soothing effect upon the mucous membrane. In consequence of the diminution of the irritation of this membrane, its secretion is probably lessened, as are possibly those of the liver and pancreas. However this may be, opium acts very favourably in profuse secretion from the intestinal mucous membrane. From ½-3 gr. may be given in the 24 hours, the best preparation being the *ext. opii aquosum*.

If opium or morphia do not suffice, it must be aided by astringent remedies, by far the best of which, and the most easily supported, is zinc sulphate. One would have supposed that tannin in its separate state would have proved more useful than zinc, but this is not the case, and it is much less easily borne. It acts much better and more energetically when employed as a household remedy (e.g. as a decoction of sloe or wild pear tree) than in its separated form, and is then of great service in

practice among the poor. Alum is of no use whatever in diarrhœa. Lead approaches zinc in efficacy, but still it is less certain than it. The dose should not be greater than ¼ gr., and this may be repeated every 2-3 hours, and at most every hour. If these means do not suffice, we must have recourse to enemata of salep or starch (with which may be combined 1 gr. opium or ½ gr. zinc) not throwing up more than 2 oz. at a time. If the clyster does not cause pain in the rectum, and the disease continues obstinate, the dose of zinc may be increased to 2 gr. Tannin may be added to the enema, but the zinc is far more serviceable. In the most obstinate cases we must have recourse to cauterisation; but this is only the case when there is a diseased condition of the lower part of the rectum. Very obstinate cases of blenorrhœa confined to the anus maybe completely cured by the application of silver nitrate, in substance as high as it can be passed. The injection of a strong solution does not usually attain the same end. (Prof. Skoda.)

A case of chronic diarrhœa, which had lasted for nearly 40 years, was cured by the administration of a saturated solution of salt in cider vinegar, 1 dr. being taken 3 or 4 times a day; it always produces good results.

For cholera, a ready remedy is Dr. Rubini's tincture of camphor, taken on sugar, not in water. Or 1 teaspoonful cayenne pepper in ½ wine glass brandy.

To stop violent diarrhœa, take 2 drops each brandy and laudanum in 1 teaspoonful water every 3 minutes; go up to 60 doses if necessary.

Dr. Christopher Elliott speaks strongly in favour of the use of camomile tea in infantile diarrhœa. The

dose for infants under 1 year is ½-1 dr., and double that quantity for older children, given 2 or 3 times a day, or oftener. The *rationale* of the action is the power the drug possesses of subduing reflex excitability. This power belongs especially to the volatile oil contained in the flowers.

Dislocations.—These are distinguished from broken bones by stiffness at the joint, intense pain and swelling. They demand surgical skill and must not be touched by any one but a doctor.

Ear complaints.—Do not wear anything over the ears which presses upon them. Growths may occur in the ear from the custom of wearing ear-rings, and especially when of base metal, although gold ones sometimes give rise to the same. Such may require removal by the surgeon's knife. Inflammation may be set up in the lobe after piercing it for wearing ear-rings, should a portion of gristle happen to be transfixed by the needle, and all the more likely should that be a dirty or rusty one. The best thing to do is to bathe it frequently with hot water. The silly habit of pulling children's ears is very liable to cause disease and injury. Never "pick" the ears with any sharp implement. For removing excess of wax, syringe gently with warm water, softening it first, if necessary, by dropping a little glycerine and water or soda dissolved in water, into the ear for a night or two. Any foreign body (including insects) accidentally getting into the outer ear can generally be removed by dropping a little warm water or salad oil into the ear, and then inclining the head. The popular dread of their getting into the brain is utterly unfounded: the drum head of the ear is an effectual stop. Dr. Jacobi remarks that closing the mouths of infants and children and simply blowing

into the nose is often a very valuable method of relieving earache, the cause of the trouble probably being a catarrhal affection of the Eustachian tube. Perhaps even better is the method of inflating the ear by blowing into it gently, while the mouth and nose are held closed, and syringing the ear with warm water. Much harm has been done by putting oil, chloroform, laudanum, the heart of roasted onion, and similarly improper things into the ears of children.

Eye complaints.—In every case skilled advice should at once be sought. The following remarks relate only to what should be done in urgent cases ere professional assistance can be obtained. In inflammation, simple bathing with water (either cold or tepid as the sensations may direct) is the safest remedy, and no other application should be had recourse to, till sanctioned by the doctor. The practice of applying poultices, common bread and water, bread and milk, tea-leaves, porridge, &c., to an inflamed or injured eye is totally wrong, often endangering the sight. Keeping wet cloths applied to the eye, and bandaging up an inflamed eye, may also be productive of much mischief, and should never be employed without orders.

A particle of foreign matter entering the eye will often produce such a flood of tears that it is soon washed out, especially if the eye be kept closed and not rubbed for a few minutes; but sometimes the irritating substance finds its way under the upper eyelid, and remains fixed there by the pressure of the lid. In some cases plunging the face into cold water and opening the eyes under the water will suffice to remove it, but generally the eyelid requires to be turned inside out, and the offending body picked off

with a feather; or the upper eyelid drawn forwards off the eye by means of the eyelashes, and the lower eyelid pushed up under it: when the eyelids are released, the eyelashes of the lower lid will brush over the inner surface of the upper lid, and almost certainly remove any substance that may lodge there. To evert the lid, lay a bodkin or pencil along it, and turn it up by taking hold of the eyelashes about the middle, the patient meanwhile looking down. Should such simple means fail, the eye may be tied up with a pad of cotton wool over it, so as to prevent the eyelid moving till professional advice be secured.

Serious damage is frequently occasioned by lime or other caustic substance getting into the eye. Wash the eye as quickly as possible thoroughly with cold water or vinegar very much diluted with water (say 1 teaspoonful vinegar in 2 oz. warm water), a stream being allowed to course across the opened eye, while any particle of caustic substance that remains should be carefully removed. A drop of castor oil or olive oil applied every half-hour to the inside of the eye will greatly allay irritation. Never bandage or poultice. In all cases of injury the less done at home the better. A light pad of cotton wool applied over the closed lids and kept in position by a handkerchief or a pledget of cotton wool soaked in *cold* water reapplied *cold* at least every 5 minutes, may be employed till the doctor comes.

Dr. Louis Fitzpatrick says he has never seen a single instance in which a stye continued to develop after the following treatment had been resorted to: The lids should be held apart by the thumb and index finger of the left hand, or a lid retractor, if such be at hand, while tincture of iodine is painted over the inflamed papilla with a fine camel’s-hair

pencil. The lids should not be allowed to come in contact until the part touched is dry. A few such applications in the 24 hours are sufficient. (*Lancet.*)

Hair complaints.—Ladies should undo their hair at night, unplait the hair, and wear it loosely in a net. In this way the nourishment of the hair is duly provided for. Night-caps should always be light. When forced to remain in bed for long periods, through illness, have the hair oiled and combed with a coarse comb daily; if circumstances permit, the head may be washed twice a week with soap and water, warm, lukewarm, or cold, as taste or health directs. In long-continued illness, it is often advisable to cut the hair, so as to reduce its length by about a third, not merely from considerations connected with the cleanliness of the hair, but also that stronger aftergrowth may be encouraged. Few realise the injurious effects of curling-irons and hair-dyes.

Ordinary baldness may be constitutional or local. The former is a matter for the medical man. For persistent daily loss of hair, the following remedy is recommended by Pincus:—15 gr. soda bicarbonate dissolved in 1 oz. water; a little to be well rubbed into the scalp daily, and persisted in. Sir Erasmus Wilson says that a lotion composed of 1 oz. each spirits of hartshorn, chloroform, and sweet almond oil, added to 5 oz. spirits of rosemary, and well rubbed into the roots of the hair after brushing, is effective; it may be used half-strength, diluted with eau-de-cologne. Other lotions are:—(*a*) 2 dr. tincture of Spanish flies, ½ oz. tincture of nux vomica, 1 dr. tincture of capsicum, 1½ oz. castor oil, 2 oz. eau-de-cologne; apply night and morning with a sponge to the roots of the hair after brushing. (*b*) 2 oz. spirit minderus, ½ dr. ammonia carbonate, ½ oz.

glycerine, ½ oz. castor oil, 5 oz. bay rum; apply as in (*a*). These will be found serviceable in the treatment of commencing general baldness, where the whole scalp is parting with its hair. Singeing the hair is not of the slightest use for hair stimulation, and the frequent use of the "curling-tongs" cannot but be detrimental to the health of the head-covering. When the hair demands a tonic application, the following—which any chemist will compound—may be tried:—1 oz. tincture of red cinchona bark, 2 dr. tincture of nux vomica, ½ dr. tincture of cantharides, add eau-de-cologne and coconut oil to make up 4 oz.; apply to the roots of the hair with a soft sponge night and morning. Where means are being taken to restore the health in cases of sudden or premature greyness of hair, Dr. Leonard recommends the following application:—2 oz. coconut oil, 3 dr. tincture of nux vomica, 1 oz. bay rum, 20 drops oil of bergamot. Washing with egg yolk is highly commended in such cases.

The common trouble known as dandriff (dandruff) frequently occurs in strumous (scrofulous) individuals who are anæmic (poor-blooded) and have a sluggish circulation, marked by cold hands and feet. Adolescence is its peculiar time of appearance, and chlorotic (greenish skinned) young girls are apt to be annoyed by it. It is an attendant upon chronic debilitating diseases, as rheumatism, syphilis, phthisis, and the like, and comes on after profound disturbances of the constitution, such as fevers and parturition. Dyspepsia and constipation are very common exciting causes or aggravants of the disease. Improper care of the scalp, the use of the fine-toothed comb, and of pomades, hair "tonics," and hair-dyes will give rises to disorder.

A good deal in the way of prevention, according to Dr. Jackson, can be accomplished by proper care of the scalp and general health. The brush should have its bristles well set into the back, placed in little clumps at regular distances and rather far apart, and those in each clump should be of unequal length and arranged so that the longest ones are in the centre of the group. It is well to have two brushes, one stiff enough to warm the scalp when used with vigour, and one quite soft. The comb should be made with large teeth set wide apart; held up to the light the teeth should show no roughness or inequality of surface. The fine-toothed comb should be banished from the toilet table, as it is an active agent in producing inflammatory conditions of the scalp. In the morning the hair should be thoroughly opened up in all directions with the comb, and it and the scalp brushed vigorously with the stiff brush. Then the soft brush should be used in parting the hair, in polishing it, and in subsequent brushings during the day.

Do not wash the head too much. The so-commonly practised daily sousing of the head in water is hurtful to the hair and scalp, especially if they are not carefully and properly dried afterwards, and a little oil or a vaseline rubbed into the scalp. It is not the daily sousing which is objectionable, but the insufficient aftercare. Water renders the hair dry, and the daily sousing only washes the head superficially. A good shampoo every week or ten days for those persons exposed to a good deal of dust, and every 2-3 weeks for other people, is sufficient for cleanliness. For the shampoo, soap and water, borax and water, or the yolk of an egg beaten up in lime water, are all simple and good, but it must not be forgotten to wash out these materials with plenty of

clean water, and to thoroughly dry the hair and scalp.

Patent hair “tonics,” pomades, washes, and dyes are to be avoided. None of these dressings is needed by the healthy scalp, and proper care will preserve the hair in better condition than they will. The nearer the body can be kept to the standard of perfect health by means of bathing, exercise, and good diet, the less likely is dandruff to develop. When, therefore, the disease has appeared, first inquiries should be concerning the general health, and first efforts addressed to remedying anything found to be wrong.

If the case presents itself with a decided accumulation of scales, or if crusts are present, saturate with sweet almond oil, before going to bed, and place over the head a flannel cloth soaked in the oil, and outside of all an oiled silk cap. Next morning shampoo thoroughly with soap and water, using by preference the tincture of green soap, and wash out the soap with plenty of water. The scalp is then to be dried by vigorous rubbing with a coarse towel, and the hair by pulling it through a soft towel. If the crusts by this method are not completely removed, the oil should be kept on during the day, the head again soaked at night, and washed with the soap and water in the morning. If the scalp should appear very hyperæmic after the crusts are removed, anoint the head with red vaseline or some simple ointment, as rose ointment, until lessened. When the crusts are removed and the hyperæemia overcome, have an ointment composed of 1 dr. sulphur loti to 1 oz. vaseline, applied every morning to the scalp. If the scales form rapidly, apply every night, and the sulphur ointment every morning, and wash the head

every second or third day. As soon as scaling is lessened stop the use of the oil, but continue the ointment, at first using it every second morning, then gradually reducing its application to once a week. Throughout this plan of treatment the head should be shampooed about once a week with a tincture of green soap, borax and water, or the yolks of 3 eggs beaten up in 1 pint lime water, to which ½ oz. alcohol is added. Another excellent ointment for these cases is composed as follows:—

℞	Hydrarg. ammon.	gr. xx.
	Hydrarg. chlor. mitis.	gr. xi.
	Petrolati	1 oz.

This applied once or twice a day has yielded admirable results in a number of cases of simple dandruff. Its consistence, being that of a salad dressing, renders it an elegant pomade for private practice. Its use should be combined with the occasional shampoo as directed above.

The persistent and systematic use of either of the two plans of treatment, together with a proper oversight over the general health, should cure every case of dandruff. But be prepared for occasional relapses.

Headaches.—Headaches vary much in degree and in kind. Their causes may be grouped under 3 types —(1) when the blood-supply of brain and body is at fault; (2) when some distant organ (such as stomach or liver), with which the brain is in sympathy, is out of order; and (3) when there is some affection of the nervous system, and especially of the brain: or "circulation," "digestive," and "nervous" headaches. Circulation headaches arise from the condition

known technically as *anæmia* (bloodlessness) of the brain, in which the mental powers are weakened, and much brain-work will result in headache. Chief among its causes are a feeble heart and excessive drain on the system, especially among women, the evil frequently lying in the excessive use of purgative medicines. Hyperæmia (excessive blood supply) may also give rise to headache in those who use the brain to such an extent as to cause excessive waste, to repair which an increased flow of blood to the head takes place, and may be so great as to overwhelm the nerve-centres. This is often aggravated by an irregular mode of life and too much stimulants. Interference with the blood return to the heart may be due to causes within the chest, such as chronic bronchitis or heart obstruction, to swellings in the glands of the neck pressing on veins which convey the blood back to the heart, and improper dress, such as tight stays, or tight collars and cravats.

In the bilious or dyspeptic headache, also known as the “sick headache,” the brain sympathises with the stomach or liver in its affliction, and thus is due to those errors of diet which lead to indigestion or dyspepsia, e.g., unwholesome food, late suppers, hasty and inefficient mastication, and continuous drinking and wine-bibbing.

The nervous system itself seems to be chiefly at fault in organic, nervous, and neuralgic headaches. The organic headache often precedes insanity. The nervous headache, more commonly known from the nausea and vomiting which occur during an attack, as “sick headache,” is due to various exciting causes, such as brooding over unpleasant thoughts, bodily fatigue, dietetic errors, too little exercise, overstraining of vision, loud noises of a disagreeable

character, unpleasant smells, and even disturbances of the weather; it is often inherited. The attack may sometimes be warded off by the application of atropine; the tendency to attack has been got rid of by the use of a proper pair of spectacles. The neuralgic headache is a form of tic douloureux, has its seat in one or other of the nerves of the head, and may be excited by decayed teeth, exposure to cold, and similar causes. It rarely occurs, even in those conditions, unless the nervous system is lowered in tone. Many people have decayed teeth without suffering the slightest ache so long as they keep their health at par. Too much work, bodily or mental, or exposure to conditions which act injuriously on the health, result in a neuralgic headache.

Any irregularity in the mode of life, such as errors in diet and drink, must be particularly shunned by those who are liable to any form of headache. Where alcohol is found to do good, it should be taken only in small quantities and with the meals. All worry and excitement must be avoided. Sleep in sufficiency, as well as moderate exercise, is essential. When headaches continue to burden the frame and to make life miserable, change of air or scene, prolonged absence from business, pleasant society, music, and other enjoyments may help to get rid of them. Sometimes all that is wanted may be cod-liver oil, or some other nutrient and tonic medicine. During the paroxysms of sick headache, complete rest on sofa or bed in a darkened room is found by many to be the only thing which gives relief; while others believe they are assisted to endure by drinking cups of strong tea or coffee. Those who suffer from this tendency, and disorders of vision, should consult an oculist regarding the condition of their eyes. (Dr. Maxwell Rose.)

Indigestion.—Indigestion may be due to the food or condition of the stomach. The food may be defective in quality. There may be excess or deficiency of the normal ingredients, saccharine, starchy, albuminous, or fatty, or some of the natural indigestible materials which form a part of all food. The food may be introduced in an indigestible form on account of defects in the cooking of it, or imperfect mastication, or from its having undergone putrefaction or fermentation, which arrests the functions of the stomach. Imperfect mastication of food is a very common cause of indigestion. Eating too much is probably the most common of all causes of indigestion. The secretion of the gastric juice in the stomach seems to be proportioned to the amount of material required for the nourishment of the system. Food taken in excess of this amount acts as a foreign substance undergoing fermentation and putrefaction, and occasioning much disturbance in the system. Much may be done for the cure of indigestion by eating very abstemiously of suitable food, thoroughly masticated, taking exercise in the open air, breathing pure air, and observing the laws of health generally. The amount of food should be reduced until the quantity is reached which the stomach can digest without evincing any symptoms of indigestion.

Hot water of a temperature varying from 110° F. to 150° F., has been found highly serviceable in relieving painful conditions induced by improper feeding. This beverage, diluting the ordinary fluids and secretions of the digestive system, effects the work of the liver and kidneys, and produces the happiest results. Dr. Cutter, of New York, has summarised the methods of using hot water. He tells us that the water must be really hot, and not merely lukewarm. If lukewarm, it will only excite vomiting;

whereas, when really hot, it appears to soothe the irritable lining membrane of the stomach and bowels. The quantity of hot water to be taken at a draught, according to Dr. Salisbury, varies from ½ pint to 1 pint or more at a drinking. The test of benefit being derived from the use of hot water is said to be that derived from the kidney-secretion, which should be pure, free from odour and deposit. Regarding the times at which hot water should be taken, 1-2 hours before each meal, and ½ hour before retiring to rest, are stated as the periods most suitable for its administration; while the water must be sipped, and not taken so fast as to cause distension of the stomach. Dr. Cutter says that ¼-½ hour may be consumed in the draught of hot water. This form of hydropathic treatment, according to the authorities just named, should be practised in cases of digestive troubles for a period of 6 months or thereabouts. Regarding the amount of liquid to be taken with a meal, not more than 8 oz. has been prescribed as the regulation quantity; a larger amount tends to dilute the gastric juice to too great an extent. Various additions may be made to hot water by way of rendering it palatable, although persons accustomed to drink it in time learn to like it.

Dr. Milner Fothergill made some experiments with our ordinary native fruits, to test the value of correcting the acid by means of alkali to render the fruit more suitable for dyspeptics. The result was that the amount of bicarbonate potash required for each lb. of fruit was found to be about as much as would lie upon a shilling. With all fairly ripe fruit this is just sufficient to neutralise the acidity, and bring out the natural sweetness; indeed, the resultant product was quite sweet enough for most adult palates. Such

stewed fruit can be eaten alone, or with milk puddings, cream, or Swiss milk; gooseberries, currants, apples and plums are excellent when so prepared. With dark fruits, as the black plum, the colour is impaired by the alkali, and the fruit is less attractive to the eye than is that of the ordinary stewed fruit, which is of a deep clear crimson. A little cochineal will give the desired colour. Where there is no natural sweetness, to neutralise the acid completely by an alkali leaves nothing, simply a cold mass, to which the palate is indifferent. Such is the case with rhubarb. Here it is well to use half or all the amount of alkali with some sugar. The same is the case with early gooseberries before they have any natural sweetness; no sugar formed in them. Here the full quantity of alkali should be used, and the remaining acidity be met by sugar. When ¾ lb. of sugar is required to sweeten 1 lb. of fruit, only ¼ lb. of sugar is necessary after the alkali has been added. The sour-sweet taste is thus secured, which is toothsome. In these two instances the stewed fruit is only rendered less objectionable to the stomach plagued with acidity, not made quite inoffensive.

Infectious Diseases.—All infectious (catching) diseases have several features in common. They begin with a period of dormancy ("latency" or "incubation,") during which the poison is actively developing. The duration of this period in smallpox is 12 days; in typhus fever, 8-14 days; in typhoid fever, 14-21 days; in scarlet fever, 3-6 days; measles about 4 days, at the termination of which the sickness is said to begin, though its distinctive characters may not appear for some days longer. These diseases (fevers) all commence with a marked, and sometimes sudden, elevation of bodily temperature, which, with variations, continues

during the course of the illness. Characteristic eruptions appear in scarlatina on the 2nd, smallpox on the 3rd, measles on the 4th day, and so on; with them begins the infection, and increases with the activity of the disease. The following table, modified from that given by Domville in his 'Manual for Hospital Nurses,' is exceedingly useful:—

Name.	Period of Dormancy.	Day of Rash.	Characters of Rash.	Duration of Illness.	O
Chicken-pox.	21 days	—	Small rose pimples, becoming vesicles.	6-7 days.	
Erysipelas	3-7 days	2nd or 3rd.	Diffuse redness and swelling.	—	Mo f a s o i
Measles	10-14 days.	4th day of fever.	Small red dots like fleabites.	6-10 days.	Acc w a n
Relapsing Fever.	Sudden	—	Purpuric spots	—	Cau o 7 fi a d c it r ti

Scarlet Fever.	4-6 days	2nd day of fever.	Bright scarlet diffused.	8-9 days	Ver C a b f d (t
Smallpox	12 days	3rd day	Small red pimples, becoming vesicles, then pustules.	14-21 days.	Dis c C b i h S f a d
Typhoid Fever.	10-14 days or suddenly	7th to 14th.	Rose-coloured spots, few in number.	22-30 days.	Sel i U c d A b a s b
Typhus Fever.	1-12 days.	4th to 7th.	Mulberry colour general over abdomen.	14-21 days.	Ver U c o a d

In scarlet fever, infection is due to the particles which peel off from the skin, the patient should be anointed once a day with carbolic oil, made with 1 part carbolic acid to 50 of olive oil. The efflorescence

(peeling off) occurs first on the skin of neck and arms, sometimes as early as the fourth day. The anointing should include the head, the oil being freely applied to the roots of the hair, and continued for 6 weeks, a warm bath being given weekly during that time. After 6 weeks, the patient may mix with the other members of the family; but children should not return to school for 2 weeks longer.

In measles, the same rules are to be observed, with the addition that the discharges from mouth and nostrils should be received on rags and destroyed by burning.

In typhoid fever, the poison is chiefly contained in discharges from the bowels. These may infect the air of the sickroom, the bed, body-linen, w.c., and drains, and, by soaking into wells, they poison the drinking-water—a common and dangerous way by which this fever spreads. The discharges should be disinfected immediately on their escape from the body as will be directed.

Typhus fever is very infectious, and is apt to attack those who are much exposed to it for the first time; therefore engage a nurse who has been previously attacked. The poison is thrown off by the skin and lungs and readily affects clothing, furniture, and everything in contact with the air of the room.

Efficient protection from smallpox is proper vaccination, known by a large mark or scar. Re-vaccination after the fourteenth year is advisable. Smallpox affects at a greater distance than any other, the poison escaping chiefly by the skin and mucous membrane.

Diphtheria poisons by the breath and expectoration; and to avoid contact with these is

absolutely necessary. The expectoration should be received into a vessel containing Condy's fluid, or on rags that may be at once burnt. Gargle the throat frequently with a solution of the same, of the strength of 1 small teaspoonful to 1 qt. water.

Whooping-cough is a disease which is most fatal to children under 2 years of age. The poison comes chiefly from the mucous secretions of the lungs and air passages, and is readily imparted to the clothes of those who nurse the patient; the secretions are infectious from the beginning.

Asiatic cholera rarely visits this country. As in typhoid fever, it spreads by means of the bowel discharges, and the same precautions are needed.

In any infectious disease, where the home has no accommodation for fully carrying out the precautions, the patient should be removed at once to a fever hospital. No time should be lost in obtaining medical advice.

One other source of danger may be mentioned here, and that is the poisonous vapours arising from broken gas mains, which will cause illness and even death from the carbonic oxide present. As a precaution against ground air contaminated with illuminating gas entering houses, open all cellar windows, as well as those on the ground floor of threatened houses, so as to prevent directly sucking in the ground air or render it harmless by dilution. The smell of gas should serve as a warning.

The following advice is addressed to those who have to visit or attend upon infectious cases. Always have the window open before entering the patient's room or ward. Never stand between the patient and the fire, but always between him and the open

window. If possible change your coat before entering the room. Do not go in for any unnecessary physical examination. Stay as short a time as possible in the room. Never, while in the room, swallow any saliva. After leaving the sickroom, wash the hands with water containing an antiseptic. Rinse out the mouth with diluted “toilet sanitas” or Condy’s fluid; also gargle the throat with it, and bathe the eyes, mouth, and nostrils. Expectorate and blow the nose immediately on leaving the sickroom. Keep up the general health by good food, exercise, and temperance. Filter all the air you breathe while in the sickroom or ward through an antiseptic medium, such as a McKenzie inhaler over the nose and mouth; carefully soak the sponge in a strong solution of carbolic acid before entering the sickroom; all the air breathed must necessarily come through this sponge, and the expired air is emitted, by a valve action, at another place.

Nurses should keep themselves and their patients as clean as possible, remembering that the more the infection accumulates, the more dangerous does it become. Special care should be taken, in changing sheets and clothing, not to shake or disturb them more than is absolutely necessary to remove them; as these acts disseminate the particles of skin which are removed with them, and which convey the germs of disease, they should be removed carefully, folded together, and immediately disinfected.

Whatever the nature of a malady, so soon as it is pronounced to be infectious the same precautions should in all cases be taken. Let it at once be decided who is to nurse the patient, and make all arrangements by which nurse and patient may be isolated from the rest of the household. If possible, 2

rooms communicating should be given up to them, and over the outer doors of these rooms sheets should be hung, which must be kept constantly saturated with disinfectants, either Condy's fluid or carbolic acid in water. No servant in communication with the rest of the household must enter the sickroom; if she does so, she should be isolated like the nurse, and any message that may require to be given must be spoken through the sheet. The best plan is to have a regular nurse from one of the many excellent institutions which provide them; they make the patient more comfortable, take entire charge of the arrangement of the sickroom, and know exactly what is required to be done in an emergency, and for disinfection. At the very commencement all curtains should be taken down, and at once sent out of the house to be disinfected by properly qualified persons; the same course should be pursued with the carpets (woollen articles hold infection beyond any others), and then the floors can be kept sprinkled with disinfectants, besides having a broom steeped in them passed over every morning. Linen used in the sickroom should always be put into water with either carbolic or Condy, before leaving the room; but, even with this precaution, it is far better to send it to be disinfected than to allow it to go to a laundry. The windows should be open, top and bottom, but more especially at the top, during the entire day, and if possible at night also; a thorough draught through the room is most desirable, if the patient can be kept out of the direct line of it. As much as possible, all cups, basins, jugs, and glasses should be kept upstairs; but those that must occasionally be sent down should be carefully washed in Condy and water, and at once placed outside the door, and again passed through disinfectant on their arrival

downstairs. The clothes that may have been worn for the day or two before the disease absolutely declared itself should be sent for disinfection, but those which have only been in casual contact may be disinfected at home. A small room should be chosen for the purpose, and the dresses, petticoats, shawls, or other articles hung up, so as to be fully exposed. The doors, windows, and all other apertures must be kept closed, and the disinfection may be effected either by chlorine, which is formed by pouring hydrochloric acid on chlorate of potash, or else by burning sulphur. In either case the quantity must be sufficient to render the atmosphere of the room unbearable to a human being, or otherwise the disease germs will not be destroyed. The bedding and blankets must be sent for proper disinfection at the close of the illness. Nothing should be kept in the room except for use. Clothes in a wardrobe under such circumstances have been known to spread infection 10 years after. Handkerchiefs should be replaced by rags, burnt when used. Letters from the patient should be backed, or written on postcards dipped in carbolic; they are capable of spreading disease otherwise. A thing in which people are often lamentably careless is in allowing books that have been used by the patient to be afterwards used by others. It cannot be too often impressed on the minds of those who have to do with illness, that every book, paper or magazine used by an infectious patient must be burnt without leaving the sickroom. Infection is very often spread by allowing books from a circulating library to be returned to it after use by a person suffering from an infectious disorder.

Infection ceases in the individual as soon as the skin has thoroughly peeled—a process which takes a longer or shorter time in different individuals. The

danger after this lies in the clothes, furniture, and rooms, and if these are at once thoroughly disinfected all danger is absolutely at an end. It is impossible to reprobate too strongly the conduct of those who wish and endeavour to shirk the expense and trouble of proper disinfection. It would be well if in such cases doctors would always avail themselves of their power to report the existence of a case of infectious disease to the sanitary officer of the district, when official pressure would at once be brought to bear, and all that is necessary be effected under compulsion.

The cured patient on the day of leaving home should go into a fresh room to dress, and put on things either new or disinfected, not returning to the sickroom. Brushes and sponges, as coming most in contact with hair and skin, are best destroyed. While a patient is in the infectious stage it is best that no letters should be written; but if, as is sometimes the case, some communication in writing must be made, danger is obviated by holding the paper and envelope in the fumes of chlorine.

A few words would not be amiss respecting those in the house who do not enter the sickroom. However great the precautions taken, the air of a house in which there is a case of infectious disease can never be absolutely safe, and it is far better to err on the side of caution than the reverse. Visitors should not be allowed to enter the house, and it is far better and more honest for the servants to state clearly at the door what disease is in the house. Special attention should be paid to the health of each member of the household. Any slight disorder is liable to predispose to infection.

There is a great variety of good disinfectants, and

as many different ways of using them. A good plan, both effective and economical, is as follows:—Freely use moistened chloride of lime all through the house, and even in the sickroom, if the fumes are not found to be irritating; secondly, place in various parts of the room 5 or 6 soup-plates, or other flat vessels, containing Condy's fluid; or hang about in the room as many perforated boxes filled with solid iodine; thirdly, keep the windows opened freely but the doors as seldom as possible; guard it both inside and outside with a large sheet, hung up to at least the height of the door, and at about 1 ft. distant from it, and kept constantly well moistened with a solution of carbolic acid (strength, about 1 of the acid to 40 of water); and, most important of all, receive as soon as possible all discharges, excreta, soiled linen, and all such matters, in vessels containing a strong solution of Condy's fluid, chloralum, or carbolic acid. Many infectious diseases have (in addition to their common property of infecting the air through the effete products of respiration from the lungs and skin) some special channel of transmission. In cholera, typhoid (enteric) fever, and, in a less degree, typhus and relapsing fevers, it is principally by the excreta from the bowels and kidneys. These should be received at the very moment of their issue from the body into vessels fully charged with disinfectants. In diphtheria, it is by the throat. In erysipelas, hospital gangrene, and puerperal fever, by discharges peculiar to each. In smallpox, by pustular exudation from the skin. In scarlet fever, measles, &c., by desquamation (peeling off of the skin), rendered harmless by slightly moistening the surface of the body once or twice a day with ordinary olive oil or camphorated oil, or a weak solution of glycerine and carbolic acid. Never mix disinfectants;

for instance, Condy's fluid and carbolic acid act in precisely opposite ways, and might decompose each other.

The nurse must not neglect proper precautions for her own safety. She should use disinfectants freely about her own person, be sure that she has a sufficient quantity of undisturbed rest and regular meals, and avoid coming into unnecessary close contact with the patient. She should at once give up the occupation if she feel her general health at all injured. She must also be careful not to undertake a non-infectious case after being in attendance upon an infectious one for a considerable time; and until she has put herself through a complete process of disinfection, and done the same with all clothes worn at the time which she has not discarded altogether. Nothing must induce her to go near a confinement for several (at least 3) months.

Disinfection.—The most useful agents for the destruction of spore-containing infectious materials are:—

(1) Fire: Complete destruction by burning.

(2) Steam under pressure: 230°F. for 10 minutes.

(3) Boiling in water for 1 hour. This temperature does not destroy the spores of *Bacillus subtilis* in the time mentioned, but is effective for the destruction of the spores of the anthrax bacillus, and of all known pathogenic organisms.

(4) Chloride of lime: a solution of 4 in 100 containing at least 25 per cent. of available chlorine.

(5) Mercuric chloride: a solution of 1 in 500 containing at least 3 per cent. of available chlorine.

For the destruction of infectious material which owes its infecting power to the presence of micro-organisms not containing spores:—

(1) Fire: Complete destruction by burning.

(2) Boiling water ½ an hour.

(3) Dry heat: 230°F. for 2 hours.

(4) Chloride of lime: 1 to 4 in 100 solution, containing at least 25 per cent. available chlorine.

(5) Solution of chlorinated soda: 5 to 20 in 100 solution, containing at least 3 per cent. available chlorine.

(6) Mercuric chloride: a solution of 1 in 1000 to 1 in 4000.

(7) Sulphur dioxide: exposure for 12 hours to an atmosphere containing at least 4 volumes per cent. of this gas, preferably in presence of moisture. This will require the combustion of 3-4 lb. sulphur for every 1000 cub. ft. of air space.

(8) Carbolic acid: 2 to 5 in 100 solution.

(9) Sulphate of copper: 2 to 5 in 100 solution.

(10) Chloride of zinc: 4 to 10 in 100 solution.

Following are recommendations with reference to the practical application of these agents:—

For Excreta.

(*a*) In the sickroom:

For spore containing material:

(1) Chloride of lime in solution, 4 in 100.

(2) Mercuric chloride in solution, 1 in 500; addition of an equal quantity of potassium

permanganate as a deodorant, and to give colour to the solution, is to be recommended.

In the absence of spores:

(3) Carbolic acid in solution, 5 in 100.

(4) Sulphate of copper in solution, 5 in 100.

(5) Chloride of zinc in solution, 10 in 100.

(*b*) In privy vaults:

Mercuric chloride in solution, 1 in 500. A concentrated solution containing 4 oz. mercuric chloride and 1 lb. cupric sulphate to 1 gal. water is recommended as a standard solution; 8 oz. this solution to 1 gal. water will give a diluted solution for the disinfection of excreta, containing about 1 in 500 of mercuric chloride and 1 in 125 of cupric sulphate.

(*c*) For the disinfection and deodorisation of the surface of masses of organic material in privy vaults, &c.:

Chloride of lime in powder, diluted with plaster of Paris, or with clean, well-dried sand, in the proportion of 1 part to 9.

For Clothing, Bedding, &c.

(*a*) Soiled underclothing, bed linen, &c.:

(1) Destruction by fire, if of little value.

(2) Boiling at least ½ hour.

(3) Immersion in a solution of mercuric chloride of the strength of 1 in 2000 for 4 hours. The blue solution containing sulphate of copper, diluted by adding 2 oz. concentrated solution to 1 gal. water, may be used for this purpose.

(4) Immersion in a 2 per cent. solution of carbolic acid for 4 hours.

(*b*) Outer garments of wool or silk, and similar articles, which would be injured by immersion in boiling water or in a disinfecting solution:

(1) Exposure to dry heat at a temperature of 230° F. for 2 hours.

(2) Fumigation with sulphurous acid gas for at least 12 hours, the clothing being freely exposed, and the gas present in the disinfection chamber in the proportion of 4 volumes per cent.

(*c*) Mattresses and blankets soiled by the discharges of the sick:

(1) Destruction by fire.

(2) Exposure to superheated steam—25 lb. pressure—for 1 hour. Mattresses to have the cover removed or freely opened.

(3) Immersion in boiling water for 1 hour.

(4) Immersion in blue solution (mercuric chloride and sulphate of copper) 2 fl. oz. to 1 gal. of water.

Fire.—Materials used in wiping away discharges may be burned in the open fireplace of the sickroom. In general, this method is to be recommended for all substances which have been exposed to infection, which cannot be treated with boiling water, and, could it be carried out in all cases, would make disinfection a very simple matter. If there is no fire in the room, such substances may be wrapped in a sheet soaked with solution, carbolic acid, and in this condition conveyed to a fire elsewhere.

Boiling Water.—Boiling in water for ½ hour will destroy the vitality of all known disease germs. This

is therefore the best means for all articles which can be thus treated, such as body-clothing of the patient, bed-clothes, towels, &c. All utensils used in the room in feeding the patient should likewise be treated with boiling water before being removed from the room. Food itself, not consumed by the patient, should not be used by others, as it is liable to become infected in the sickroom. If there are no facilities for treating articles with boiling water in the sickroom, they may with safety be removed to another part of the house for this treatment if they are carefully enveloped in a towel or sheet, as the case may require, which has been thoroughly soaked with carbolic acid solution. Thus enveloped, they should be put in the water, and boiled for the required time.

Chloride of Lime.—To be effective as a disinfectant this must be of the best quality, and in purchasing it, only that should be accepted which is enclosed in glass bottles, as, when packed in paper or wooden boxes, it is liable to have so deteriorated as to be worthless for disinfecting purposes. Dissolved in water, in the proportion of 4 oz. to 1 gal., it forms a standard solution recommended to be used in the disinfection of discharges in contagious diseases, especially in typhoid fever and cholera; 1 pint should be well mixed with each discharge; after 10 minutes, disinfection is completed, and the contents of the vessel may be then safely thrown into the water closet. The expectorated matter of those sick with consumption should be discharged into a cup half filled with this or carbolic acid solution.

Solution of Chlorinated Soda.—To be effective, this solution must contain at least 3 per cent. of available chlorine, and care should be exercised to obtain such a quality. This is sometimes spoken of as

Labarraque's solution; but, as this latter is too weak to act as a disinfectant, the name is liable to mislead. A standard solution is made by adding 5 parts water to 1 of the solution of chlorinated soda. The cost of this solution is about 5*d.* a gallon. When thus diluted it may be used for all the purposes for which chloride of lime was recommended, and is of a somewhat more agreeable odour, though more expensive. It should be used to cleanse portions of the body soiled with discharges of those sick with infectious diseases, or the hands of attendants similarly soiled.

Bichloride of Mercury (corrosive sublimate) is recommended to be used only in the disinfection of privy vaults which contain so much material, believed to be infected with the germs of typhoid fever or cholera, that the disinfection by chloride of lime would be impracticable. In using this, it should be dissolved in the proportion of 1 oz. bichloride of mercury to 1 gal. water; this quantity will disinfect 4 gal. infected excremental matter.

For Clothing after Recovery or Death.

The clothing of the patient should be treated in the manner already described as necessary during the sickness. Whatever can be boiled in water should be thus disinfected; articles which cannot be boiled should, if circumstances will permit, be burned; all other articles should be left in the room to be subjected to the fumigation hereafter to be described, and until thus treated, the room and its contents should be closed with lock and key, to prevent any one from entering. If it is desired to burn any articles, and facilities for it do not exist in the house, the authorities should be notified, and an officer will call and remove the articles for destruction.

Permanganate of potash (commonly known as Condy's fluid), Burnett's fluid, and chloride of lime, can all be mixed with water, and used for clothing if care is taken. Carbolic soap is excellent for scrubbing. Sulphate of zinc and common salt, dissolved together in water in the proportion of 4 oz. sulphate and 2 oz. salt to 1 gal. will do for clothing, bed-linen, &c.

Armfield & Son, 15 Lower Belgrave Street, London, W., and Victoria Bridge Road, S.W., disinfect and clean articles after fever, &c., by means of special apparatus.

For Furniture and Articles of Wood, Leather, and Porcelain.

Washing several times repeated with:

(1) Solution of mercuric chloride 1 in 1000. The blue solution, 4 oz. to 1 gal. water may be used.

(2) Solution of chloride of lime, 1 per cent.

(3) Solution of carbolic acid, 2 per cent.

For articles of metal use No. 3.

For the Person.

The hands and general surface of the body of attendants of the sick, and of convalescents at the time of their discharge from hospital:—

(1) Solution of chlorinated soda diluted with 9 parts of water (1 in 10).

(2) Carbolic acid, 2 per cent. solution.

(3) Mercuric chloride, 1 in 1000; recommended only for the hands, or for washing away infectious material from a limited area, not as a bath for the

entire surface of the body.

For Body of the Patient after Recovery.

When the patient has recovered, he should be first sponged over with the solution of chlorinated soda, diluted in the proportion of 1 part to 20 of water; and, indeed, during the course of the illness occasional sponging of the body with this very dilute solution under the direction of the attending physician, will be of value in preventing the escape from the surface of the body of infectious material. When, after recovery, the body has been thus sponged, not omitting the head and hair, a thorough washing of the body with soap and warm water should follow, and the patient dressed in clothes which have not been exposed to infection. This should take place in another room than the one occupied during the illness.

For the Dead.

Envelope the body in a sheet thoroughly saturated with

(1) Chloride of lime in solution, 4 per cent.

(2) Mercuric chloride in solution, 1 in 500.

(3) Carbolic acid in solution, 5 per cent.

The body should be thoroughly sponged with either (1) or (3), and then wrapped completely in a sheet saturated with one of these solutions, and enclosed in a coffin, which is to be closed, and the interment must take place within 24 hours, and be strictly private. If the interment is to take place at a distance requiring transportation by any other means than a hearse, the coffin must be of metal, or metal-lined, and hermetically sealed.

When danger is to be apprehended from this source, the body should be, when coffined, surrounded with sawdust, in which these solutions have been placed. Carbolic sanitas powders also present effective means whereby disinfection of the dead body may be performed when coffined; and nitrous acid fumes form the best disinfectant for mortuaries or apartments in which the dead have lain for some time.

Room and Contents.

The room, having been vacated by the patient, should first be fumigated by burning sulphur. This fumigation should be done under the supervision of the physician or some other intelligent person. Nothing should be removed from the room until this is completed, unless it has been disinfected in the manner already described. Everything to be fumigated should be so opened and exposed that the sulphur fumes can come in contact with all portions thereof. All cracks of doors and windows, fire-places, or other channels by which the gas may escape should be tightly closed, using cotton wadding when necessary. For a room 10 ft. in all its dimensions—that is, one containing 1000 cub. ft. of air space—2 lb. broken sulphur and 1 lb. flowers of sulphur should be provided, and an increased amount for larger rooms, in the same proportion. This quantity is important, as less will not so efficiently accomplish the desired disinfection. The sulphur should be put in an iron pot, and this placed on bricks in a large washtub half filled with water, or in a large coal-scuttle containing wet ashes. This precaution is necessary to prevent setting fire to the floor, which would occur if the pot were placed directly on the floor or carpet. The vessel containing the sulphur

should not be one with soldered joints, as the intense heat would melt the solder. A pot capable of holding 1 gal. is about the right capacity for 3 lb. sulphur. The pot should be placed in the centre of the room; if the room is a large one, containing several thousand cub. ft. of air space, several pots should be provided, distributed at different points. Everything being in readiness, sufficient alcohol to moisten the sulphur should be poured on it, a lighted match applied, and when it is seen that the sulphur is well ignited, the room should be left and the door shut, and all cracks outside, including the key-hole, closed by paper, cotton, or other material. At the end of 10 hours the fumigation is completed. Great care should be exercised in emptying the room of the sulphur fumes, as these cannot be safely breathed, and are excessively irritating to the eyes and throat. If possible, a window should be opened from the outside, and through this the fumes permitted to escape; if this is impracticable, all the windows and doors of adjoining rooms should be opened, and then the door of the fumigated room, and through these outlets the fumes allowed to find an exit. Thorough airing will remove the slight odour which remains.

The fumigation being completed, all woodwork, as of floors, windows, and door, and the walls and other surfaces, should be washed over with solution of chlorinated soda, particular attention being paid to cracks, crevices, and out of the way places, in which dirt ordinarily finds a lodgment and from which it is with difficulty removed. A subsequent washing with hot water and soap will complete the cleansing process, and the room may be considered again habitable.

(*a*) While occupied, wash all surfaces with:—

(1) Mercuric chloride in solution, 1 in 1000. The blue solution containing sulphate of copper may be used.

(2) Chloride of lime in solution, 1 per cent.

(3) Carbolic acid in solution, 2 per cent.

(*b*) When vacated:—

Fumigate with sulphur dioxide as described in the next paragraph.

A pleasant disinfectant for rooms is 20 parts camphor, 50 each hypochlorite of lime, alcohol, and water, 1 each eucalyptus and clove oils. The ingredients must be mixed slowly in a spacious vessel kept cool. A few drops on a plate will suffice to disinfect a chamber pleasantly.

Carbolic acid, when combined with water and boiled, evaporates with the steam in a constant ratio, and the steam contains the same relative quantity of the acid as the water from which it evaporates. Pour 20-40 drops of a mixture of equal parts turpentine and carbolic acid into a kettle of water, which keep simmering over a slow fire, so that the air of the sick room will be constantly impregnated with the odour. An excellent vaporiser for disinfecting purposes is made by Savory and Moore.

To purify the air in a sickroom, place in the bed a small basket or other porous article, containing wood charcoal, for the purpose of absorbing the foul air which, if diffused throughout the surrounding atmosphere, would be constantly returned to the lungs.

In a sickroom in which infants are sleeping, put a box or basket containing a piece of quicklime and some wood charcoal, for the purpose of fixing the

carbonic acid exhaled from the lungs, and of absorbing all the foul air generated in the system, and given off by exhalation from the skin or otherwise.

Cellars, yards, stables, gutters, privies, cesspools, water-closets, drains, sewers, &c., should be frequently and liberally treated with copperas (sulphate of iron) solution. The copperas solution is easily prepared by hanging a basket containing about 60 lb. copperas in a barrel of water, or say 1½ lb. per gal. It stains linen.

Another good solution is made thus. Dissolve ½ dr. nitrate of lead in 1 pint boiling water; dissolve 2 dr. common salt in a pail of cold water. Pour the two solutions together, and allow the sediment to subside. Areas, dustbins, heaps of refuse, w.c.'s, or close rooms are all alike benefited by this mixture, which has the advantage of being without smell. Cloths dipped in the solution and hung up in a room will sweeten a fetid atmosphere immediately. It is cheap, nitrate of lead being procurable at about 6*d.* a lb.

Rheumatism.—This common ailment is essentially due to damp or being chilled. One of the easiest and most satisfactory means of treatment is to apply a flannel bandage, pretty tightly, round the chest, in order to restrain the movements of the chest wall. Soothing liniments may also be laid on the side, such as belladonna and chloroform liniments, mixed in equal proportions, or the liniment of turpentine, or cajeput oil mixed with olive oil. Some of the popular domestic remedies for lumbago (rheumatism in the back), are not to be despised, such as ironing with a hot smoothing iron (with the interposition of a double layer of flannel between the skin and the

iron), the efficacy of which is heightened by wrapping the flannel round the hot iron, and moistening the flannel with vinegar. The iron, thus guarded, is left in contact with the skin for ¼ minute, at various points. Another good remedy is the application of turpentine, effected by taking a doubled piece of flannel, say 12-14 in. long by 8-10 in. wide, and dipping it into boiling water. It is then wrung firmly, and turpentine is sprinkled liberally over it. This is applied to the loins, and kept on for 20-30 minutes. When removed, cotton-wool is applied to the skin. At the outset a strong effective purge ought to be taken.

A good hot bath (104° F.) is very beneficial, and it may be advantageous to make it alkaline, by adding about 6 oz. carbonate of soda (washing soda) to the bath before entering it; this will be specially efficacious in stiffness of the joints or muscles. Of the many drugs which have the effect of inducing free perspiration, solution of acetate of ammonia may most safely be used in tablespoonful (adults) doses freely diluted with water. The bowels may be opened by a mild aperient, preferably saline, taken largely diluted in hot water, and early in the morning. The action of the kidneys ought to be kept up by diuretics, the simplest being water, say a tumblerful drunk slowly in the morning, while dressing, or it may be rendered more energetic by the addition of 1 teaspoonful cream of tartar.

Diet ought to be restricted to light forms of solid food, e.g., fish, soups, chicken, puddings, vegetables, fruit, milk. Beer and wines should be avoided; ærated waters may be taken freely; smoking is prejudicial. Finally, persons who suffer from rheumatism ought always to wear flannel next the skin, and encourage

perspiration. Most alkalies are useful in relieving rheumatism. Potash, or soda bicarbonate may be freely used in doses of ½ teaspoonful, in ½ tumbler of ærated water, twice daily, for 3-4 weeks at a time.

Sea-sickness.—Many people, as soon as sea-sickness commences, have recourse to oranges, lemons, &c. Oranges are very much to be avoided, on account of their bilious tendency, and even the juice of a lemon should only be allowed in cases of extreme nausea. Champagne, too, is a very common remedy, and, without doubt, in many cases does good; but this appears to be chiefly due to its exhilarating effects, as, if it be discontinued, the result is bad, and a great amount of prostration follows. Creosote is an old, but still good, remedy, and, in cases accompanied by great prostration, is very useful; but if given in the early stages of sea-sickness, it is often followed by very bad results, and even increases the nausea. Bicarbonate of soda is useful in slight cases, as it relieves nausea, and checks the frequent eructations which often follow attacks of sea-sickness; but in severe cases it is absolutely useless, and, in fact, it very often prolongs the retching. A very good remedy in the earlier stages of sea-sickness is a teaspoonful of Worcester sauce; it relieves the symptoms, and renders the patient easier. Its action is probably of a stimulant nature. Hydrocyanic acid is of very little service, and most acid mixtures are to be avoided, except that perhaps for drinking purposes, when it is best to acidulate the water with a small quantity of hydrochloric acid. Of all drugs the most effectual is sodium bromide. When sodium bromide is given in doses of 10 gr., 3 times a day, the attacks entirely subside, the appetite improves, and the patient is able to walk about with comfort. In sea-sickness it is very desirable that the patient

should take sufficient food, so that at all times the stomach may be comfortably full, for by this means over-straining during fits of retching is prevented, and the amount of nausea is diminished. The practice of taking small pieces of dry biscuit is not of much use, as although the biscuit is retained by the stomach, yet the amount taken is never sufficient to comfortably fill the stomach. Soups, milk-puddings, and sweets are to be avoided, as they increase the desire to be sick, and are followed by sickening eructations. Fat bacon is easily borne, and does much good, if only the patient can conquer his aversion to it. When taken in moderate quantity it acts as a charm, and is followed by very good results. Of all food, curry is the most useful in sea-sickness, and is retained by the stomach when all other food has been rejected. Next to curry come small sandwiches of cold beef, as they look nice on the plate, and are usually retained by the stomach. Brandy should be used very sparingly, as, in many cases, it induces sea-sickness; and its chief use is confined to those cases where the prostration is very great, and even then champagne is more effectual. (Dr. Kendall, *Brit. Med. Jour.*)

Skin complaints.—Many of these are of a character to demand the early attention of the doctor, but there are others which can readily be combated by home treatment.

Pimple (Acne).—These are a frequent trouble in young people and may be very disfiguring. They arise from inefficient action in the fat (sebaceous) glands of the skin. Generally they can be dislodged by squeezing with the thumb nails. To promote healthy action of the glands and prevent formation of the pimples, Dr. Liveing recommends the following

plan.

(*a*) Steam the face every night by holding it over a basin of hot water for a few minutes. (*b*) Rub the skin for 5-10 minutes with soap (preferably terebene) and flannel, or with a soft nailbrush; then sponge off the soap with warm water. (*c*) When the face has been dried, a lotion should be thoroughly applied, composed as follows: ½ oz. precipitated sulphur, 2 dr. glycerine, 1 oz. spirits of wine, with 3 oz. each rose-water and lime-water. This is allowed to dry on the skin and to remain on all night. In the morning the face is cleansed with warm oatmeal and water or weak gruel. If, for any reason, an ointment seems preferable to a lotion, a combination of precipitated sulphur and vaseline is very useful. The treatment must be modified or suspended for 2 or 3 nights if the skin becomes sensitive and somewhat tender. If this plan be unsuccessful, try application of potash soap in the form of a lotion. The lotion is composed of 1 oz. each soft soap and rectified spirits of wine, and 7 oz. rose (or distilled) water. This should be rubbed in vigorously with a piece of flannel for a short time, taking care not to make the skin sore. According to Dr. Liveing, the worst cases of acne will yield to the soft soap treatment if practised with necessary caution.

Something is often required to be done during the daytime to pacify the heat and throbbing, which are part of the usual history of acne. An excellent lotion is made by combining oxide of zinc, calamine, prepared chalk, lead lotion, and lime-water, to which may be added a small quantity of glycerine. Let the bottle containing this be gently waved about so as to diffuse the materials, which are only held in suspension; then pour a little into a saucer, and with

a sponge (reserved for the purpose) sprinkle the face from time to time. Wipe off, when necessary, with a bit of fine muslin the powder which remains on the skin after the evaporation of the fluid, and the face may be washed occasionally with a little starch gruel. The cases are not a few in which it is better not to use any kind of soap as part of the evening ceremonial. After the face has been steamed, put on a medicated jelly composed of zinc oxide, gelatine, and glycerine. It must be liquefied by putting the vessel that holds it into hot water, and then applied with a brush. Some sensitive skins are intolerant of sulphur in any guise. When this is so, try combinations of lead, chalk and zinc, blended as a quasi-ointment with the finest vaseline. Dr. McCall Anderson's formula of bismuth oleate with vaseline and white wax has been aptly described as "one of the most healing of salves." Sometimes nothing agrees better than the old-fashioned but capital substance called Kirkland's "neutral cerate," which is composed essentially of lead plaster and olive oil.

Nettlerash.—A form of nettlerash seen in little children, showing itself as slightly raised red blotches, worst in the night, is referred to "teething," and that is thought sufficient reason for neglecting it. The best treatment is strict attention to cleanliness and diet. The child should get a tepid bath night and morning. Take care that no part of the dress irritates the skin, flannel not being allowed to touch it; and let the patient enjoy fresh air and sunshine. If itching continues, instead of a simple tepid or warm bath at night, an alkaline bath should be given in this bath: in 8-10 gal. water as warm as the hand; dissolve 1-2 oz. soda bicarbonate. Bathe the child for a few minutes, do not be too exact in drying, and put to bed immediately. Nettlerash in adults requires

medical treatment.

Eczema.—Of this skin disease there are many forms, all arising more or less from a disordered state of the blood, and demanding medical advice. As a general rule, the patient should avoid soap in washing, using oatmeal instead. Starchy food, such as potatoes, are deemed unsuitable, while plenty of green vegetables and fruit should be taken. Clean linen is essential, and the patient's towel should not be used by any one but himself.

Itching.—This troublesome affection may be cured by the use of the following:—(*a*) 500 grm. milk of almonds; ¼ grm. each corrosive sublimate and ammonium chloride. (*b*) 60 grm. glycerine of starch; 5 grm. bismuth subnitrate; 5 grm. zinc oxide. (*c*) 1 litre infusion of mallow; 50 grm. cherry-laurel water (filtered); 10 grm. borax. (*d*) Vaseline often gives relief.

Ringworm.—Whenever the disease is observed, efficient measures should be taken to cure it, instead of wasting time with feeble popular remedies, such as ink, permitting the affection to spread and become established. The hair should be cut for ½ in. round each patch of ringworm. Get a small camel-hair brush, and a solution of the following composition: 30 gr. iodine; 2 drm. colourless oil of tar. Apply the solution carefully with the brush to the diseased part only. Repeat the application in a week. Strong carbolic ointment may be applied *around* the patch. It is a most obstinate disease, and requires the exercise of great patience. Children suffering from ringworm should not be much confined in the house, and it is a good rule to give them cod-liver oil, or steel wine, or both.

Sweating (excessive).—*(a)* In the Michigan *Medical News*, Dr. Currie recommends in sweats, from whatever cause, 1 pint alcohol, 1 drm. sulphate quinine. Wet a small sponge with it, and bathe the body and limbs, a small surface at a time, care being taken not to expose the body to a draught of air in doing it.

(*b*) For sweating of the feet, Dr. Meierhof, in the *Maryland Medical Journal*, directs the patient to immerse his feet morning and night for about 10 minutes, in warm water at 115°-120° F. in which a teaspoonful (1 dr.) powdered commercial soda (impure carbonate of soda) is dissolved. The feet are then thoroughly dried, after which they are painted all over with a coating of compound tincture of benzoin, which acts as an antiseptic astringent and by its mechanical presence on the skin. This treatment is continued for about 10 days, after which it is practised once daily, or every other day, as the necessities of the case may require.

(*c*) M. Vieusse, principal medical officer at the Military Hospital at Oran, states that excessive sweating of the feet, under whatever form it appears (whether as mere super-secretion accompanied by severe pain, or with fœtidity), can be quickly cured by carefully-conducted frictions with bismuth subnitrate; and even in the few cases where this suppresses the abundant sweating only temporarily, it still removes the severe pain and the noxious odour which often accompany the secretion. He had never found any ill consequence follow the suppression of the sweating.

(*d*) Napthol has been recommended as an effective remedy against excessive sweating of the palms of the hands, foot-soles, and arm-pits. These places

should be moistened once or twice daily, with a mixture of 5 pt. naphthol, 10 pt. glycerine, 100 pt. of alcohol, and afterwards dusted, either with pure starch or with a mixture of 2 pt. naphthol, 100 pt. starch. In the case of sweating feet, small pellets of antiseptic cotton are dipped in the powder and placed between the toes.

Tooth Troubles.—To preserve the teeth, rinse the mouth after every meal. If the gums are naturally irritable and tender, a few drops of tincture of myrrh in water should be used to rinse out the mouth, twice or thrice daily. The first tooth brush should be used as soon as there are teeth to use it upon. An ideal tooth powder should be alkaline, since acids dissolve the tooth substance; finely pulverised, that it may not mechanically abrade; antiseptic, to prevent decomposition of food lodged between the teeth, and perhaps to destroy the microbes which are always found choking the tubules of carious dentine; it should contain nothing irritating to the gums; and, lastly, it should be pleasant to the taste, or it will not be used. Fluid dentifrices do not, as a rule, clean the teeth effectually, unless they contain some ingredient which acts upon the enamel itself; and those preparations which are eulogised as making teeth white or preventing deposit of tartar, should be avoided. Charcoal was at one time a very popular form of dentifrice, and is even now largely used, but from the amount of silica it contains it will rapidly wear away teeth that are not of exceptional hardness; and moreover, the gums in some instances become tattooed in a curious manner from absorption of minute particles. Pumice-powder, again, is too gritty; and camphorated chalk is said to make the gums spongy. Precipitated chalk forms the best basis for a tooth powder, to the base of which

may be added pulv. saponis and ol. eucalypt., 1 dr. of each; and if there is no objection to the taste, ½ dr. carbolic acid. (*Lancet.*)

The tooth brush, which should be used night and morning, should be small, and have its not too stiff bristles arranged in separate bundles (in order that they may pass readily between the teeth and into the natural depression). The outer and inner surfaces of both front and back teeth should be brushed. The direction of the brushing should be from the gums; that is, downwards for the upper teeth, and upwards for the lower. This mode of cleaning the teeth is the best preventive against decay, which causes toothache, and also against the accumulation of tartar, which makes the breath foul, and in course of time causes the teeth to loosen and fall out.

Toothache.—(*a*) The following is a formula recommended by Prof. Babaieff in the *British Medical Journal*:—Melt 2 parts white wax or spermaceti, and when melted, add 1 part carbolic acid crystals, and 2 parts chloral hydrate crystals; stir well till dissolved. While still liquid, immerse thin layers of carbolised absorbent cotton wool, and allow them to dry. When required for use, a small piece may be snipped off, and slightly warmed, when it can be inserted in the hollow tooth, where it will solidify. The ease produced by this simple method is really very great.

(*b*) The following remedy is given by a dentist of great reputation:—First wash the mouth well with warm water, then use the following tincture: 10 gr. tannin, ½ dr. mastic, 10 drops carbolic acid, dissolve in ½ oz. sulphuric ether.

(*c*) Dr. Dyce Duckworth says toothache may be relieved by holding in the mouth a solution of bicarbonate of soda, say ½ dr. in 1 oz. water.

(*d*) A correspondent of the *Electrician* gives the following as an instant remedy for toothache:—With a small piece of zinc and a bit of silver (any silver coin will do), the zinc placed on one side of the afflicted gum, and the silver on the other, by bringing the edges together, the small current of electricity generated, immediately and painlessly stops the toothache.

(*e*) Equal parts carbolic acid and collodion applied on a pledger of wadding and thrust into the hollow tooth. Apt to cauterise the mouth somewhat. The saliva must not be swallowed.

(*f*) Anæsthetic in dentistry: 6 dr. pulv. camphor, 1 oz. æther. sulphur. Apply this to the gum surrounding the tooth to be removed, until the gum turns white, when the tooth can be extracted with scarcely any pain.

Warts.—(*a*) Apply a little nitric acid (aqua fortis) very carefully. Take a small stick—a lucifer match—dip it into the acid, and so apply a tiny drop to the top of the wart. It soon becomes yellow, and in a few days the top can be picked off. Repeated applications in the same way are necessary.

(*b*) Light a match or taper and apply the flame for a second, till you feel a sting, to the top of each wart, for 3 days in succession, when a watery blister will form round each wart, which you must burst, and throw all the warts away, which will be found to be quite loose, causing no pain; they will never return again, and no trace of them will be left after a short time.

(*c*) Prof. Unna recommends the continuous application of mercurial ointment containing 5 per cent. arsenic or a plaster containing in each 8 sq. in.

154 gr. arsenic and 77 gr. mercury.

(*d*) A plaster of black soap, applied each night for a fortnight, according to Vidal, will soften a wart so that it may be scraped off.

(*e*) Cellier's treatment is to transfix the principal wart with the point of a pin, the head of which is then to be held in the flame of a candle until the wart is destroyed; it will drop off in a few days. The remaining warts will then usually disappear.

(*f*) A touch of castor oil (the best) once a day. It is a slow process, but, nevertheless, a sure remedy, and painless. Choose night time just before going to bed, to rub in well a little castor-oil, and then take a cloth or towel and rub any that remains off. Continue it for a month or two, for it needs persevering in. In some cases there will be no alteration for 2 months; but sooner or later they all die away. Some die away and others can be taken off, as if they had lost their roots.

Supplementary Literature.

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THE BATHROOM.

BATHING IN GENERAL.

Bathing is of several kinds. There is the morning tub and the sea dip which are taken to brace up the system; then there is the hot bath, more for sanitary and cleansing purposes; and finally come hot-air and vapour baths which are generally of a more or less medicinal character. These will be considered in rotation.

Cold Bathing.—All persons in health and of average strength may use a cold bath daily, in summer at least. In winter, mornings of extreme frost try the strongest constitution, and few are likely to benefit by a plunge on these occasions. For the most part, individuals of moderate powers and free from disease may carry the cleanly practice of summer through the winter months. A word on the bath itself. Those who take it should begin in summer, not winter, and so become gradually accustomed to its lowest temperature. No one should linger over it; 3-4 minutes are ample. After immersion, the body should be quickly and well dried and rubbed before dressing. Light gymnastic, dumb-bell, or club exercise, may occupy the next few minutes, the clothes being partly on if the weather be cold, and breakfast, or a cup of warm tea or coffee, should shortly follow, to prevent chilling.

There are those whom a cold bath injures, instead of invigorating. The readiest test of benefit is the glow of free surface-circulation, or at least the absence of any decided sense of chill after

immersion. Some do not experience this. Among these are the subjects of heart weakness, arising from whatever cause; it may be consequent on organic disease of the heart, on old gout or rheumatism, or on overwork and underfeeding, in which case it is a part of a general debility. Again, there is in some a tendency to engorgement of one or other deep-seated organ with blood, a kidney, the liver, &c. This is commonly the result of a previous inflammatory attack, or of visceral disease at the time existing. Surface-cold aggravates the congestive tendency. Obviously, therefore, such persons, if they bathe, ought to use tepid water; and, in renal disorders, this method is often advantageous. In slight cases, cold is not injurious if the ablutions be expeditiously gone through, and restricted to periods of summer weather. The aged should avoid cold baths, and commonly do. Infants, if ordinary despatch is used in bathing and in dressing, have no reason to fear them. Their powers of reaction are excellent.

Cold baths chill down the feeble circulation of the badly nourished, and provoke a physical torpor which is obstructive to the processes of nutrition. They drive the blood from the surface of the body in upon vascular organs, whose circulation is already sluggish from general weakness. They thus produce discomforts which aggravate existing languor, and enhance the feeling that food and drink ought not to and therefore cannot be taken. A bath described as one “from which the chill has been taken” is too cold for subjects under medical advice who are in need of extra feeding.

In any case it is unwise to bathe out of doors when copious perspiration has continued for some hour or more, unless the weather be excessive or the

sweating has been induced by loading with clothes rather than by exertion. When much perspiration has been produced by muscular exercise, it is unsafe to bathe, because the body is so fatigued or exhausted that the reaction—that is, the return of the momentarily displaced blood to the surface—cannot be ensured, and the effect may be to congest the internal organs and notably the nerve centres. From congestion of the nervous centres comes cramp, so often fatal in bathing.

If the weather be "chilly," or there be a cold wind so that the body may be rapidly cooled at the surface while undressing, it is not safe to bathe. Under such conditions the further chill of immersion in cold water will take place at the precise moment when the reaction consequent upon the chill of exposure by undressing ought to occur, and this second chill will not only delay or altogether prevent the reaction, but convert the bath from a mere stimulant to a depressant, ending in the abstraction of a large amount of animal heat and congestion of the internal organs and nerve centres. The actual temperature of the water does not affect the question so much as its relative temperature as compared with that of the surrounding air. Practically, there ought to be a good deal of difference between the two, the water being much lower than the air and the body being—without great or long persisting perspiration—much warmer than the water, of course, but not so much warmer than the atmosphere as to be chilled by undressing. In short, the aim must be to avoid two chills; first, from the air, and second, from the water, and to make sure that the body is in such a condition as to secure a quick reaction on emerging from the water, without relying too much on the possible effect of friction by rubbing. It will be obvious that

both weather and wind must be carefully considered before bathing is commenced, and that the state of the organism as regards fatigue and the force of the circulation should also be considered, not merely as regards the general habit, but the special condition when a bath is to be taken. These precautions are eminently needful in the case of the young or weakly.

Sea bathing is regarded, naturally, as more bracing in its character than river bathing. The saltness of the water and the sharp air of the sea together tend to invigorate us. As a rule, the bather can remain longer, without injurious effect, in salt than in fresh water. The sudden shock which results from a plunge into river or sea may be attended by bad effects in the case of persons who are subject to fits of any kind or to disturbance of the heart's action. Another highly important question in bathing has reference to the care of the ears. Wherever any tendency to ear-ache or inflammation of the ear exists, bathing must be cautiously indulged in. A dive has been known to be followed by rupture of the "drum" of the ear, owing to the sudden pressure to which this membrane has been subjected in passing from the air under the water. Again, persons who have suffered from discharges from the ears—common after scarlet fever, for example—and in whom the drum of the ear may be perforated or irritable, abscess of the brain may follow injury produced by the sudden dive or by plunging the head beneath the water. Placing cotton wool in the ears is a necessary precaution for any who have tender ears, and a safe practice for all. Further, do not dive too much and avoid swimming on the back, for from the position of the ears the water gets into them a great deal more than even in diving. When getting out, besides giving a good rub

down with a rough towel, always carefully wipe the ear and the glands behind the ear dry.

No child under 2 years of age ought, under any circumstances, to be bathed in the open sea, and no one, child or adult, can enter the sea without danger while under the influence of emotional excitement. Under 2 years of age, a child's body is too weak to gain any benefit from the shock of immersion in the open sea. Its nervous and circulating forces are too feeble for the development of that vigorous reaction, without which sea-bathing is either useless or hurtful. In the absence of strength for such reaction a sea-bath tends to chill an infant's body, and predispose to internal congestion. At any age the shock of immersion in the sea brings risk of danger, and even of death, when the emotions are powerfully excited, and especially when the mind and body are dominated by that most depressing of human emotions—fear. Infants are not always bathed in the sea merely with the intention of making them strong. There is an old seaside tradition that babies diligently bathed become fearless in the water when they grow up. This notion is also false. Than that infants gain courage by being plunged in the sea, it is more probable that many a nervous child has acquired a dread of bathing which no after-experience could remove, because it was compelled in fear and trembling to plunge under water. If a child be sufficiently robust to develop a good reaction, if it be over 2 years of age, and, above all, if it be not afraid, it may be bathed in the sea with advantage. If any of these conditions be wanting, sea-bathing for children is likely to be positively injurious. (*Brit. Med. Jour.*)

Attacks of cramp, to which even expert swimmers

are liable, may arise from many causes. Where special nervous diseases do not exist, the so-called "cramp spasms" are, as likely as not, due to some irregularity in digestion, or to some imprudence in bathing at wrong times and seasons. Bathing after a full meal may induce so-called "cramps," and it is to be feared that many a fatal case of drowning, attributed to some hidden nervous cause, has had a far simpler origin in digestive disturbances reacting on the nervous system, and through this system propagated to the muscles.

The ordinary rules—drawn up by the Royal Humane Society—which should be observed by all bathers, whether in fresh or salt water, and whether swimmers or not, are simple and readily borne in mind.

1. Never bathe within 2 hours after a meal.

2. Never bathe when exhausted or in ill-health. The practice of plunging into the water after exercise is to be thoroughly condemned.

3. Never bathe when the body is cooling after perspiration.

4. A morning bathe may be taken by those who are strong and healthy before breakfast on an empty stomach.

5. The young, or those who are delicate, should bathe 2-3 hours after a meal, and in the forenoon, if possible.

6. The signs which forbid open-air bathing altogether are chilliness and shivering after entering the water, numbness of hands and feet, and deficient circulation generally.

7. When the body is warm, bathing may be

indulged in, provided undressing is quickly accomplished, and the body is not chilled before entering the water.

8. On leaving the water, dry and dress *quickly*. Standing about undressed, after leaving the water, is, under any circumstances, injurious.

9. Rather cut short, than prolong, the bathe. Swimmers possess the power of remaining in the water for a considerable time, in consequence of their active movements. But even in their case injury is often wrought by unduly extending the exercise. The slightest feeling of chilliness should be taken as a sign to leave the water at once.

It is a recognised fact that a sudden head douche of cold water is apt to cause giddiness in many persons from its effect on the brain-circulation, which forms in itself a peculiar part of the blood-system. Cases of persistent headache, often accompanied by giddiness and faintness, have followed sea and river bathing; these effects having disappeared when the practice of plunging the head below water was discontinued. Persons thus affected cannot do better than omit the head from the bath, and, in shower baths, stoop forward or lean backward and sidewise, so that the water shall fall on back, chest, and shoulders, but not on the head.

Hot Baths.—Concerning the bathroom, Edis remarks that whenever a bath is provided, it is generally left open, and forms a receptacle for dirt and dust, which is not always cleaned out when the bath is filled. He suggests that the bath be slightly lowered into the floor, and fitted with a hinged top, about seat-high from the floor, so as to keep the bath clear of dirt, and when not in use make it answer as a table or seat. A bathroom is often fitted up with

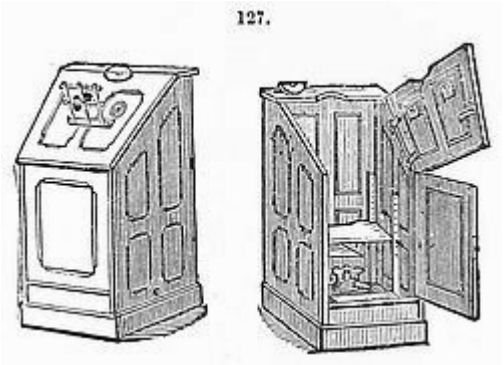
cupboards for linen, and if the hot-water cistern be placed in the room on the floor level, or sufficiently high for use, or a coil of hot-water pipes be carried through, the linen cupboard with lattice shelves might easily be fitted over it, with closed doors of course, by which the linen would always be kept properly aired; and if the room be lined with tiles, there would be no fear of damp or moisture from steam condensing on the walls. The bath should be formed in a recess, with tile lining all round and overhead, and the recess might then be fitted with cupboards over, and drawers and useful shelves at one end, so as to provide storage-room for a large amount of spare clothing and linen, which it is often so difficult to find room for. A curtain drawn across the bath keeps it clean, and hides it from view when not immediately required.

Hot-air and Vapour Baths, *Turkish Baths*, *&c.*—The *Lancet* expresses a strong objection to that form of bath which involves the patient being in an erect or sitting posture, where the bath is used to produce perspiration; it is always possible that some amount of faintness or giddiness may be experienced by the bather even when the blanket or tent-shaped envelope is so effectively applied as to prevent the fumes rising to the mouth and being inspired. It is always far better, and ought to be a rule, that the patient should be in the recumbent position. With a properly constructed cradle-head, the bed-clothes can be raised and the lamp placed safely in the bed itself, the clothes being well tucked in round the neck and under the chin, so that nothing may reach the mouth. In this way the patient may enjoy the full benefit of a fairly high temperature without the least fear of faintness. There are, nevertheless, certain precautions which ought to be observed, and which

are too commonly overlooked. (*a*) A thermometer with a long stem ought to be so placed that the bulb may be inside the clothes and the indicator-column visible outside. Such a thermometer might with advantage be supplied with the bath. It is always desirable to know the temperature of the atmosphere to which the patient is subjected. (*b*) The moment perspiration is induced there arises the question—How far ought it to be carried? If the purpose of the bath be to eliminate fluid or any product of tissue-waste from the body, there may be a need for the maintenance of the cutaneous perspiration for some time: but otherwise it is not, generally speaking, well to let the patient remain in the heat for more than 10 minutes; otherwise, the result can only be to saturate the bed-clothes with moisture, which will begin to cool as soon as the lamp is removed, and after the lapse of 20-30 minutes must place the patient in the perilous position of lying, perhaps sleeping, in a damp bed. A hot-air bath for ordinary purposes is better given in the morning than at night; or, if that be impossible, the patient should be removed to a dry bed with hot blankets. The body-heat can never be safely trusted to keep the clothes, which have been saturated with moisture by a bath, warm after the lamp is withdrawn. It is quite a different matter when the perspiration has been raised by the heat of the body itself. As a rule, the patient should be removed and wiped dry in about 20 minutes after the withdrawal of the lamp—that is, in ½ hour from the commencement of the bath. If the perspiration be acid, it is desirable to sponge the surface with hot water, in which about 1 dessertspoonful soda carbonate has been dissolved—say, in 1 qt. water. (*c*) If the case be one of rheumatism or gout, it must be recognised that by determining to the skin we are

likely to get increased stiffness and surface irritation after each bath until the excrementitious material has been thoroughly eliminated. Overlooking this fact, patients, and sometimes practitioners, fail to persevere long enough with the baths, because, as it seems, each bath makes matters worse.

A simple form of hot-air or steam-bath for home use may be made as follows:—To the back of an ordinary wooden or cane-bottom chair fix an upright piece of wood, and to this at the height at which the neck of the sitter on the chair will be fix a hoop of cane or other material sufficiently wide to keep the cloth to hang from the hoop free from the shoulders of the sitter. Place beneath the chair a gas or oil lamp or two, if one does not give sufficient heat. If, now, a cloth be fixed round the ring sufficiently ample to reach the ground and close all round the sitter, a tent will be formed from the top of which the head of the sitter will project. Let the cloth overlap the ring freely, so as to permit of being pulled close to the sitter's neck. Whilst taking this hot-air bath, the feet must be kept in a basin of warm water. If there is danger of a headache, a cold wet cloth on the head will prevent it. If a vapour bath is preferred, place a pan of water over the lamp, so that the water may boil.



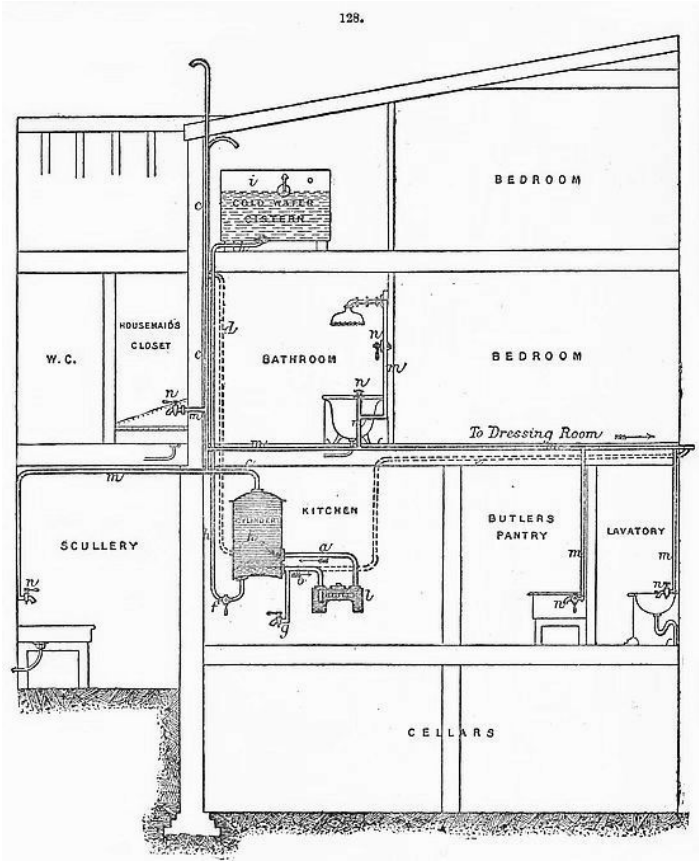
127. Ellis's Bath.

Ellis & Co., of 47 Farringdon Road, London, have introduced a Cabinet Turkish Bath, which dispenses with chair, lamp, sheets, and covers. It is exceedingly simple, and consists of a neat cabinet (Fig. 127) made of well-seasoned wood, taking up a floor space of only 2 ft. 5 in. by 2 ft. 8 in., and large enough to admit the person comfortably. It is mounted upon castors, so that it may easily be moved from place to place on the same floor; and it is light enough to be carried if required. It is fitted with a foot-warmer, and with an adjustable seat, so that it can be used by children and by adults of different sizes. A book-rest is arranged conveniently, so that the time may be pleasantly occupied, and small doors are provided through which the hands may be passed in order to turn over the leaves of a book, or to wipe the face, or to remove a cigar from the mouth, &c. The bath is heated by gas, or by a special lamp in which spirit is burned. It may be managed with the greatest ease without the aid of an attendant, being, in fact, quite as simple as an ordinary sponge or sitz bath. It is only necessary to fill the foot-warmer with hot water, covering it with a piece of flannel, to light the lamp, and step into the bath with a towel round the neck to

prevent the heat escaping too readily. Ample ventilation is allowed, so that the body is not exposed to the action of vitiated air, since this is constantly being renewed from outside. The bath constitutes, in fact, a small ventilated hot chamber, the time spent in which may vary from 10 minutes to ½ hour, according to pleasure. The prices of this bath range from 5*l.* 10*s.*, as made in best pine, to 9*l.*, in black walnut.

Management of Hot-water System.

Before entering into the details of the management of a hot-water system destined to supply baths, &c., it will be desirable to acquaint the reader with the general plan and principle of an apparatus, and to explain the cause of circulation, &c., as this will convey some idea of the subject to be treated, for although many possess an apparatus fitted in their residences, yet much practical information cannot be gained from it, as a major portion of the work is hidden from view.



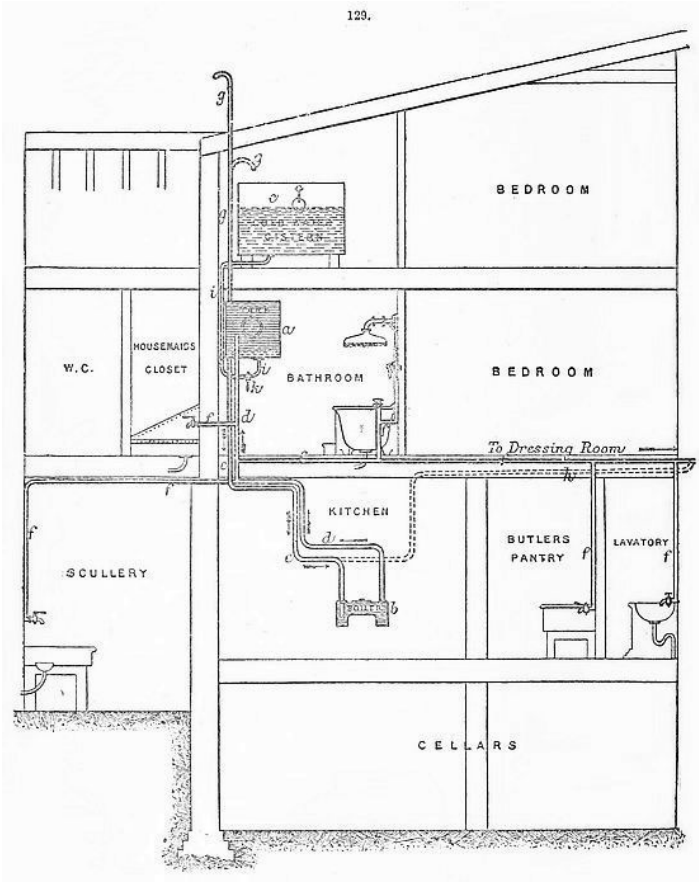
128. Hot-water System (Cylinder Form).

Figs. 128 and 129 show two distinct forms of apparatus, both of which are at present in general use, and both of which even now nearly equally share the public favour, although No. 1 is the more modern and has been proved to be practically superior to No. 2, and is now nearly exclusively adopted by most firms who profess this work.

No. 1 is known as the cylinder system, and consists of a cylinder (a square tank is sometimes used where

the pressure of water is light, tanks costing much less than cylinders of the same capacity) which is placed at the nearest position to, but above the level of the boiler. Two pipes connect the boiler with the cylinder, the upper pipe a is termed the “flow,” and is carried from the upper surface of the boiler to about 9 in. up the nearest side of the cylinder as shown, and the lower pipe *b*, known as the “return,” is carried from a lower position in the cylinder, under the “flow,” to within about 3 in. from the bottom of the boiler, either through the top, as shown, or entering at the back or side.

From the highest point in the cylinder is carried a pipe c, called the “rising main,” by the nearest or most convenient route to above the level of the cold-water cistern, and terminates either by being carried through the roof (as shown) or by being turned over the top of the cistern referred to (as shown in dotted lines). This pipe, when the apparatus is in use, is charged with water to a little above the level of the cold water in the cistern, and the pipe is open at the top end to admit of the free escape of steam, and on that account is sometimes called the expansion pipe; from this pipe is, or should be carried *all* the draw-off services to the various points at which they are required. In event of this rising main being carried to a considerable distance or height, it should be “returned” from any convenient point below the cold cistern (as shown in dotted lines at *d*); this will cause the water to circulate in this upper service and avoid the annoyance and waste caused by drawing sometimes a large quantity of cold water (which lies stagnant in single pipes) before the hot water is obtained. When this “return” is effected, the service is known as the “secondary flow and return.”



129. Hot-water System (Old Form).

Another good use to which the return can be put is in event of any draw-off services being unusually long, as that shown at *m* to the dressing-room in the illustration, the return can be connected as shown in dotted lines, and will bring about the same good results as explained in “returning” the rising main.

The supply of cold water to the apparatus is either brought by a direct and distinct service from the

cistern, or is branched from the nearest existing cold service, but in the latter case the existing service must be of good size, for reasons that will be explained later on. The cold supply should be provided with a stop tap *f*, which is found most convenient if placed near the cylinder, as it can then be used by workmen or others without their having to traverse the house, but this tap should have a loose key or handle, which should be kept by some responsible person to prevent its being interfered with by any one ignorant of its use. There should be also a tap provided at a convenient point, say *g*, to empty the cylinder when the boiler requires to be cleaned or any repairs effected, and this tap should have a loose key for the reasons before stated.

The chief advantage of this system is safety, the cook or user being unable to empty the cylinder, consequently should the water supply fail, the fire can be lighted in the usual way without risk, as in ordinary use it would take several days to boil away or evaporate the contents of the cylinder and boiler.

Another advantage gained by this system is that the cylinder being in such a warm situation, much less heat is lost by radiation, and by its being nearer to the boiler the circulation is effected more rapidly; and there are several other minor advantages to be gained by it, which, however, are not of sufficient importance to warrant detail here. The cold supply pipe *h* leads from the cistern *i* to the cylinder *k*; *l* is the boiler; *m* are draw-off service pipes with taps *n* in the various apartments where needed.

Fig. 129 is commonly known as the “high” or the “old” system. This consists of a square or rectangular tank *a*, which performs the function of a reservoir for the hot water in the same way as a cylinder, but

instead of being situated near the boiler *b*, it is fixed somewhere above the highest draw-off service, but of course below the cold cistern *c*; it is commonly found in the roof or attic in proximity to the cistern, but these are cold and bad situations for it; it is more often found in the bathroom, enclosed in a casing or cupboard, which is thereby made an efficient airing closet, and serves somewhat to prevent loss of heat referred to before (and hereafter), and the presence of the tank in the bathroom, although occupying considerable space, is a source of warmth, no mean advantage in winter.

The tank *a* is connected with the boiler *b* by "flow" and "return" pipes *d e*, the same as the cylinder, but they are necessarily much longer; the draw-off services *f* are, or should be, *all* connected to the "flow" pipe *d* as shown, as the water in this pipe is the first to become heated as the water circulates or "flows" from the boiler to the tank; and an expansion pipe *g* (not called a rising main in this instance) is carried from the highest point in the tank *a* to above the level of the cold supply *c*, as in the cylinder system. There is no need to return this expansion pipe, but an unusually long draw-off service can and should be returned for the reasons before explained, and the method is to connect and carry the draw-off service from the flow pipe in the usual way and return it into the return pipe at a lower point, somewhat after the manner shown at *h*. Obviously the run or course of all pipes has to be adapted to circumstances, but it can be taken as an invariable rule that in correctly executed work "flow" pipes never descend and "return" pipes never ascend, but this will be more fully explained later on. In speaking of circulating pipes, the "flow" is recognised as running from boiler to tank (or cylinder), and the

"return" from tank to boiler.

The cold-water supply *i* is carried and connected to the tank *a* in the same manner as to a cylinder, and provided with a stop tap *k* to save the necessity of plugging the pipe where it leaves the cold-water cistern.

The chief advantage of this system is obtaining hot water a little quicker (but in less quantity) from the time the fire is lighted, than in the cylinder system, as it can be drawn almost immediately it leaves the boiler; but as good results in this respect can be attained with the cylinder if the directions subsequently given are attended to; another advantage in this system is that it can be erected at less expense than the other, and the tank costs but little more than half the price of a cylinder. These advantages are more than counterbalanced by the disadvantages, viz. the easy means of exhausting the apparatus of water if the supply fails, the longer period occupied in obtaining a body of hot water, and the necessarily cold or cool situations of the tank and pipes, so causing loss of heat by radiation, &c.

A few lines may be here devoted to explaining the cause of circulation, which the generality of householders are totally unacquainted with. For the reader to fully understand the subject, he must first know that water is composed of extremely minute particles (molecules), quite invisible to the eye, which have the property of gliding over, under, around, to and from each other, as circumstances dictate, in we may say a perfectly free manner, almost entirely without friction or resistance. When the apparatus is charged and the fire lighted, the particles nearest the fire become heated and expanded, and are, bulk for bulk, rendered lighter

than their fellows, and consequently rise to the top of the boiler; finding an outlet there they rise up into this, and continue to rise until they reach the highest limit, which in No. 2 system is the top of the tank, and in No. 1 system, the top of the cylinder, unless the rising main is "returned," in which case it will be where this "return" commences. Immediately the expanded particles leave the heated surface of the boiler, other cold particles descend into their place and are heated and expand to follow their predecessors, and so it continues as long as there is heat applied to the boiler. The circulation is really a continuous stream of expanded (heated) particles of water ascending the flow pipe, and a corresponding stream of cold or cooler particles descending the return pipe, a natural and very simple means of automatically transporting the hot water from the heating chamber (boiler) to the reservoir (tank) and automatically providing a supply of cold water to be heated in its turn.

The specific gravity of water at the boiling point, compared with water at the freezing point, is as 21 to 20, i.e. 20 gal. of very cold water will balance 21 gal. of very hot water.

The following are the few general rules to be observed for the efficient, economic, and safe working of either description of apparatus.

Commencing at the boiler, it is very necessary that the flue under this be quite cleared of cinders and ash once daily, and the length of the flue should be ascertained, as they differ considerably, and many instances occur where these flues are scrupulously cleaned but only in half or three-fourths their length, and very quickly the accumulation at the end of the flue becomes hard and solid, and an inexperienced

person would then consider it to be the wall which forms the boundary at the back of these flues; this stoppage of course effectually prevents the water heating as it should do. Another cause of the water failing to heat quickly is omitting to have the interior of the boiler cleared of the incrustation or deposit (commonly known as fur) that accumulates more or less according to circumstances that will be fully described later on; when this inner coating attains a moderate thickness it very naturally retards the heat in passing from the fire to the water, especially as it is a poor conductor. There is, however, a more important reason why this incrustation should be removed regularly, and that is, when the boiler is coated to a certain thickness (which coating is more or less porous according to the district) it prevents the water coming in contact with the iron, and the boiler plate, however thick, is soon destroyed the same as if it contained no water at all, or to use a more familiar illustration, the same as a kettle would be “burnt” if left on the fire without having any water in it; this is a serious result from the costly nature of the repair.

The general form of incrustation is caused by the lime or chalk (bicarbonate of lime generally) held in solution, being separated from the water and precipitated; this precipitation commences at a moderately low temperature and gradually increases as the temperature rises, and the whole (excepting a very small quantity) is deposited when the water boils. The incrustation varies very much in quantity according to the district, as before stated; it is generally what is known as hard water that has the greatest percentage of this depositable matter; in some favoured districts the water is so soft that no appreciable deposit occurs, whilst in others it is not

safe to leave the boiler longer than a month without cleansing to keep it in good order. There is also a variation according to whether the water boils much or otherwise, therefore the only reliable plan is to have a good workman in after a certain period, and he can then decide whether the amount of incrustation is too great or whether it might be permitted to go longer, and how long.

With London water, boilers that are in ordinary daily use should be cleaned out every 6 months to keep them in really good order, but to avoid the trouble of remembering dates, &c., many good firms keep a register for this work.

The most important places in the boiler that need cleaning are the parts immediately where the fire plays, especially the angles, where the boiler plates are welded or joined—and careless workmen are apt to neglect these parts—as the deposit is very hard and stone-like at these places.

It may be said without exaggeration that three-fourths of the fractures that occur to wrought-iron boilers are due to excessive incrustation, i.e. want of regular cleaning or removal of deposit.

Incrustation does not occur (but to an extremely small extent) in boilers used for heating purposes only, as in this instance the same water is heated over and over again, and water only contains a certain quantity of lime in solution, which is all deposited when it first boils.

It might be mentioned that in some places the deposit is organic matter, and is found in the boiler much resembling a layer of mud; in such instances the water should be filtered for obvious reasons.

The tank, cylinder and pipes, and in fact the whole

apparatus (excepting the boiler) will be rendered more efficient by being covered with some non-conducting material to prevent loss of heat by radiation. Radiation is an important feature occasionally, as very many instances are known of apparatus being a complete failure, solely by reason of the tank or pipes (or both) being in very cold situations (cold draughty roofs, stone passages, &c., &c.); and a moment's reflection shows that loss of heat is really loss of fuel attended with certain inconveniences well known to many who are suffering with this trouble. The common non-conducting material used is felt in its various forms. Hair felt is the best, as will be readily understood, and can be obtained at many ironmongers and may be applied by any one; for pipes it should be cut and put on in strips, wound round spirally, and tied. Another method is to encase the tank and pipes and pack the casing with a non-conducting material, such as cow hair, slag wool, sawdust, &c., but it is *most necessary* that the casing be packed, otherwise the heated pipes will render the casing a flue which will draw in cold air and very materially assist in cooling the water, especially if the casing has open or badly fitted ends, in which case failure of the apparatus can be confidently anticipated.

In addition to the heat-saving properties, this covering also possesses the advantages of keeping the different places cool (an advantage for certain seasons only, excepting the kitchen) and saves the pipes from attack of frost, and under ordinary circumstances, if a small fire is left at night with the boiler flue *closed*, moderately warm water can be had for bathing *before the fire is lighted in the morning*; these two latter advantages are perhaps the greatest.

In reference to this subject, it is a great convenience if the range (if the boiler is in a range) is provided with a means of opening the fire, as, with an open fire a small quantity of fuel can be placed on it the last thing at night and it will burn in safety for a considerable time, and really *hot* water can by this means be obtained at an early hour in the morning if the apparatus is "insulated" as explained above.

If the felt is placed round the pipes and tank without casing it should be one or two layers thick, say about ½ in., so that the hand can scarcely perceive any heat when the apparatus is in full action; a single layer of felt will answer, but not so perfectly.

Boiler explosions are at all times most serious disasters, for not only is the damage very great, but if any living thing is moderately near at the time the result is almost certain to be fatal, and it is a much-regretted fact that three-fourths or nearly all the terrible accidents of this kind could have been avoided with ordinary care; the reason that this form of accident is so serious is that before the explosion takes place, the steam has to attain sufficient power to burst the boiler, which is from ¼ to ½ inch thick of wrought iron, compared to which the human body is a frail object, and suffers accordingly.

The causes of explosions at present known are, firstly, stoppage in both the circulating pipes, caused by frost or by the terrible practice of putting stop taps in these pipes, which prevents escape of steam generated in the boiler, and steam *must* and *will* escape if it bursts the boiler to effect its release.

Secondly, failure of water supply. This is sometimes caused by a hidden or unnoticed leakage, or in country residences where the water is pumped

this failure is not an uncommon thing (but only rarely results in an accident). If the want of water is unnoticed for a time, the boiler will empty itself by evaporation and afterwards become red hot; should the water then run in, steam will be generated so rapidly that the pipe outlets will not be sufficient for its free escape, and the boiler bursts; all this happens in much less time than is occupied in explaining it, in fact so quick that there is no time for escape if any one is unfortunately near; this, however, under ordinary circumstances cannot occur with the No. 1 system.

There is another though rare cause of accident (which, however, once came under the writer's notice) that may occur with either system, and that is the ends of the circulating pipes nearest the boiler becoming stopped by incrustation; this incrustation, as has been before explained, takes place in the greater proportion of boilers, and also to a less extent in the pipes, especially near the boiler, and in course of time the pipes will both become completely stopped, but the reason that accidents from this cause are rare is that abundant notice is given by the steam making a variety of unpleasant noises and sometimes violent shaking, in forcing its way through the partly closed pipes, but this noise must not always be confounded with the sounds produced when pipes are imperfectly run or "trapped" and contain air, but whenever noises are heard a practical man should be consulted at the earliest convenience, and if a tap is opened and no water should flow, after it has been open say one minute, the fire should be immediately extinguished and kept so until the reason of failure of water is discovered and remedied. No alarm need be experienced at the rumbling noise to be heard when the water is

boiling, but this water has no need and should not be permitted to boil; when the noise is heard, 4 or 5 gal. should be drawn off, this will be replaced in the tank or cylinder by the same quantity of cold water, and the temperature will be reduced; the damper which regulates the boiler flue should be out only when the water is cool and requires rapid heating; even then it must not be pulled out so far that the flame, &c., roars as it passes under the boiler, as the boiler will not experience the full benefit of the heat.

It has been suggested by some authorities that to prevent the water in pipes becoming frozen (this may be considered the most likely cause of explosion) a tap or taps should be left a little open at night so that the water is kept in motion; this, however, cannot be relied upon in a really severe frost, and it is also a waste of water, which is a consideration where the supply is by manual power, &c. Another method suggested is to empty the whole apparatus every frosty night; this is a very good plan to save damage to pipes as well as prevent accidents, but there is the doubt that but few would care to practise this on account of the trouble, and there is a serious risk if it is forgotten to turn the water on until after the fire is lighted. Tolerable reliance can be put on felting or casing the pipes, but the most efficient remedy is to see that the boiler is fitted with a safety valve, which, as the name betokens, is a source of safety and most probably of comfort also; if it is not convenient to attach a safety valve direct into the boiler, it should be connected by a short length of pipe, which however is a weakness, as the pipe may eventually be stopped by incrustation, and on that account it should be of good size and should be cleared, if necessary, every time the boiler is opened

for cleaning. Safety valves should always be fixed in sight so that they can be tested whenever desired. The working principle of a spring safety valve (which has general preference just now) is, firstly, a brass sealing which closes the opening leading to the boiler and is held in position by a spring and central pin, and the whole works in a strong brass case which is perforated with several good-sized holes; when the valve is fixed, the workman can and does set the spring (generally by a screw-down cap at top) so that it withstands about 3 or 4 lb. more pressure than the boiler is subjected to by the pressure of water; when by any reason an undue pressure is exerted inside the boiler it causes the seating to rise, and the steam and some water escape into the brass case and through the holes above referred to, and the boiler is relieved. The noise occasioned by this escape is *very* plainly heard, and notice is thus drawn, but the fire need not be extinguished.

It would be a desirable feature if every boiler fixed (except open ones) was provided with a valve, as it is purchasing freedom from risk at a low price (a few shillings only).

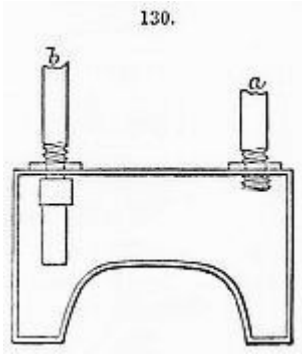
There is a common cause of complaint and annoyance in having at some taps to draw off a quantity of cold water that lies stagnant in the service pipe before the hot water can be obtained from the circulation; this is caused by the draw-off service being a long and single pipe, and can be only remedied by “returning” it something after the manner shown in the illustrations, and so cause the water to circulate along it; this trouble is not only a source of annoyance but a practical loss also, as for every quantity of hot water drawn a certain quantity is left in the service to get cold, and this happens

every time the tap is used, excepting such taps as are in constant use, and the water only remains stationary 2 or 3 minutes, but this in domestic purposes only applies to the scullery service at certain hours in the day.

It may have come to many people's notice that when some lever-handle taps are shut a noise and jarring in the pipe ensues; this is caused by the sudden stoppage of the flow of water when the pressure is considerable; when the vertical pressure is say 50 or 60 ft. (height of cistern above the tap) and the tap is opened, the water rushes out and gains a strong momentum; by turning the handle or lever of the tap the stoppage is so sudden that a shock is sustained almost the same as an object falling from a height being suddenly stopped by coming in contact with the ground; this concussion and noise is not only unpleasant but does harm, which is quickly noticeable with light lead pipe, which is either stretched or has protuberances formed upon it, and a continuance of the shocks or really blows will then cause it to split; it will be therefore commonly found that screw-down taps are used with lead pipe where any pressure exists, and the screw-down tap would meet with more favour but for an objectionable feature, which is the number of times it has to be screwed or unscrewed to shut and open it; but there are now made screw-down taps that open or shut with one turn, and these no doubt will come into more general use if found practically good and when the patent expires.

Retarded circulations arise from a variety of causes, amongst which may be mentioned incapacity of the boiler for the work, caused by the boiler not having sufficient heating surface; this is shown by

the whole apparatus becoming fully charged with hot water late in the day after several hours firing; the only remedy is to reduce the work the boiler has to do or change the boiler itself. Another cause is by pipes being dipped or trapped. The flow pipe having an inclination or dip downwards, which causes the circulation to become air-locked, this causes noises in the pipes and shakings as the steam is passing or trying to expel the air; this air is eventually expelled, but occurs again when the apparatus is emptied and recharged in boiler cleaning, repairing, &c.; to remedy this the pipes must be traced up and the defect so discovered. Another cause is by incrustation in the pipes; this can be noticed by its gradual growth, also incrustation in boiler, but if boiler is kept clear as referred to earlier in the chapter, the pipes will keep in very fair order. The only remedy for furred pipes is to take them out and by heating and striking to dislodge the deposit; this costs as much almost as renewing the service; with care in regular cleaning it will not occur. Obstructions either stationary or floating are sometimes found in the pipes and retard circulation; these are generally caused by the workmen failing to look through the tubes before fixing them, or the obstruction may be in the form of sediment in rural districts, &c.; the only efficient remedy that can be suggested is to engage the services of an experienced hot-water fitter in any of the cases mentioned, as it lies beyond the power of the householder to remedy them.



130. Flow Pipe.

There are a number of errors commonly found in apparatus that has been fitted up by those somewhat wanting in experience, such as connecting draw-offs from the return pipe in No. 2 system; result is that the whole of the water in the tank having to be heated before any hot water finds its way down the return pipe, it is naturally a considerable time after the fire is lighted before hot water can be obtained from the tap; connecting draw-offs direct from the tank, result nearly as bad as connecting from the return; dipping or trapping the flow pipe, causing circulation to become air-locked as before mentioned; connecting the cold supply to the tank or cylinder without forming a syphon (inverted) in the pipe, so permitting hot water to find its way up into the cold-water cistern: result, loss of heat and water lukewarm which should be cold; placing tank and pipes in very cold situations, causing serious loss of heat, as before explained. Another common error, or piece of bad work, is connecting or screwing the flow pipe through the top of the boiler so that it projects through the inner surface, as Fig. 130. Now when the apparatus is finished it is, of course, before being charged with water, full of air; when the water flows in, it expels the air as it fills, but it cannot expel the

stratum of air existing between the lower edge of the flow pipe and the top of the boiler; this is not noticeable when the water is cold, but when heat is applied and steam is generated, the steam naturally wants to expand into this space, but at the same time the air has no desire to be evicted, so a struggle ensues, and the steam is eventually the victor; but the struggle is fierce, and can be heard and felt in every part of a building of moderate size. The trouble does not end here, for when the position is gained, the steam has to pass away, when it has gained sufficient strength to force its way back through the water and up the flow pipe, and this is an unpleasant experience. Exactly the same result is obtained if the rising main is screwed too far through the top of cylinder or the expansion too far through the top of tank—an air or steam chamber is formed in either case; these pipes should be quite flush with or above the inner surface of the receptacles they are screwed into. There is no more annoying or alarm-producing error than this.

Still another error is in running the circulating pipes up a casing containing other pipes without felting the former, or even without separating them; the result of placing a hot pipe against a cold one for several feet is obvious, and if a hot pipe is placed against a soil (w.c.) pipe, the result is offensive; these errors are commonly found. There are numberless minor errors to be met with; to enumerate all would occupy much space and be of no real use to the reader. Errors are not uncommon things in this work, and some of them are of so extraordinary a nature as scarcely to be creditable. An objectionable feature in an old apparatus is the small supply or feed cistern fixed at the side of the tank, but this is now almost totally in disuse, for it has at last dawned upon some

one that it is quite unnecessary; this feed cistern must have a ball valve or cock, and, this is where the mischief lies, no reliance can be placed on a ball valve or cock of any description; they are commonly a source of never-ending trouble. We give this description, as there are some people who still persist in the use of this secondary cistern.

Discoloured water is sometimes caused by the rust that is naturally created in new work, and lasts but a short time, as the pipes get covered internally with a very thin coating of lime, which then prevents the water coming in contact with the metal of the pipe.

Water is discoloured to a greater or less extent if it is permitted to boil very hard, as this agitates any loose sediment that is lying in the tank, and the boiling is much like churning the water.

The water in the tank or cylinder should not be permitted to boil, as it creates an unpleasant noise, and is a certain strain upon the work, and answers no good purpose; it can be stopped by drawing a quantity of water off, so causing cold to flow in, but the remedy is to keep the boiler flue closed by the damper; if this does not prevent the overheating of the water, there is the possibility that the flue is out of order, or “leaks.” This can be tested by closing all the dampers when fire is in working order, which in the ordinary way would cause all the smoke to be discharged into the room; if this is not the cause, there must be an improper exit for the smoke and heat, and a loss is of course being sustained.

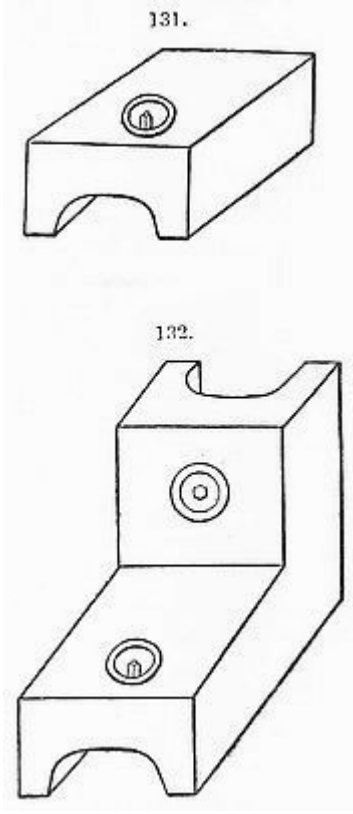
Coils and hot-water pipes for heating a small conservatory or chamber are sometimes connected with the circulating service, or direct by a distinct service from the boiler, but there are no especial rules to be observed in using these, as there are only

stop-cocks to be turned on or off as the requirements demand.

It may now be useful to give a few hints to those having a new apparatus fitted.

There is a rather old saying to the effect that the "best is the cheapest": this especially applies to hot-water work. It would be waste of time and space to enumerate the evils of cheap work of this description, as the list would be a very long one. The best plan is to apply to a good firm (not necessarily a large one) who makes somewhat a specialty of this branch (generally boiler or stove manufacturers, or good plumbers and builders). They will provide an estimate of cost with *detailed* specification free of charge if the distance is not great. The object of a *detailed* specification is, as probably the reader guesses, to know exactly what size, strength, quality, &c., of boiler, cylinder, or tank; pipes, iron and lead; cocks, &c., &c., that are to be used; and before finally deciding, the purchaser should insist upon the efficiency of the apparatus being *guaranteed*. Boilers are of many various shapes and sizes, but the best form has been proved to be that with a good flue or heating surface underneath, so as to present as much bottom or under surface as possible to the flame and heat; the best surface is easily determined by any one, by applying the heat to the top of a kettle, and afterwards applying it at the bottom, and noting the difference in results; there are many other perhaps better forms of boilers made for heating purposes; but it must be remembered that the boiler for hot-water supply must not be of complicated form inside, but must be quite clear, offering every facility for removing the incrusted deposit. Fig. 131 shows the common form of boiler used in kitchen ranges; the

size must be governed by the capacity of the range itself, but it should have as great a width and length as possible, to increase the bottom surface; and the flue should be as large as the size of fire will possibly permit. A most important point is to see that the boiler has a large manhole *easily accessible*.



131. Common Boiler.
132. Improved Boiler.

Experience has proved that the best material from which these boilers should be constructed is wrought iron or copper; the wrought iron should be of $^{5}/_{16}$ in. or ⅜ in. substance, and copper can be of a little less substance except the front where the external wear

and tear takes place (chiefly by the poker). The principal of these remarks apply to independent boilers also, which, however, are generally set in brickwork and are of larger capacity and strength in proportion. Fig. 132 represents a more powerful form of boiler for domestic purposes, and is found a very rapid heating and efficient shape, in instances where a large number of draw-offs are in use, or a coil or heating pipes are in connection. Care should be taken to avoid boilers with narrow water-ways where the heat is applied; there are occasionally made boilers with 2 projecting horns or cheeks which occupy the place of the fire-bricks in the range firebox; these narrow parts, which are subjected to almost the most intense heat, will fur up solid and crack in 6 months with London water. The advantages of a copper boiler are quicker heating, greater durability, and greater expansion and contraction, which prevents the incrustation adhering to the surface so firmly as it does inside an iron boiler; and although a copper boiler is of greater first cost, yet when worn out it is of almost sufficient value to purchase a new iron one.

These boilers are recognised by several names, viz. “high pressure,” “Bath,” and “circulating,” &c., boilers. The first term is generally known.

Cast-iron high-pressure boilers have now gone almost entirely into disuse on account of the unsatisfactory results experienced.

Safety valves have been generally treated of in an earlier part of this chapter, but it might be impressed upon the reader that the valve should be as near as possible or directly in the boiler; they are sometimes put in the circulating pipes or in the cylinder or tank, but this is away from the seat of danger; it would be

a rarity to hear of a cylinder or tank exploding.

The reason that cylinders are used when the No. 1 system is adopted, and tanks with No. 2 system, is that the cylindrical shape is better adapted to bear the greater pressure; otherwise a tank would answer as well to all intents and purposes; to show the pressure-resisting strength, a tank of ⅛ in. plate is tested and warranted to bear 5 lb. pressure to the square inch. This is equal to the cistern being 10 ft. above the tank, whereas a ⅛ in. plate cylinder is tested and warranted to bear 25 lb. pressure to the square inch, equal to 50 ft. In speaking of pressure by feet this alludes to the *vertical* height between the cylinder or tank and the cold cistern; it does not matter what size pipe connects them. A cylinder or tank can generally be depended upon to bear a little greater pressure than they are tested to. There are 3 or 4 strengths made to meet the various requirements, and the makers' lists show what pressure they are tested to in lb., and every lb. can be calculated as equal to 2 ft. of vertical pipe.

The general sizes of tanks and cylinders for domestic purposes vary from 30 to 60 gal. according to requirements; the disadvantage of too large a tank is the time taken in heating its contents and completing the circulation, and in some instances the space it occupies; tanks of 100 gal. capacity are sometimes fixed in residences where there are only 4 or 5 taps (hot water). This is much too large for any but large mansions or for business purposes; for say 5 taps, including bath, a 50 gal. tank or cylinder will be found large enough and will admit of 3 baths in succession about 1 hour after lighting the fire.

The pipes or tubes commonly used are iron steam tube, galvanised iron steam tube, iron gas tube, or

barrel, and lead pipe; the two latter, though commonly found, should be avoided as being totally unsuitable for this work. Gas barrel is sometimes used on cheap work and in small speculative property, and answers well, when no real work is put upon it; but no respectable firm would undertake to use it, as satisfactory results cannot be relied upon except under very favourable circumstances.

Steam tube, commonly known as “red steam” tube on account of its colour externally, is much like gas barrel, but especially strong for engineering purposes, and the utmost reliance can be put in it. Galvanised steam is the same quality tube, but galvanised to prevent rust; this is much liked, and is absolutely necessary in some districts where unprotected iron rusts at an alarming rate; but care should be exercised to see that it is galvanised *inside* as well as out; preference, however, is on the side of the “red steam” as it is considered that the tube is deteriorated in strength by the process of galvanising.

Galvanised iron boilers are sometimes used, but the same remarks apply as are given respecting galvanised pipes.

The best size of tube for ordinary domestic purposes is 1¼ in. internal diameter for the circulation and 1 in. for the major portion of the draw-off services; ¾ in. may be used for minor purposes, as lavatory draw-off, &c. There are, however, many apparatuses being fitted at the present moment with 1 in. circulation and ¾ and ½ in. draw-offs, and even ¾ in. circulations are to be met with; but the advantage of a good-sized pipe is the freer flow of water when taps are opened, and most important its less liability of being stopped or

rendered unfit for use by incrustation; 1¼ in. tube has fully 30 per cent. more inner surface than 1 in., so that it would take a third longer time to get a ¼ in. coating of deposit in a 1¼ in. tube than it would in a 1 in., and when this thickness has accumulated, the 1 in. tube requires renewing, whereas the 1¼ in. is fit for still further service, so that it can be calculated that 1¼ in. tube will last about double as long as 1 in. so far as incrustation is concerned, and this incrustation, as the reader now knows, is an important element requiring every consideration in almost all districts.

When *circulating* pipes have to be carried round angles, bends (which are nearly a segment of a circle) should be used invariably, and not elbows, unless absolutely necessary in rare instances. A bend permits the water to circulate round the angle much more freely than an elbow, as the turn in the latter is abrupt, and tends to check the circulation; this only applies to the circulating pipes; it should also be seen that connecting-pieces known as “connectors” are inserted at intervals where they will be of practical use, as they permit of a piece of pipe being removed without disconnecting the whole service, as is so often necessary for a small repair or inspection. A connector is a piece of the tube with the socket so arranged that it performs the function of a union.

When an apparatus is being fitted up, it must be borne in mind that the most perfect arrangement would be to place the tank immediately over the boiler, and carry the pipes in a vertical line between them; this can rarely, in fact, never be done, so it should be arranged and carried in a manner as near this as possible; every angle and every piece of horizontal pipe is objectionable, but regard must be

had for positions where the pipes or casings would be unsightly. Where pipes *must* be run laterally, they should if possible be given a rise towards the cylinder or tank if only 1 in. in 5 ft., but more if possible; these remarks only apply to circulating pipes.

The “flow” pipe should always proceed from the top of the boiler, never from the sides or back (although this is often done), as it will be understood that the heated water, wanting to rise, much objects to starting along a horizontal pipe however short, and another reason is that an air chamber will be formed in the top of the boiler, and cause much annoyance already alluded to.

In No. 1 system the cylinder and circulating pipes cannot well be placed in a cold position, but with No. 2 system ingenuity must be exercised to carry the pipes and place the tank in as warm positions as possible near to chimneys and not on outside walls, &c., if possible; it is time well invested to cover the pipes and tank with a non-conducting covering in any case for the reasons already stated. Pipes should on no account be let into the wall and cemented over, as, with the best work, investigation may at some time be needed, and this would necessitate serious damage to the decoration of the wall in question. On no account sanction the idea of carrying circulating pipes outside the building, however well or carefully they are to be cased or covered. These remarks apply also to the cold-supply pipe to prevent failure in supply by frost. It is also necessary to see that neither circulating pipe comes in contact with a cold-water pipe or a soil (w.c.) pipe.

It will be noticed in the illustrations that before the cold supply enters the tank or cylinder, it

descends below its entrance level a short distance, about 12 in., and rises up to the tank or cylinder; this dip in the pipe is called a "syphon," and prevents the hot water rising up this pipe, as it must be understood that hot water *will not* circulate downwards.

The cold supply is usually of lead pipe ¾ in. internal diameter, but lead pipe is quite unsuited for soft or pure water (distilled). The same applies to lead cisterns, as this water attacks (oxidises) lead vigorously, and lead pipe is not looked upon with favour for many reasons. Iron is now often used for the whole apparatus, including cistern, tank, &c. (excepting where copper is used for boiler or cylinder). There is a marked advantage if the cold-supply pipe is 1 in. instead of ¾ in., for this reason, if two or three ¾ in. (usual size) taps are opened at once, as commonly occurs, the flow of water must be reduced at each of them if only a ¾ in. supply exists.

The advantages of draw-off services being "returned" have already been explained, and cocks or taps have been treated upon. There are numberless good cocks in the market, but of course the best are subject to wear and tear; those with lever handles, known as plug cocks, have to have the plugs reground in occasionally, and with the screw-down cocks the sealing, generally of prepared indiarubber, has to be renewed periodically; but money is well invested in really good quality taps.

If after the apparatus is fitted and finished there are any leaks noticeable, the purchaser should insist upon these being remedied before the workmen finally leave; there is a common saying amongst workmen that small leaks or "weeps" pick themselves up, i.e. the aperture rusts up; very small

leaks will pick themselves up sometimes, but no reliance can be placed in this unworkmanlike way of finishing, and it is commonly necessary to have the men in the house a second time to remedy one or more obdurate “weeps,” which are really defective joints.

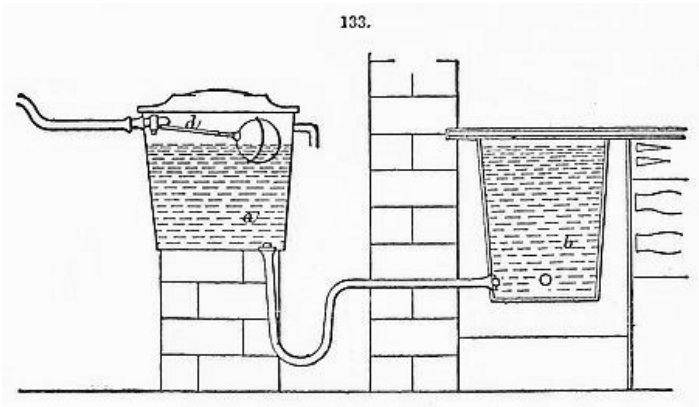
Baths and lavatories are of very numerous variety; but a good feature with a bath is to have the hot-water inlet near the bottom, so that when the taps are opened this inlet quickly becomes below the water level, and this prevents the steam rising as the water is discharged, rendering the room unbearable if small; but this inlet *must not* be in any way connected with the waste outlet as it often is, as when the water runs in it will bring back a portion of the last bather’s soapsuds. A good feature in a lavatory basin is a flushing rim: the rim of the basin is hollow and provided with a fine slit or aperture which extends all round its lower edge. When the tap is turned, the water is discharged into this rim, and from there flows into the basin, through this aperture around the whole of its circumference; this is of especial use to wash away sediment from the sides of the basin after use.

Both baths and lavatories should have large supplies (hot and cold) and large wastes, to fill and empty rapidly.

No. 2 system can, when desired, be converted into No. 1 system at a moderate expense (about one-third the cost of a new apparatus); and a range can be fitted with a high-pressure boiler in such a manner that it can be used for low-pressure purposes first, and when the high-pressure apparatus is fitted up it can be connected and started to work upon the latter principle in 2 or 3 hours.

If two ranges are in proximity they can both be provided with high-pressure boilers and the two services united, flow to flow and return to return, and work the one tank or cylinder and apparatus, either assisting each other or working independently. This is oftentimes a very great convenience; the union of the services should be as near the boilers as possible; no stop taps are needed (avoid these whenever possible).

Twin boilers can sometimes be fitted to a range, and each used for a different purpose, viz. one for hot-water supply, and one for steam cooking, &c.

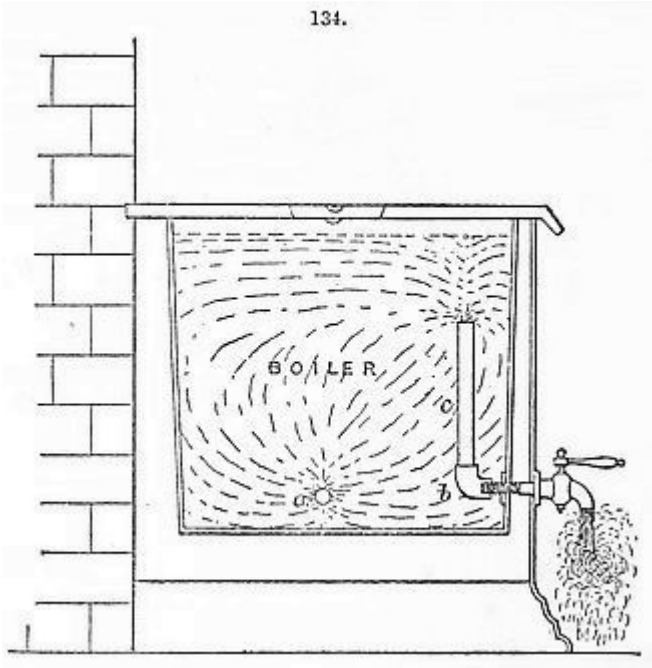


133. Self-filling Apparatus.

Fig. 133 represents the common form of self-supply or self-filling apparatus as attached to low-pressure boilers in kitchen ranges. By the term “low pressure” is meant open top or closed boilers that are not usually filled quite full, and the draw-off is below the water-level within them. *A* represents the small supply cistern, which is supplied from the general cold supply of the house; the quantity and level of the water in this small cistern is regulated by a ball

valve *D*, as shown; this cistern is connected with the boiler *B* by a supply pipe *C*, usually of lead and ¾ inch internal diameter, and provided with a "syphon" as shown, and for the purpose described in cold supply to tanks, &c.; this supply proceeds from the bottom of the supply cistern *A* to the bottom or near the bottom of the boiler *B*. There is a very common error in arranging the apparatus so that the boiler fills up to about 4 in. from the top; this is not high enough, it should fill up to within about 1½ in., this is ample room for expansion and boiling; if a 4 in. space is left it means 4 in. for the flame and heat to act upon without having water to protect it, and consequently it becomes destroyed. This does not always produce a leakage, but it permits the smoke and soot to enter and discolour the water. There is another still more common form of error in this description of apparatus, and that is, failing to draw from the upper part of the boiler where the hottest water is, and where it first becomes hot; it will be understood from Fig. 133 that when the tap (if placed near the bottom of the boiler as usual) is opened, a portion of the contents of the boiler flows out and a supply of cold immediately flows in, to make good the loss. Now the hot water being lightest, remains at the top of the boiler, so it can readily be seen that it cannot be drawn, for it will not descend, and the inflow of cold is right opposite the tap, therefore when the tap is opened a small quantity of hot water is drawn, and then there sets in a flow of cold water from the cistern, across the bottom of the boiler, and out at the tap almost without disturbing the hot water in the upper part of the boiler. There are two remedies; one is to have the tap inserted in the upper part of the boiler (by the manufacturer) when purchasing it; another is with

existing ranges to screw an elbow on to the end of the tap *inside* the boiler, and into this elbow to screw a short length of pipe to stand up to about 4 in. below the water-level, as in Fig. 134; this elbow and pipe can be fitted by any one, as no jointing is required, and to fit it the tap does not require to be moved in any way. The reason that it is necessary to keep the end of the pipe so much below the water-level is, that the ball valve by which the cold water is supplied is smaller than the tap from which the water is taken, or, in other words, the inlet is smaller than the outlet, and the level of the water sinks or becomes lower in the boiler and cistern as you draw.



134. Draw-off Tap.

It cannot be too strongly impressed upon the reader that good work executed by a good firm, although the expense is increased, is a source of

comfort and many advantages, and is “the cheapest in the end.”

Preventing Frost in Pipes.—The common practice is to leave a tap slightly open, so as to maintain a constant current through the pipe. This plan is wasteful, and is not always successful. Perhaps the safest course is to empty the pipes and cisterns, and only to allow water to flow in from the main as it is wanted for consumption. To do this an outside stop-cock is required on the service pipe, and a drawing-off cock at the lowest point in the course of the pipe inside the building. It also requires more intelligence and attention than domestic servants usually display. Another way is to empty the pipes only. For this, a valve of special make is screwed to the end of the house main service pipe in the cistern, and a piece of wire is connected with it to any convenient place. When frost is expected, the spring must be unhooked, when the valve falls into its seat, and air being admitted through the small pipe which rises above the surface of the water, the pipes can be emptied by turning on the taps in the usual manner, and the water in the cistern is thus saved. To prevent the effects of forgetfulness on the part of servants, electricity has been employed. Again, a means of emptying the pipes as soon as the water is turned off at the main, so as to leave none to freeze, is to perforate the supply pipe by a mere pin-hole aperture just behind the ball-cock of the lowest cistern on the premises, so as to allow the water contained in the pipe to drain into the cistern when the supply ceases. It is obvious that the puncture must be in the most dependent part of the pipes, otherwise the water would not entirely escape, and that other punctures will be required if the lowest one does not drain the pipes of other cisterns. This

plan can only be adopted where the supply is intermittent. Where the supply is constant, a small warming apparatus may be placed at the lowest level the pipe reaches, so as to circulate a current of warmed water throughout the whole length of the pipe. This might be either separate from it, as a cylinder through which the pipe might pass, or simply an enlargement of the pipe itself, on which the gas flame could play. Considering the enormous injury done annually by frost bursting the pipes in houses, the small outlay that would be required would soon be repaid in security from such disasters; for if the warming apparatus were placed over a gas flame used for ordinary illumination, a very small additional consumption of gas would keep the vessel warm when the light was no longer required. If gas were not available, the water-pipe might be arranged to pass through a vessel connected with the kitchen boiler, and so obtain the required heat. But failing these, the pipes might still be supplied at night after turning off the water, even where the supply is constant. Thus the chance of its freezing would be reduced to a minimum.

To thaw a frozen pipe, the simplest and safest way is to pour hot water upon it, or apply cloths dipped in hot water to those points where the pipe is most exposed. The freezing will generally be found to have taken place near a window, or near the eaves of the roof, or at a bend. If pipes are frozen and a thaw is expected, care should be taken to close all stop-cocks as a precaution against flooding. To prevent kitchen boilers exploding, it is necessary to see that they always contain water, and that there is no stoppage in the pipes connected with them.

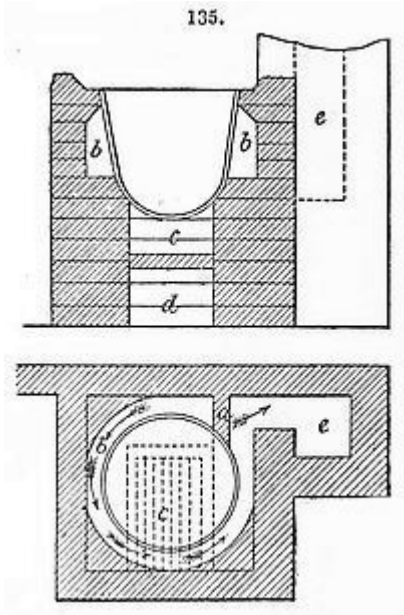
F. Dye.

See also p. 1009.

THE LAUNDRY.

DOMESTIC WASHING.

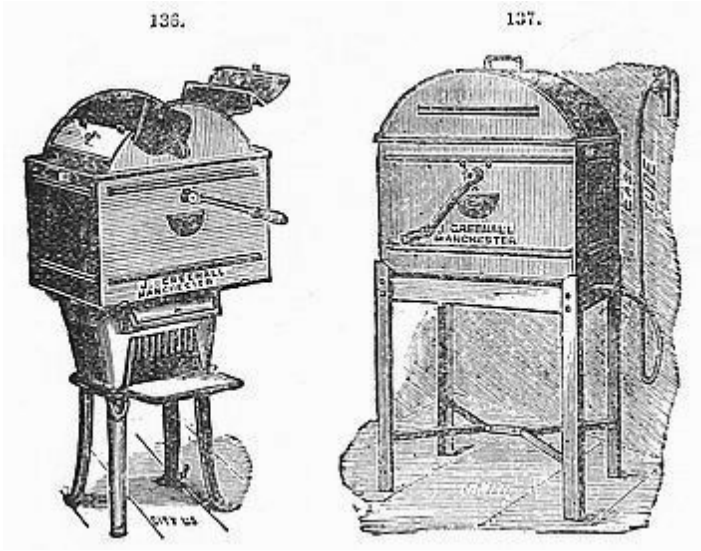
The great cost of having household and personal linen washed at a laundry drives many housewives to have their washing done at home. The methods of cleansing clothes &c., have been already described in another chapter; it remains to say a few words about the apparatus.



135. Washing Copper.

Certainly the most common form of washing apparatus is the familiar "copper," a large metallic pot set in brickwork, as shown in Fig. 135. The point to be aimed at in setting this pot is that the flame shall pass as nearly as possible all round it. Care must be taken to cut off all communication with the fire except at the outlet shown, and to erect a brick-on-edge stop *a*. The flues *b* should be not less than 3 in. wide, and 3 courses deep; *c* is the fire-place, *d* the ashpit, and *e* the chimney.

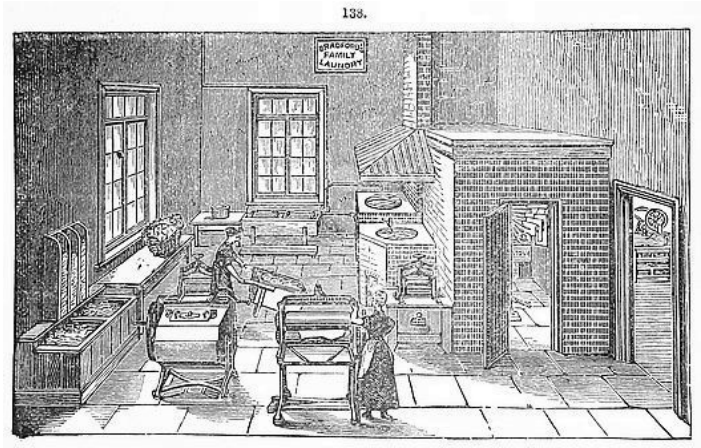
The boiling, scrubbing, and emptying incidental to this plan of washing should be sufficient to condemn it everywhere; it entails much labour, is wasteful of fuel and water, and most destructive to the articles, which are only partially washed after all.



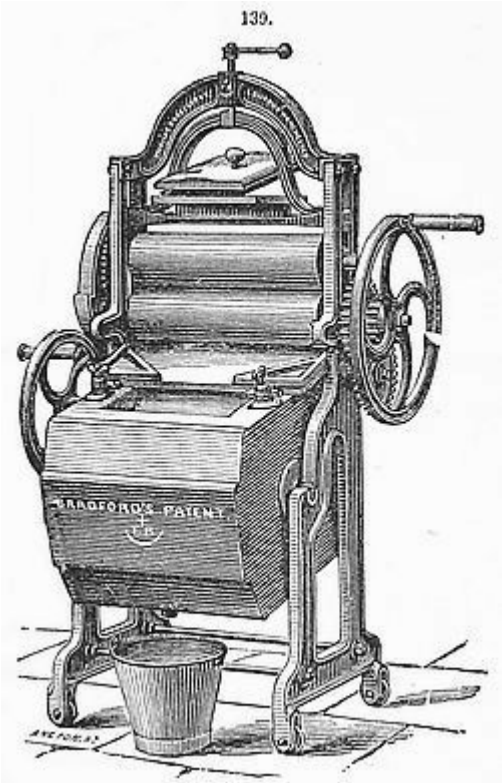
136. 137. Greenall's Steam Washing Apparatus.

A most useful improvement on this crude system is the little steam washer introduced by J. Greenall, 120 Portland Street, Manchester, of which two forms are shown in Figs. 136 and 137, heated respectively by gas and stove. It entirely abolishes all rubbing and brushing of the clothes, thus saving a great amount of work and wear and tear. The set copper or boiler is dispensed with, and not half the usual quantity of soap is required. It will wash a fortnight's washing for a family of 8 persons in 2 hours, and can be easily worked by a child. It improves the colour of the linen, keeps it as white as snow, and does not injure, or wear in the least, the most delicate fabric. The cost of gas used is very trifling, being only ½*d.* per hour (16 cub. ft.). Being made of copper throughout (with the inside parts coated with block tin) it cannot rust and ironmould the linen; is very strong and durable, cannot get out of order, and

there is no offensive smell from the gas. It may also be heated by coal or charcoal stove, oil lamp, or in the case of specially large machines, by steam pipe from boiler if desired. The clothes only need steeping in water for a few hours, or overnight; then wring them out, soap well, put them in the cylinder, and when the water in the machine boils, turn slowly for 10 minutes, then turn them out and rinse thoroughly, blue, and wring out, and they are ready for drying,—without any rubbing, brushing, peggying, or boiling in the ordinary boiler. The water (3 in. deep in machine and 1 in. in cylinder) is made to boil, and is kept boiling by gas-burner or coal-stove on which the machine rests; thus steam is continually rising and passing through the articles which have been placed in the cylinder; the dirt is carried off by the expansion of the cold water with which they were saturated, and, as the cylinder revolves, the clothes are always changing position, and the dirt is washed out and got rid off. The clothes are washed in steam, and will be found cleaner, whiter, and purer than when washed by any other process. It is made in various sizes and at corresponding prices.



138. Hand Laundry.

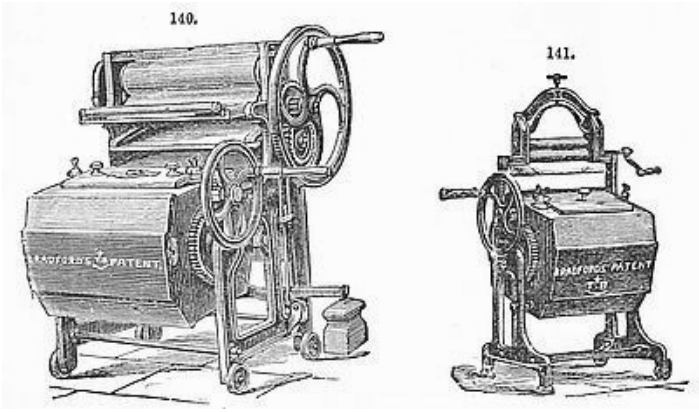


139. “Vowel A 1.”

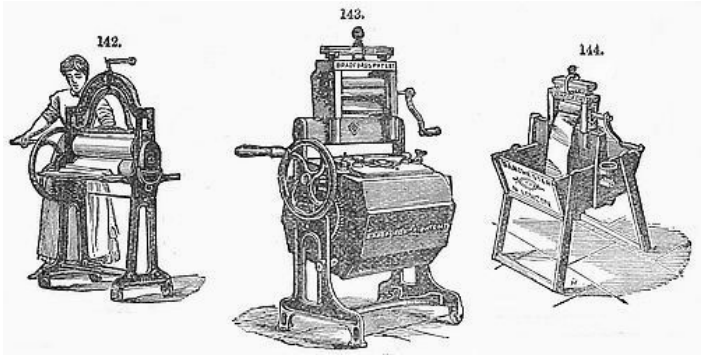
Bradford’s Domestic Laundry Fittings.—When for economy and convenience it is desirable to do “washing” at home, the first consideration is a suitable copper for providing hot water for washing, and for boiling the clothes in after they are washed. A copper boiler seated in brickwork is generally adopted, but where there is no room for seating such a copper, a galvanised iron or copper pan, self contained in an iron frame and fitted with furnace, is recommended. This can be easily connected by means of an iron flue-pipe to an existing flue. After having provided for hot water, the most important

appliance in the laundry is the washing machine, of which several kinds have been made, but the most popular and the one that has stood the longest test is Bradford's "Vowel" machine, of which, we are told, the sale is increasing every year. It is made in sizes to suit the various requirements of households. It may be desirable that we should here state the principle of this machine. It is an octagonal box, with internal fixed ribs and a midfeather collecting and delivery board. The machine is turned slowly, so that the clothes turn from the different ribs and angles, rubbing one article against the other, and at each revolution collecting them by the fixed midfeather boards and raising them to a point, when they slip from the board on to the first rib, where the rubbing is again taken up. There being no movable internal machinery, it is obvious there can be no injury to the finest articles washed; in fact, lace articles, muslin curtains, and delicate fabrics are washed in this machine without any injury whatever. For a small household of, say, six or eight persons, and where space is somewhat limited, the "Vowel A 1" combined washing, wringing, and mangling machine (Fig. 139) is recommended, and for a larger household of, say, 12 to 16 persons, a "Vowel E" combined washing, wringing, and mangling machine (Fig. 140). Where, however, in addition to the wash-house there is a convenient room that may be used for the laundry, separate machines will be found most desirable, as follows: for the small household, Bradford's "Vowel Y" combined washer and wringer (Fig. 141), the washing compartment of which is equal to that of the "Vowel A 1," and will wash at one time a quantity of clothes equivalent to about 8 shirts, 3 or 4 large sheets, or a large double blanket or counterpane—and a rinsing and blueing trough,

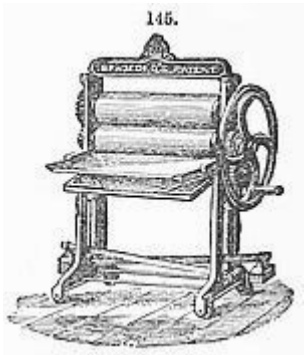
fitted with “Acorn C” or “CC” rubber wringer. The best blue is Keen’s Oxford blue, which is used in many of the largest laundries, and always gives satisfaction. The blueing trough is furnished with two compartments, one for first rinse or “sudding” water, and a second for blueing, a movable board being provided, which can be placed on either side to catch the things as they fall from the wringing rollers. This trough and wringer can be subsequently used for wringing starched goods. In addition to the above a mangle will be needed, and the “Reciprocal” is the most popular (Fig. 142). The No. 79 with 21″ rollers, or No. 80 with 24″ rollers, is a very suitable size for working in conjunction with the washer and wringer before named.



140. “Vowel E.” 141. “Vowel Y” Combined.



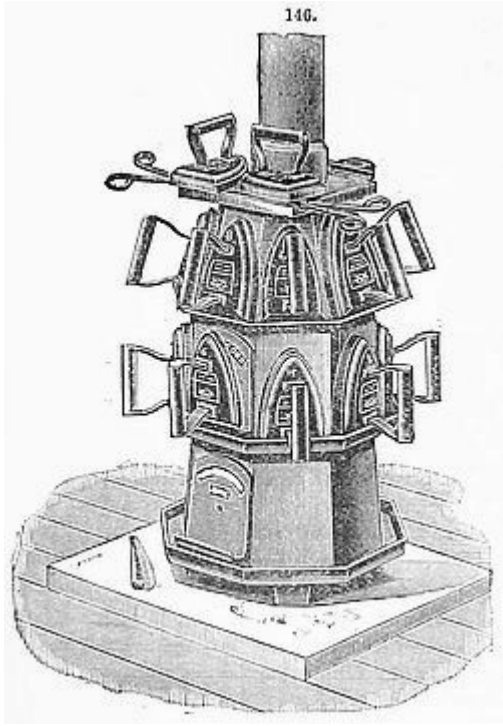
142. Reciprocal Mangle, With Patent Spring and Bar.
143. "Vowel A." 144. Rinsing and Blueing Trough.



145. Lever and Weight Mangle.

For a large family requiring separate machines, the "Vowel A," with "Acorn" rubber wringer, is advised (Fig. 143). The washing compartment of this machine is equal to that of the "Vowel E" combined machine, the capacity of which is 12 to 15 shirts, 3 pairs of sheets, 2 large counterpanes or double blankets, or other articles in proportion. The rinsing and blueing trough (Fig. 144) is also required, together with a larger sized mangle—No. 81 "Reciprocal," or No. 1 or No. 2 lever and weight machine (Fig. 145). In the larger sizes of these two-roller mangles the lever and weight machine is

preferable—the advantage is that the pressure is self-regulating.



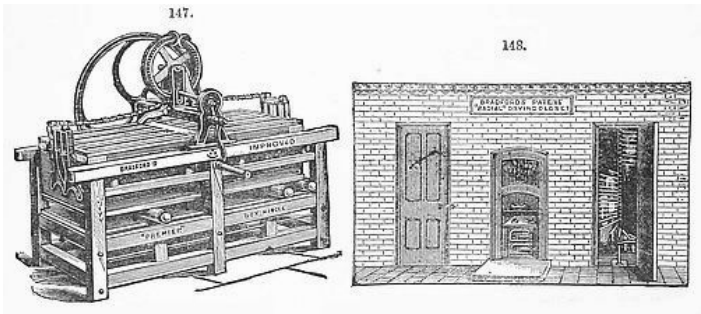
146. Pagoda Stove.

Amongst other articles for the laundry is the ironing stove, and Messrs. Bradford and Co. have recently introduced a novelty in this respect, viz. the "Pagoda." This stove is made in many sizes, but the No. 12 is large enough for family purposes (Fig. 146). It requires very little fuel, but every part of it is heated, and in addition to heating about 12 flat-irons it throws off a regular heat in the laundry for drying or airing. It is well known that for the maintenance of good colour in the linen it is always desirable as far as possible to dry out of doors, but in this uncertain climate of ours fine weather is not to be

depended upon, and for convenience in drying in wet weather a frame or rack fitted with rails is provided. This rack is raised to the ceiling or lowered for filling, by means of lines and pulleys. It should not be fixed immediately over the stove, but sufficiently aside that, when lowered, articles hung on the rails will not touch the stove.

This racking is also useful for airing linen after it is mangled or ironed.

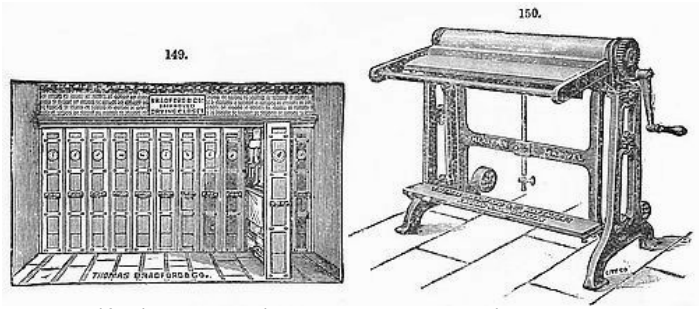
For all other laundry sundries, such as flat-irons and stands, goffering tongs, clothes baskets, &c., &c., we recommend our readers to do as we have done, viz. pay a visit to Messrs. Bradford's Show-rooms, 140 to 143, High Holborn, where they will find everything, from a hot-water boiler to a linen press.



147. Premier Box Mangle. (The most perfect Box Mangle ever made.)
148. Bradford's Patent "Radial" Drying Closet.

Having described the appliances adapted for small and medium sized families, we now come to larger establishments, such as mansions, schools, hotels, &c. For such establishments similar machines will be required, but of larger sizes, and instead of the two-roller mangle a "Premier" box mangle (Fig. 147) is recommended; and for drying, a "Radial" or "Draw-

out" drying closet (Figs. 148, 149). The "reversible" stove in these closets is so constructed that it serves for heating flat-irons as well as for drying or airing the clothes. Messrs. Bradford have also recently introduced a new ironing machine ("The Little Marvel"), the price of which is 10*l.* 10*s.* (Fig. 150). This machine consists of a concave heated plate, under which is fixed gas heating apparatus, or a furnace for fuel. The roller, obtaining the requisite pressure by means of weights fixed upon the ends of levers, works in this heated plate, and draws the articles to be ironed over its surface, producing a finish much superior to that obtainable by hand, and in considerably less time. The machine can be worked by a girl.



149. Bradford's Improved "Draw-out" Drying Closet.
150. Bradford's "Little Marvel" Ironing Machine.

Steam Laundries.

In connection with steam laundry machinery for use in large institutions, hotels, and public steam laundries, we cannot do better than describe one of the many successful laundries that Messrs. Bradford have fitted up during the last 25 years, and which contains every appliance and a system likely to be conducive to good and successful work.

We cannot, however, pass on without briefly referring to the first important steam laundry started by Mr. Bradford at Upper Norwood in 1865, and which is still working with the most gratifying results. Ever since, and especially during the last few years, the development of this branch of industry has been simply remarkable, adding not only to the convenience of the public but also to the means of employment of girls, women, boys, and men in very large numbers.

Reverting to Mr. Bradford's original laundry, we find that although some of his latest novelties are worked there, many of the appliances which were put in the laundry when it first started are still working—a sufficient evidence of their substantial character.

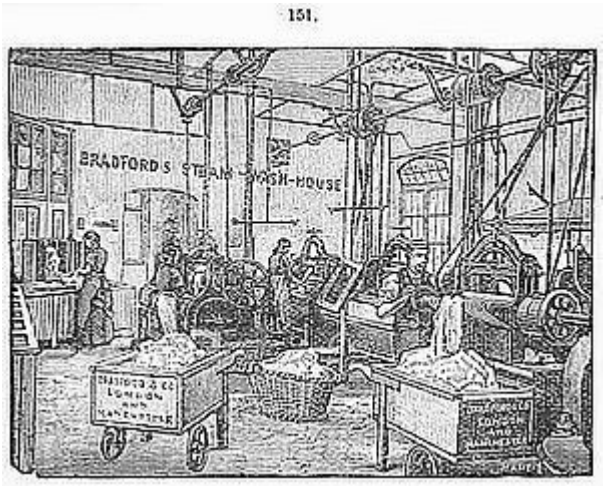
At the entrance to a steam laundry should be a covered way, for the vans to stand under when loading and unloading, and the vanmen should deposit the linen in the hall when they bring it from customers, keeping each load separate. Space is also here provided for the storage of empty baskets. On one side of the hall at the laundry in question is a door, leading to the

Receiving and Sorting room, where a female clerk checks the customers' books as the goods are counted by an assistant. Books are provided by the laundry in which are printed detailed lists of ladies', gentlemen's, children's, and servants' washing, blank spaces being left for the customers to insert number of articles sent, and for any special instructions.

In several partitioned compartments young women examine the linen—each family's being kept distinct —to see whether it is marked with the customer's name, and to all articles not so distinguished a

private coloured cotton mark is attached.

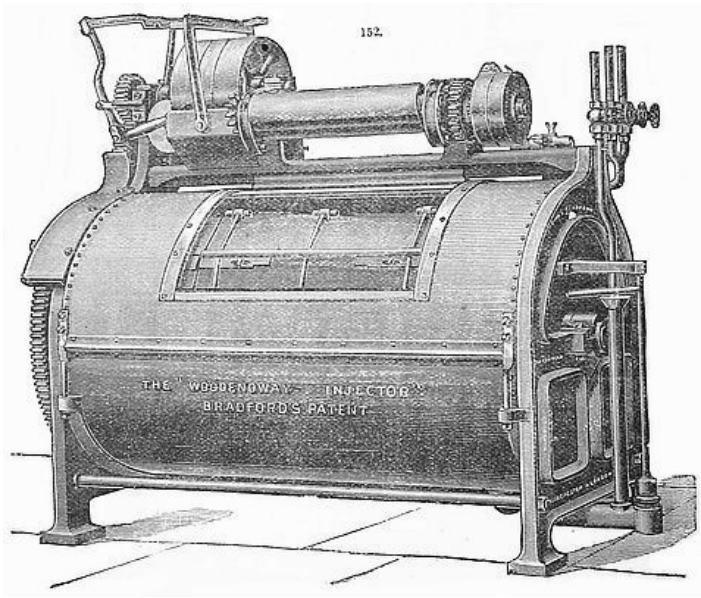
Leading from the Receiving Room is a long passage, on one side of which is a number of clothes bins, each marked with the name of the class of linen it contains. On the opposite side of this passage is a small private wash-house, intended for special work.



151.

The General Wash-house (Fig. 151) is furnished with 4 Bradford's "Vowel" washing machines—2 large size for house linen and large quantities of work, 2 smaller size for finery, handkerchiefs, and small quantities of goods. These machines are similar in principle to those referred to in the paragraphs relating to domestic machines, but wash at one time any quantity of linen up to, say, 150 men's shirts. Each machine is fitted with cold water and steam boiling apparatus. The water is first let into the machine, and then heated by steam to whatever temperature is required, and the requisite quantities of dissolved soap and soda are then added. Specially constructed boilers are provided, one for dissolving

soap and the other for dissolving soda; and the proportions of soda and soap put into the machine are suited to the class of goods being washed. The consumption of soap in these machines is very small, owing to the moderate quantity of water used for washing; in fact it is one of the essential points that only sufficient water be employed to thoroughly saturate the clothes.



152. Steam Power Washing Machine.

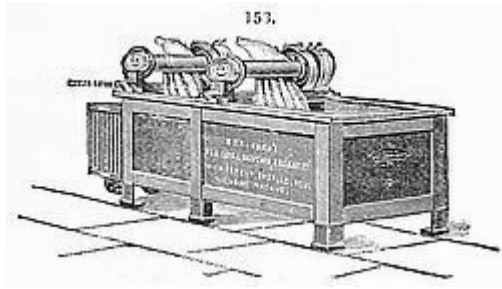
The time occupied for washing a batch of linen varies from 10 to 20 minutes, some things of course requiring longer than others. As before mentioned, there are two machines of each size. After washing in the first machine, the linen is passed between the indiarubber rollers—which wring out the dirty suds —and then placed in the second machine in clean hot water and soap for the second or clearing

operation; the time occupied for this clearing is about 10 minutes. During the time the clearing is going on, steam is let steadily into the washing compartment, and in many cases the clothes are during this second operation boiled in the machine, after which cold water is let in to cool them down, so that they may be easily lifted out by hand. The suds that have been used for this seconding operation can be employed, with a little additional soap and soda, for the first washing of another batch of goods. It will be seen that the time occupied for actual washing is very short, so that in addition to the washing machine having no internal mechanism to operate deleteriously upon the clothes, the time occupied is so short that the wear upon the linen is reduced to a minimum, and the advantage of the "seconding" process is obvious to anybody as being important for thoroughly clearing the linen from discoloured water and soap suds. Although, as already stated, steam is attached to the washing machine, so that clothes can when desired be boiled in the machine, yet many articles require separate boiling, such as body-linen, and for this purpose tanks are provided.

Boiling Tanks are fitted with special arrangements for steam boiling and hold a large quantity of clothes and water, the latter being very essential for the maintenance of good colour in the linen. The linen is constantly floated and turned over by pressure of steam rising through the water, keeping it in perpetual agitation.

The original system for boiling in these tanks was to drop the clothes into the water, pushing them down with a copper-stick, and, after boiling, to lift them out on to a drainer by means of the copper-

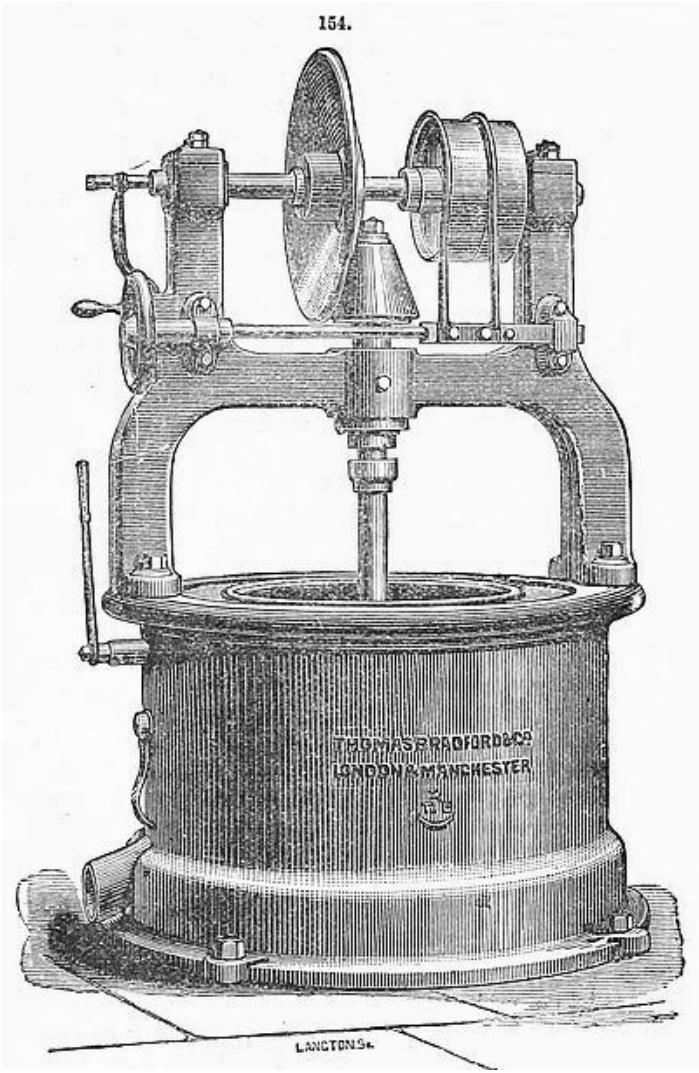
stick; but Messrs. Bradford have recently introduced a new arrangement, consisting of a cage which when filled is let down into the water, and remains there until the whole batch of clothes is boiled—occupying about 10 minutes. This cage is then raised by means of pulleys and chains, which are attached to a travelling arrangement overhead, so that it may be run up to the rinsing tank and the clothes tipped into the cold rinsing water. The boiling tanks in this system are 3 or 4 in number, placed in a line with the rinsing tank at the side, so that the travelling cage may run from either one or the other to the rinsing compartment.



153. Bradford's New Patent Rinsing and Wringing Apparatus.

Rinsing Apparatus (Fig. 153) consists of a large tank with 2 compartments, the first being twice as large as the second, and having an apparatus fixed in the bottom for letting the water in under pressure, which forces the scum that separates from the clothes as they are being rinsed, and carries it to one end, whence it is removed by the overflow. This operation proceeds constantly while the clothes are being washed, so that the water is ever fresh and clear, and in a continued state of agitation, sufficient to thoroughly rinse the linen without fear of injury. From this compartment the clothes are passed between rubber rollers, or lifted upon a drainer, and

then put into the second or blueing compartment, from which they are passed between indiarubber wringing rollers.



154. Hydro-Extractor.

A hydro-extractor (Fig. 154) will extract more water than can be done by any other means. The clothes are placed in a wire basket which revolves at a high speed, being driven by gearing worked by a strap, or by direct action of a steam engine attached to the machine. Hand-power hydro-extractors are also recommended for hand laundries where a large quantity of work has to be done.

155.



155. Drying Closet.

Drying Closet.—After leaving the hydro-extractor, the clothes are taken to the drying closet (Fig. 155), which consists of a number of horses running upon wheels in and out of a chamber, which is heated by means of a steam coil underneath the horses; and by a special arrangement, fresh air is constantly let into the underside of this heating coil, and, rising amongst the clothes, extracts all the moisture, which is effectually carried off by means of a ventilating

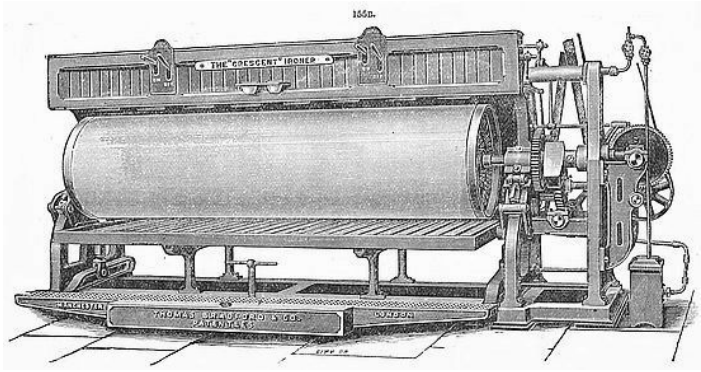
apparatus. Of course when weather will permit, drying is done out of doors, for which a spacious open drying ground is provided.

Starching.—Such goods as require starching are taken to the starching machine, collars and cuffs to one kind of machine-which is specially fitted for rubbing the starch into the linen—and dresses, petticoats, aprons, &c., to the trough, in which is a specially prepared starch, and which has a wringing machine with rubber starching rollers.

155A.



155A. Ironing, &c., Room.

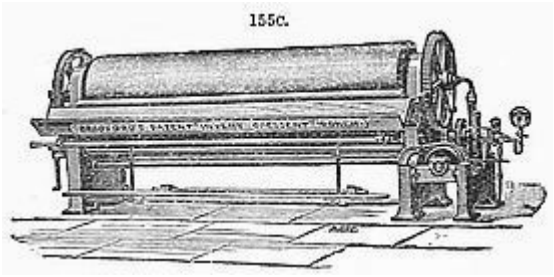


155B. Bradford's Patent "Crescent" Ironing Machine.

Mangling, Calendering, and Ironing.—The first machine in the finishing and ironing department (Fig. 155A) is a "Premier" box mangle, which is used for mangling all plain household linen, and next to this is a "Crescent" ironing machine (Fig. 155B), which iron in a superior manner table linen, pillow cases, pocket handkerchiefs, and plain body-linen. The ironing surface of this machine is concave and made in sections, under which a roller revolves. The chief advantage of the "sections" in the ironing surface is that during the process of ironing the moisture from the articles is carried off through the apertures between the sections, thereby retaining a good colour in the linen and drying it quickly. The roller besides having a forward has also a lateral motion, worked by a very ingenious but simple contrivance in the driving gear, and by this lateral action the polish upon the surface of the articles is produced.

The advantage of this machine in ironing body-linen is that when the skirt or plain part of the garment has been "taken in" as far as the gathers, the roller can be instantly lowered by pressing the foot

upon a treadle close behind the operator, and the article withdrawn, so that the gathered portion may be finished by hand. The ease with which the pressure can be regulated is a very excellent feature of the machine. A special arrangement is provided with this machine for finishing lace and muslin curtains.

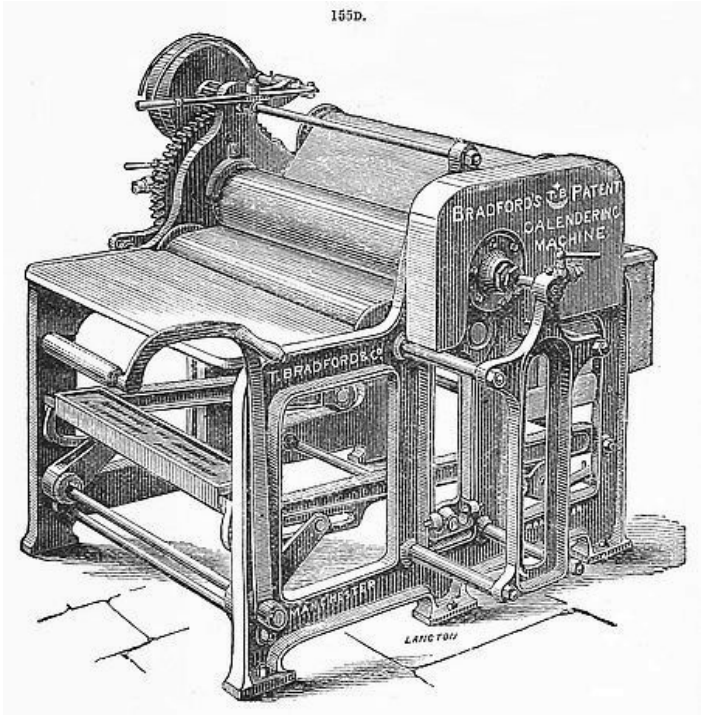


155c. Bradford's New Patent "Invert Crescent" Ironing Machine.

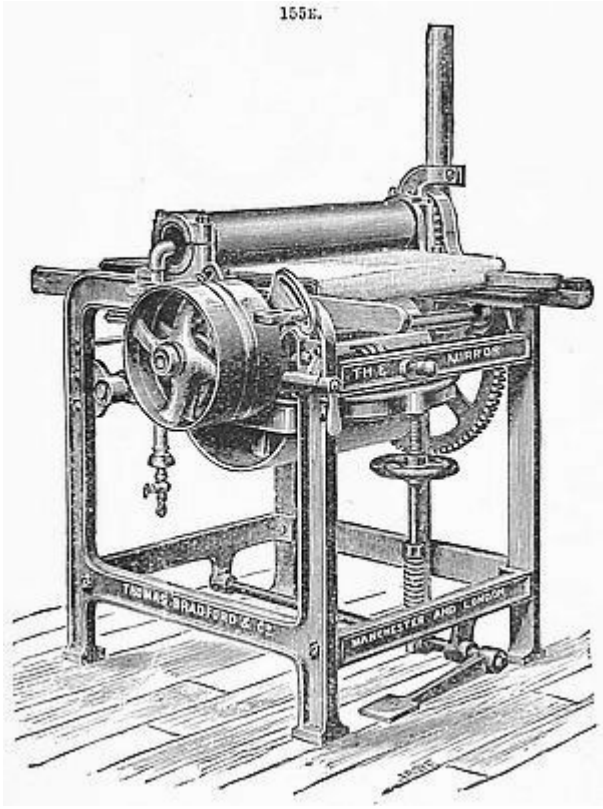
Messrs. Bradford have recently introduced the "Invert Crescent" ironing machine (Fig. 155c), the ironing surface of which is a concave plate of bright polished iron, made in sections similar to the "Crescent" above described, the ventilation being equally efficient in both machines, and is, indeed, an important patented feature in these ironers. This machine is specially adapted for plain ironing, such as table linen, bed linen, and other straightforward work. The roller is heated by steam, which also adds to the efficiency of the machine, as it keeps the flannel upon the roller constantly dry, thereby reducing the wear and tear of ironing flannel.

Special facilities are afforded for raising or lowering the roller.

The Endless Band Calender (Fig. 155d) is in constant use ironing body-linen, pocket handkerchiefs, and other small and plain articles.



155D. Endless Band Calender.



155E. Collar Ironer.

The *Collar Ironing Machine* (Fig. 155E) is worked by a girl (as in fact are all the previously mentioned ironing machines); it is capable of ironing 90 to 100 dozen collars and cuffs per diem. It is fitted with 2 rollers or cylinders—the bottom one (the feeder) being of large diameter, and the top one, made of polished metal, much smaller—and heated by gas mixed with air to produce perfect combustion. The collars, taken straight from the starching machine, are stretched upon a board, which is by an automatic arrangement continually sliding backwards and forwards between the 2 rollers, the pressure being

regulated by means of a spiral spring. A very high finish is imparted to the surface of the collars. This machine is also made as a combined collar, cuff, and shirt-front ironer.

The “Pagoda” *Iron Heating Stove* is placed on one side of the ironing room; and on either side of it is fixed a “Radial” drying or airing horse. The stove heats at one time 54 irons. The advantage of the radial horse on each side of the stove is that the heat is utilised for airing and stiffening the ironed articles, a large quantity of which can be hung upon the radial arms.

In some steam laundries gas irons are now employed; where these are used exclusively, it is necessary to provide a steam-heated airing closet for airing and stiffening the finished work before it is taken to the packing room.

The packing department (Fig. 155F) has on all sides convenient latticed wooden racks or compartments, ranged in various sizes for different sized washings, the name, address, and mark in coloured ink (representing the coloured cotton mark on the goods) of each customer being placed over each rack. Body-linen, shirts, collars, and finery are all sorted in the racks, but house linen, which is of course much heavier, is sorted on separate shelves, dresses and other starched work being hung upon rails overhead, in close proximity to the racks to which they belong.

155F.



155F.

In the centre of the room is a hot table or closet with open shelves, in which is a steam coil. This is used for airing the house linen and other things before they are sorted away. There is also round the room and underneath the racking a steam coil for warming the room. The linen is conveyed from room to room as required, by means of clothes wagons and barrows running upon rubber tyred wheels.

On emerging from the packing room we found ourselves in the entrance hall, immediately opposite the door leading to the sorting room, showing that we had made a tour of the laundry, from one department to the other, without going over any part of the ground twice. The different doors we then noticed had each a name upon its outside, as “sorting,” “receiving,” and “marking” room, next “general wash-house,” next “ironing room,” and, upon the door through which we had just passed,

"packing and delivery room."

The offices, private and general, are placed at the back of this entrance hall, and command a view of the reception and dispatch of all work and of the entrance or departure of visitors or workpeople. A general sight is also obtained from here over the working departments (with the exception of the private wash-house).

The building generally is lofty and well ventilated; and we were pleased to note that the proprietors, in addition to having well considered the arrangement of workrooms, have provided a spacious dining and recreation room, fitted with cookery range and every convenience for the use of the workpeople. This is on the first floor, over the entrance hall.

Public Institution Laundries.—Most of the large public institutions, such as hospitals, workhouses, infirmaries, and asylums throughout the country, are fitted with Bradford's "Vowel" washing machines, and for hospital purposes the washing compartments are made of metal, and can be used for special cases where desirable.

One of the first important washing plants constructed by Messrs. Bradford was fixed in the London Hospital, Whitechapel Road, London, in 1867, and it is still working in this institution.

Architects and others interested in steam laundry apparatus will do well to consult Messrs. Bradford & Co. when arranging their plans.

THE SCHOOLROOM.

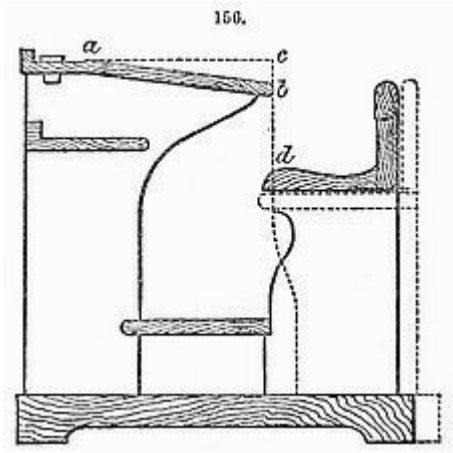
The Room.—Provided that the room fulfil all the ordinary conditions of sanitation, the foremost question then for decision is the lighting of the room. As remarked by Dr. Power, the amount of light, both day and artificial, supplied in schools is a matter of great importance, for the feebler the light the closer is the object instinctively brought to the observer to be recognised, and amongst the various suggestions of a practical nature that have been made is one by Hoffmann, of Wiesbaden, that in every schoolroom a set of Snellen's test types should be suspended, and as soon as they are no longer legible by the healthy at a normal distance the school should close. In school buildings the windows should, if possible, look to the south or east, a much greater amount of light entering with equal window space from those directions, especially in the earlier hours of the day, than from the north, whilst type of a given size is read at a much greater distance with south than with north light. Cohn and Javal alike think that it is almost impossible to get too much light in a schoolroom, the latter maintaining that there should be sufficient light in the darkest part of the room to read easily and well even on dark days. The size of the window must manifestly exert a great influence upon the amount of light admitted, and Cohn has laid down the rule that there should be at least 1 sq. ft. of window pane for every 5 sq. ft. of flooring, and in some recent Parisian models there is actually 1 ft. of window to each foot of flooring. The height of the window from the floor is of importance, since a room is always dark with high windows, owing to the obliquity of the entering rays and the loss by reflection; the sill of the window should not be lower

than 1 ft. from the ground. The light should enter from the left hand, since it enables the letter that has just been formed in writing to be distinctly seen; whereas, if the light enter from the right, the last written letters are in the dark. The total area being the same, 3 windows are better than 2, for since the illumination obtained from a given light diminishes as the square of the distance, more light will be obtained in the remoter parts of the room with 3 than with 2 lights.

Desks and Benches.—The form of the desks and school furniture is a point that has been almost entirely neglected in England. The slope of the table is of importance. If a book be placed vertically in front of us, we can see well, and no inclination of the head is required. If it be placed at such an inclination as to form an angle of 45° with the horizon, we can still, by turning the eyes down, read well without inclining the head; but if the book is placed horizontally, the head is naturally bent downwards to relieve the exertion of turning the eyes strongly downwards, and this tends to congest the vessels of the head. Hence the desk should be inclined, and not flat; but an angle of 45° would be too much, the books, &c., would slide off. A rise of 2 in. for each 12 in. of table breadth is sufficient. Fahrner considers that the first movement of the child in leaving the normal position consists in inclining his head forward and to the left, and that this apparently unimportant movement is the root of the whole evil; for it in the first place causes the centre of gravity of the head to fall in front of the vertebral column. The muscles of the neck are consequently called into play; they soon, however, become fatigued, and transfer the work to the muscles of the back, and thus at the expiration of a few minutes the head

sinks upon the left arm, and the eyes are brought into very close proximity with the paper. All physicians are now agreed that the desk should be a little higher than the elbows when hanging naturally, and that the size of the child should be taken into consideration.

The distance between the edge of the desk and the front edge of his seat must be 0, or they must even somewhat overlap each other; the difference in height between the bench and the desk must be as great as the distance of the elbow from the bench when the arm is hanging freely down 1 or 2¼ in.; every school bench must have a proper back, which must not be the back of the desk behind. There is much difference of opinion amongst high authorities as to the best form of back, some preferring a high back, others a **T**-back of moderate height, and others again a low back. The high back supports the lower part of the dorsal region of the spine, and thus relieves the lumbar (or loins) region of part of the superincumbent weight. The moderately high **T**-back supports the sacrum or the lower lumbar vertebræ, fixes the pelvis, and renders the sitting position one of rest. The low back fits into the curvature of the loins, and fulfils the purposes of both the other forms partially. It is the form which is generally regarded as being the best. It is on the whole best that each seat should have its own back, since with continuous backs, overcrowding, which should be religiously avoided, may occur. The back should be curved to suit the form of the body, and be firmly and solidly constructed.



156. Varrentrapp's School Desk.

The bench on which the scholar sits should be hollowed out continuously with the back, and be either flat or a little raised in front. Its breadth should be, in accordance with the size of the child, 9-13¼ in. The height of the bench should be such that the knee is bent at right angles to the well-supported and resting thigh, and that the soles of the feet may be planted flat on the ground or on a foot-board. The table-top must be broad enough to support books and papers, and to allow them to be pushed forward so far that they do not interfere with writing: 12½-15½ in. are the right dimensions. The desk-top must, moreover, form an inclined plane; nothing conduces so much to stooping as a flat desk. The limit is that the ink should not flow back in the pen; but this is much too great, since books and papers would slide off unless prevented by a raised edge at the bottom of the desk, and such edges are objectionable, since they hurt the arm in writing. An inclination of 2 in. in 12 is about right. For reading, the desk inclination may be as steep as possible, but this is not easy to manage in school desks. The

height of the desk is from a medical point of view secondarily determined as soon as the height of the bench and the difference between the bench and the desk is determined. If the feet are to rest on the ground, the height of the desk will have to be different, according to the size of the child, which may be inconvenient to the teacher. The difficulty may be overcome by having a movable latticework for the feet to rest on. The desk lastly should be sufficiently broad (19½-23½ in.) for each child. Arrangements require to be made to allow of standing as well as sitting. A typical form (Varrentrapp's) of school desk and seat is shown in Fig. 156. The dotted lines of the seat give the position and dimensions suitable for older scholars. The distances *a b* (14 in.) and *c b* (2¾ in.) remain the same for all children; the difference *b d* is slightly increased with the age.

Type of Books.—Much attention has lately been directed to various points in printing, shown to exert an influence on the vision. First, in regard to the letters themselves. No one can compare the Gothic with the modern Roman letters without being struck with the superior legibility of the Roman type. The flourishes of some of the letters, the close similarity to one another of others, as of the "h" and "k," the "f" and "s," the "u" and the "n," all render a closer examination of the print requisite in the one case than in the other. Javal, to whom we are indebted for much interesting observation on this subject, says that the increased number of myopes (shortsighted persons) noticed in Elsass since the annexation consequent on the war of 1870 is due to the introduction of German type and writing into that province. Weber considers that the absence of fine upstrokes in the Roman form of type is a distinct

advantage, and, further, that the arched, instead of the pointed, shape of the letters in the Roman type renders them more easy to read, and therefore require less earnest fixation. Weber maintains that a child 8 years of age who has read and worked with Latin or Roman type for 3 months is in advance of a child who has read the Gothic type for 2 years. The size of the short letters, such as “m” or “n,” should not be less than 1·5 mm. and the interspaces between two words should be somewhat greater, 2 mm. or 2·5 mm. It is considered that letters smaller than this are injurious. The leader of the *Times* has a height of short letters of this size, and that is a very legible print to the ordinary eye at a distance of 12-15 in., while much smaller type can be seen.

Other conditions deserve attention, and amongst them may be mentioned quality of paper, character of type, excellence of impression. Now and again the fount of type of one of our daily newspapers gets worn out, and every one is aware of the unpleasant effects that are produced by impressions of letters which are partly imperfect—when, for example, *c* cannot be distinguished from *o* or from *e*, when *t* and *l* become confused, and the rounds of *a*, *b*, *d*, *g*, and *p* become filled with ink. Such imperfections are greatly increased by roughnesses and inequalities of the paper, and it is only requisite to read a page or two of one of the cheap editions of a popular author and then a page or two of an edition de luxe to appreciate the influence of paper and printing. The introduction of pictures is of decided advantage, since they both excite the attention and relieve the eye.

Brudenell Carter advises, in the case of every child whose vision is subnormal, to ascertain the cause and

nature of the defect, and to regulate not only the studies, but also, as far as possible, the future career, in accordance with it. He would urge that the vision of every new pupil should be tested, and that the tasks required should be controlled in accordance with its capabilities; that all lesson books for very young children be printed in large type, and that the children be compelled to keep such books at a distance (the type in which we often see texts of Scripture printed to be hung up in railway waiting-rooms would be a good size for the purpose); that many of the school-books now in use should be abandoned, and that new editions should be prepared, in type of at least twice the size, and twice the legibility (the latter depending much upon the shape and design of the letters) of that now in use. It would be useful, especially in cases where there is hereditary tendency to shortsightedness, to teach by means of long slips or wall texts with a picture at the head, sold by most stationers. The child should be placed with his back to the light, and at a distance of 4-6 ft. from the slip, the separate letters of which, as well as the details of the picture, may be indicated by the teacher with a light wand.

Writing.—Writing has a powerful influence in inducing shortsightedness. Cohn has made the sensible suggestion that stenography (shorthand) should be introduced into schools a little above the lowest classes. The size of the type or symbols is, it is acknowledged, smaller than that of ordinary writing, but not smaller than the Greek. The acquirement of the art is easy, and the saving of time is very great.

The question of the advisability of using slates for instruction in writing has been considered, and developed some difference of opinion. With the same

amount of light and an equal degree of sharpness of vision, letters of the same size written with ink and with slate pencil are seen, the former at a distance of 4 ft., the latter at only 3 ft., even when the unpleasant reflex from the slate is avoided. Weber thinks that many of the difficulties and troubles occasioned by writing are the same, whether slate-pencil, lead-pencil, or pen and ink be used; but still thinks it desirable that after the first half-year pen and ink should be preferred. Cohn agrees with Horner, but suggests the employment of white artificial tablets, made by Emanuel Thieben, of Pilsen, which can be written upon with lead-pencil, and which he has found to be so far superior to slate that writing which can be read at 6 yd. on the white slab can only be read at 5 yd. on slate.

Writing is done with the least strain when the copy-book is tilted towards the left; when the child is compelled to write with the book parallel to the edge of the desk, he brings the base line perpendicular to the down-strokes by turning his head towards the right and twisting his spine. This contortion brings the eyes nearer to the page, and the left eye nearer to it than the right. In a discussion on this subject at the meeting of the Ophthalmic Society, at Heidelberg, Laqueur and Manz favoured the slanting system of writing with an oblique position of the book, on the ground that it throws the work more on the flexor muscles of the forearm, which are naturally stronger than the extensors, and Berlin dwelt upon the fact that this system admits of greater rapidity of execution.

Mental Training.—The object of the teacher is to teach to think. The pupil thinks enough, but he thinks loosely, incoherently, indefinitely, and

vaguely. He expends power enough on his mental work, but it is poorly applied. The teacher points out to him these indefinite or incoherent results, and demands logical statements of him. Here is the positive advantage the teacher is to the pupil. The prevailing habit of slovenly reading is largely due to the slovenly way in which children are taught to read at school. Be very careful about this; teach scholars to read with precision and understanding, thinking of every word, getting the sense of each sentence, and grasping the full meaning of any piece that may be before them.

There can be no greater mistake than to imagine that all children develop at the same rate during the corresponding years of their existence. In a group or class of children, each of whom is 11 years old, there will be many shades of difference of development. It follows, therefore, that the drawing of a hard and fast line as to acquisitions appropriate to any special year of a child's life is a mistake both from an educational and from a medical point of view.

To urge a child to great mental exertion while it is passing through a period of bodily growth is to put an undue strain upon its powers. A dull child will be rendered more dull and hopeless because it cannot perform its task, and the urging to exertion may produce nothing but a sullen resistance to authority. An eager, docile child will respond to the impulse, and will exert itself beyond its powers; and then an exhaustion will follow which may permanently injure both bodily and mental health. It would, however, be unwise to conclude that, because a child is unable to make great mental exertion while growing, it is not to be required to make any exertion at all.

If an adult can apply himself to the acquisition of knowledge in one direction for only 1 hour (and how much longer can an audience listen to a lecture?), the child can evidently do very much less. At the ages of 5 to 7 he can attend to one subject—a single lesson—for 15 minutes; a child from 7 to 10 years of age, about 20 minutes; from 10 to 12 years, about 25 minutes; from 12 to 18 years, about 30 minutes. (Chadwick.) Hence great care is demanded to avoid engaging the brains of pupils in work for more than very short periods, and to provide intervals during which there may be rest of the centres specially taxed. Much may be done by changing the kind of work frequently. No growing child should be kept longer than ½-¾ hour at even the same description of work. Again, the great centres of relation should not be overtaxed. Vision, hearing, the speech centre, and the centre specially concerned with written language, whether in writing or reading, should not be wearied. Brain weariness is the first indication of exhaustion. The faculty of "attention" is perhaps one of the most easily vulnerable of all the parts or properties of brain-function. It is the faculty which most readily becomes permanently enfeebled, and, when weakened, entails most trouble in adult life. In children it is difficult to catch and fix the attention. No effort should be spared to secure this fixity of thought; but in order to avoid weakening the power of "thinking" as distinguished from "thought-drifting," the teacher should not strive, or desire, to hold the attention by any effort on his part longer than it is voluntarily given by the child—the slightest indication of exhaustion should at once be met by a change of task. If these hints, general as they are, can be reduced to practice, there is little fear of "overwork" or harm from brain activity. Desultory

and insufficient work is more to be feared by far than "overwork," because the brain, like every other part of the organism, grows as it feeds, and it can only feed as it works. (*Lancet.*)

Children, especially at the age of 10-17, should not be over-taxed, and girls in particular should not be pressed to work at periods when they are naturally languid and exhausted. The work to be done should be mainly done in school; night-work and night-lessons should be short. Nor should children be made to do much work in the morning before breakfast, nor immediately after food. The books given to young children ought to be light to hold in the hand; the paper should be clean, white, and smooth. The letters should be large in proportion to the youth of the child, well formed, and well printed. The spaces between the lines and the interspaces of the words should be relatively wide. The lines should not be too long. The light should be abundant, and should enter from the left. In writing he should sit upright and square to the desk. The desk itself should be inclined, and there should be a due proportion between the height of the desk and the bench or stool on which the child is sitting. Reading small print by a dim light is to be discountenanced, and reading should not be permitted in bed. The work given to girls to learn sewing should not be too fine, and no black work should be given, especially at night.

How vastly would the world benefit if the hours wasted on Bible history, dead languages, and higher mathematics (except for special objects, of course), were given to modern languages and useful (as distinguished from pure) science. How many "educated" men know a word of French or German,

or a score of the physical facts which govern our existence, or anything about the structure of their own bodies, or of the names, properties, and uses of our native plants?

The work performed by girls, especially when young, is not beneath the attention of the surgeon. There cannot be a doubt that every girl should be taught the use of the needle and thread; but it is by no means necessary that the work which is put into their hands should be of a nature to make a severe strain upon their eyes. That such strain applied to the eyes in this particular way is injurious is well known from the effects of lace-making in Belgium and France, which is admitted on all hands to seriously impair the vision of many workers annually. In moderately fine calico there are about 72 threads to the inch; and if two of these are taken up at every stitch, the work is done to $^{1}/_{36}$ in., which is even so very small. But finer kinds of cambric run to 150 or more to the inch, and must be very trying to the eye. Weber observes:—"Who need trouble himself about a girl learning to knit a stocking requiring 35,000 or even 60,000 loops, when the whole article can be finished by machine work in an hour or two?" But, as Cohn remarks, if the girl is, instead of knitting stockings, occupied with Greek characters or conic sections, she is not much better off. On the whole, it appears that no child should be given work to do which requires to be held closer to the eye than 1 ft., and with this all due care should be taken in regard to light and other particulars.

The special culture of the senses is too much neglected in modern busy life. Probably at no previous period of human history has the nervous system generally, and more particularly, have the

sense-organs been so severely taxed as they are now, but never have they been less carefully cultivated. This is, in part, if not wholly the cause of the progressive degeneracy of the faculties of special-sense which is evidenced by the increasing frequency of the recourse to spectacles, ear-trumpets, and the like apparatus, designed to aid the sense-organs. The mere use of faculties will not develop strength—it is more likely to exhaust energy. Special training is required, and this essential element of education is wholly neglected in our schools, with the result we daily witness—namely, early weakness or defect in the organs by which the consciousness is brought into relation with the outer world. It is not necessary to adduce proofs, or to argue at length or in detail. The truth of the proposition laid down is self-evident. On the one hand we see the neglect of training, and on the other the increasing defect of sense-power. The matter is well worthy of the attention of the professional educators of youth. Muscular exercise wisely regulated and apportioned to the bodily strength is felt to be a part of education. Sense-culture, by appropriate exercises in seeing, hearing, touching, smelling, would, if commenced sufficiently early in life, not merely prevent weakness of sight, deafness, loss of the sense of feeling, and impairment of the sense of smell, long before old age; but by its reflected influence on the nutrition of the brain and upper portion of the spinal cord, would do much to reduce the growing tendency to paralytic diseases, which are very decidedly on the increase. (*Lancet.*)

Physical Comfort and Training.—Attention should be directed more than at present to the physical side of school life in its relations to the ordinary bodily wants and processes. Many children suffer much from a fear or dislike of asking for temporary leave

of absence from their classes. They suffer pain, and often cause serious illness, by this somewhat natural aversion to “asking out.” Foolish teachers have sharply reproved pupils because they appeared to demand absence from the class-room too frequently. The teacher evidently imagined there was some attempt at malingering; whereas the pupil was really in pain, suffering from an irritable digestive system, which demanded rest. Such pupils should not be sent to school, it is true; but if they are allowed to take their place in a class, they should not be treated as if their demands were dictated by foolishness or frivolity. The wise teacher is one who, seeing a pupil evidently suffering, will investigate the cause of the discomfort, and set the child’s mind and body at rest. Education under physical suffering is, at its best, the merest farce. You need not be prudish; nor fear any rebuke from common sense, when you think that children have bodies which, as well as minds, are placed temporarily under the teacher’s care. (Wakeham.)

There is a risk at the present day that the claims of intellectual education, which are being so strongly put forward, may have the effect of postponing, or causing to be neglected, the care and cultivation of the bodily powers. In some respects we have rushed from a state in which too little care was given to mental development into one where intellectual work predominates. Children must have several hours’ play daily in the open air; this is much better than calisthenics or gymnastics for the generality of children; and girls should be allowed to play as vigorously as boys do.

One exercise which will give permanent strength, which will build up healthy bodies for girls and

ultimately for women, is the swimming bath, which brings into play all the muscles of the body; another is the gymnastic class, where, in suitable dresses and under the direction of competent instructors, exercises fitted for the strength of girls are set for them to do; and a third is the playground, where such games as fives, rackets, and lawn tennis give amusement and ample exercise. The benefits arising from trained muscular activity are not confined to development of the muscles of the arms and legs, but all the functions of nutrition of the body are helped to become effective by means of exercise. Much of the weakness and suffering of women would be spared if early physical training had been allowed to them.

Punishments.—Such brutal punishments as boxing the ears, pulling the ears, knocking heads together, rapping knuckles with rulers, &c., belong to a past ignorant age. For corporal punishment nature has provided a muscular cushion on which the cane may be applied without fear of serious consequences. "Impositions" mean ruin to the handwriting, and being closeted in the foul air of the class-rooms during hours that ought to be spent in getting fresh air. Double tasks are a still worse form of the same evil. The plan of "keeping in" boys for breaches of school discipline is objectionable, and it is infinitely better to require some loss of recreation time in more healthy ways. In large public schools, where the drill-sergeant is an institution, there will probably be found no more efficacious mode of dealing with forgetfulness and petty turbulences than by calling in the aid of this functionary, who exercises a wholesome influence over the boys, and inflicts punishments without impairing their physical

condition in any way, while at the same time lending "tone" to their bodily exercises.

Foreign Schools.—The only good to be gained by sending children to foreign schools is acquiring facility in speaking foreign languages, with more chance of good accent than can be usually gained at home. Against this there are many things to set off; and even this advantage itself is often rendered nugatory by one or two circumstances. In a school where there are many English children there is very often as much English spoken as French or German—there are schools in which an idle child might speak English all day long, and in which the well-paying "Anglais" is not brought too sharply to task for faults of omission. Again, the acquisition of good accent is a matter of ear, and no amount of hearing others speak well will make a child who has no imitative power reproduce an accent with purity. Scotch or Irish children in English schools do not always lose their distinctive accent, nor do Lancashire and Yorkshire tongues always lose their special characteristics. The advantages of foreign schools are thus shown to be less than they at first seem to be.

But there are also positive disadvantages; and one of the most evident and most disastrous in its results, as far as the health is concerned, is that, in matters of food and of arrangements conducive to health, the ways of foreigners are not our ways. English children, brought up to the age of 15 or 16 upon English meat and bread, with plenty of both, cannot accommodate themselves to the diet which suffices for Frenchmen or Germans; and English children in foreign schools not unfrequently know what it is to be hungry from sheer inability to obtain a sufficiently nutritive meal. Many instances have

occurred in which long and troublesome illnesses have been distinctly traceable to living in schools abroad, and others in which a life has been cut short through the same agency.

A few words must be said as to the comparative uncertainty regarding the kind of agencies which may be brought to bear in the moral training of a girl, and the little power which a parent has of ascertaining the real nature of these in a foreign, especially a French school. Nor again, is it to be forgotten that, for those parents who are desirous that their children should receive religious training, and should not lose their hold of home habits in that important matter, there are innumerable anxieties in store in sending children abroad.

For those who desire to give their children the advantages of foreign education, there are only two really good courses open. One of these is to establish the home abroad for a certain time. In that case the children are under home influence as to training, are under home care as to food, cleanliness, and personal habits, and do not form a set of associations distinct from those of other members of the family. If the family life is considered important, and if it is desired that the children should early acquire a knowledge of foreign languages, this is the most advisable plan. In case this is not possible, it would be advisable to postpone the foreign residence until girls have reached maturer years—till they have sense to look after themselves, and until their characters are somewhat formed. There would be then the additional advantage that home ties would be strong enough to resist the weakening influence of living apart from the rest of the family, the foundations of a good English education (too often

entirely neglected in the cases of those reared in foreign schools) might have been securely laid; and, what is perhaps not the least recommendation, the children themselves would have their minds more advanced, and would be more intelligent and ready recipients of the instruction given to them. (*Queen.*)

SUPPLEMENTARY LITERATURE.

John H. Howard: 'Gymnasts and Gymnastics.' London, 1873.

C. Löfving: 'Home Gymnastics, for the preservation and restoration of health in children and young and old people of both sexes, with a short method of acquiring the art of Swimming.' London, 1883. 1*s.*

Archibald Maclaren: 'A System of Physical Education, theoretical and practical.' Oxford, 1869. 7*s.* 6*d.*

THE PLAYGROUND.

Aim of Exercise.—The aim of exercise is not solely to *work* the organism which is thrown into activity, though that is a very important part of the object in view, because as the living body works it feeds, and as it feeds it is replenished; but there is another purpose, and that is to call into action and stimulate

the *faculty of recuperation*. Those who believe in the existence of a special system, or series, of trophic nerves, will not object to this designation of the recuperative function as a separate "faculty," and those who believe nutrition to be effected in and by the ordinary innervation will recognise the sense in which we employ the terms in italics. It is through defect or deficiency in the vigour of this faculty that unaccustomed feats of strength, whether of mind or muscle, are exhausting. The task is performed, but the underlying faculty of restorative energy, or power of recuperative nutrition, located in the particular part exceptionally exercised, is not in a condition to respond to the unusual call made upon it. When a man goes into training, or, which is practically the same thing, when he habituates himself to the performance of a special class of work, he so develops this recuperative power or function that the repair or replenishing necessary to restore the integrity, and replace the strength of the tissue "used up" in the exercise, is instantly performed. The difference between being accustomed to exercise and able to work "without feeling it," and being barely able to accomplish a special task, and having it "taken out" of one by the exploit, whether mental or physical, is the difference between possessing the power of rapid repair by nutrition, and not having that power in working order—so that some time must elapse before recovery takes place, and during the interval there will be "fatigue" and more or less exhaustion. The practical value of a recognition of this commonplace fact in physiology will be found in the guidance it affords as to the best and most direct way of developing the power or faculty of recuperation by exercise. Many persons make the mistake of doing too much. Exercise with a view to

recuperation should never so much exceed the capacity of the recuperative faculty as to prostrate the nervous energy. The work done ought not to produce any great sense of fatigue. If "exhaustion" be experienced, the exercise has been excessive in amount. The best plan to pursue is to begin with a very moderate amount of work, continued during a brief period, and to make the length of the interval between the cessation of the exercise and the recovery of a feeling of "freshness" the guide as to the increase of exercise. We do not mean that false sense of revival which is sometimes derived from the recourse to stimulants, but genuine recovery after a brief period of rest and the use of plain nutritious food. If this very simple rule were carried into practice by those who desire "to grow strong," there would be less disappointment, and a generally better result, than often attends the endeavour to profit by exercise unintelligently employed. (*Lancet.*)

Training.—There are few subjects on which it is more difficult to lay down exact laws than that of training, and yet, notwithstanding this, there is no lack of books by writers who profess to be thoroughly acquainted with every detail of the course an athlete must go through in order to be at his best. Nearly every writer agrees as to the end to be obtained by training. As to how this end is to be obtained, however, these doctors sadly disagree. For instance, one author says, very properly, that the harder a man works physically the more food he requires. "Amator," on the other hand, lays down this law, "the less food, the more work." In books a regular dietary is laid down for the man in training, in which some kinds of food are recommended and others condemned. These vary so much, that were the unfortunate athlete to avoid everything that he is

warned against, he would be more likely to die of starvation than to win a race. It is quite impossible to lay down exact rules for everybody. No two men are of the same physique or temperament, and no one but an experienced trainer who has his eye continually on his man, can tell him what to eat and drink, or what exercise to take. A book of the kind cannot be perfect; but the best we have yet come across is that published at the *Sportsman* office. We can recommend it to those who cannot secure a really good trainer. Such men are rare; but a month or two under the care of a man who really understands his business will do more for a beginner than all the books ever published. Experienced trainers like Bob Rogers, Nat. Perry, or Jack White, can tell at a glance whether a man wants hard or light exercise, or whether he ought to put on flesh, or the contrary. These are subjects that books are powerless upon, and with which no athlete can be familiar till he has had considerable experience. (*Field.*)

Regulation of Exercise.—Dr. Cathcart gives the following rules for the regulation of physical exercise. (1) It should be conducted in an abundance of fresh air, and in costumes allowing free play to the lungs, and of a material which will absorb the moisture, and which, therefore, should be afterwards changed—flannel. (2) There should always be a pleasant variety in the exercise, and an active mental stimulus, to give interest at the same time. (3) The exercises should, as far as possible, involve all parts of the body and both sides equally. (4) When severe in character, the exercises should be begun gradually and pursued systematically, leaving off at first as soon as fatigue is felt; and when any real delicacy of constitution exists, the exercise should be regulated

under medical advice. (5) For young people the times of physical and mental work should alternate, and for the former the best part of the day should be selected. (6) Active exertion should be neither immediately before nor immediately after a full meal.

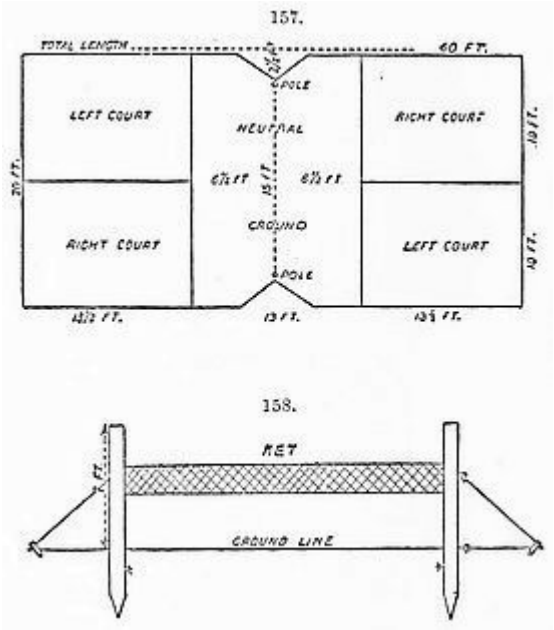
A fact of paramount importance is to bear in mind that exercise demands an *abundance of fresh air*, without which it is injurious. The same man who when naked is capable of inspiring (taking in) 196 cub. in. of air at a breath, can only inspire 130 cub. in. when dressed. Dr. Parkes points out that during exercise, whether directly involving the use of the shoulders or not, the lungs should have the freest possible play; therefore there should be no tightly contracting garments round the chest which would interfere with its expansion, and thus tend to neutralise the very benefit it is destined to bestow; and it follows further from this, that where exercise has to be taken in such ill-designed garments, the amount of work done must be in proportion diminished. Hence the miscalled "constitutional" walk is about the worst form of exercise (next to dancing), and deserving of actual condemnation, except in the case of people whose age precludes their enjoying any outdoor game; it is very apt to become monotonous, can never be really enlivening, often is reduced to a crawl, is liable to be interrupted by meeting friends (when chills are easily caught), and always entails wearing the least suitable garments. Running, on the other hand, when dressed in athletic costume, is one of the best forms of exercise and an essential accompaniment of our most popular outdoor games. Among the means which nature has bestowed on animals in general for the preservation and enjoyment of life, running is the

most important. Since, then, it is pointed out to us by nature, it must be in a high degree innocent.

Negroes and Indians in a state of nature run daily in pursuit of game for food with a facility at which we are astonished, but they are not more liable to consumption on this account than those beasts that are so famed for swiftness. The body of no animal seems better adapted to running than man's. The nobler parts, which might be injured by an immoderate reflux of blood, are uppermost, and the laws of gravitation assist in propelling the runner forward. He has little to do but to strengthen his limbs by practice and concentrate his mind on the effort, and there is nothing severe in this, as experience has shown. Indeed, running may be made very beneficial to the lungs, and perhaps there is nothing better calculated to strengthen these organs, in those who are shortwinded, than gradual, careful training in running. It should only be practised in cool weather. The clothing should be light, the head bare, and the neck uncovered. As soon as the exercise is finished, warm clothing should be put on and gentle exercise continued for some time. It is not necessary to have a race-course. The teacher of a school may take his pupils into the fields and find suitable ground for them. Care must be taken not to overdo, and thus, perhaps for life, weaken or injure the heart. The race, at first, should be short and frequently repeated, rather than long, and full speed should not be attempted for some time. Running is well adapted to young and middle-aged persons, but not to those who are fat. Sedentary persons may find great benefit in it after the day's work. If they live in cities, a quiet spot may be selected, and short trials adapted to the strength entered into. Invalids may do the same thing, only they must be more careful than

the robust never to over-exert themselves. Girls may run as well as boys, from 10 to 12 years of age. After puberty, the change in the formation of the bones of the pelvis in girls renders running less easy and graceful. The modern style of dress for girls after puberty is also entirely unsuited to running.

Games.—It would be impossible here to enter into a description of all our outdoor games, nor is it necessary to do so. The following remarks embody information which cannot readily be found elsewhere, and which is therefore more useful than would be a repetition of the already well-known rules of the chief games.



157. Badminton Court.
158. Badminton Net.

Badminton.—A level bit of turf is the most pleasant ground, though any level surface will do. The dimensions may be varied according to the number playing on each side, and to whether a shuttlecock or a ball is used, the latter not requiring so small a ground as the former. The sizes recommended vary from 40 ft. long by 20 ft. broad, to 30 ft. long by 15 ft. broad. The ground is divided into courts, as in Fig. 157, which represents the full-size.

The boundaries should be clearly defined by a white line; chalk or whiting and water, laid on with a straight-edge and brush, makes the best line. At the spots marked “pole,” which are just half-way from the boundaries taken lengthways, and 2½ ft. within the boundary measured across, poles should be

erected, about 7 ft. high, to hang the net to. This, of course, is for the outdoor game; indoors, the net may be suspended from nails, or hung to any convenient projection. The net should be tightly stretched across from pole to pole, at a height of 5 ft. from the ground. The depth of the net varies from 9 in. to 3 ft., but the best is a medium depth, 12-15 in. The poles should be supported with guy ropes. When the net and poles are fixed, they present the appearance shown in Fig 158. If shuttlecocks are used, the ordinary toy ones do very well for indoors; but for outdoors a loaded shuttlecock is not so much disturbed by the wind, and can be made to fly farther. Common battledores will answer indoors; for outdoor games small racquet bats are preferred, about 2 ft. long, with a widish face, and rather more elliptical in the handle than the full-sized bat. Balls for the outdoor game should be made of hollow indiarubber, about the size of a tennis ball.

The outdoor game by 4 persons, played with a ball, is with slight modifications the same as lawn tennis. The courts being marked out, the players take their stand one in each court, and toss for first "service." The player winning the toss has choice of courts, and places himself in the right-hand court of his side and serves first. Serving is done by holding the ball in the left hand, the bat in the right, and then, when in the act of dropping the ball from the hand, but without allowing it to touch the ground, driving it with the bat diagonally clean over the net into the opposite right-hand court. When serving, the player may stand in any part of his court he pleases, but he must have both feet within the boundary line. The "servee" (i.e. the player served), who stands in the opposite right-hand court, has to "take the service," i.e. he has to hit the ball back clean over

the net, either before it touches the ground or on its first bound. If he succeeds in doing either, his adversaries have to return the ball again, clean over the net, and so on alternately forwards and backwards until one side fails to comply with the necessary conditions, when that round is over, and certain scores accrue, as will be explained. After the first service in each round, no distinction is made between right and left courts, nor as to the player who may take the ball. On the first return the ball may be sent into either court of the opposite side, and taken by either player of that side, and so on in all subsequent returns of that round.

If the ball touches the boundary line, it is out of the court. If the conditions are complied with, it is a "good" service, and if the servee fails to return the ball clean over the net, the server's side scores one point, called an "ace." If the conditions are not complied with, and the servee takes or attempts to take the serve, it counts as a good service. But if the server does not comply with the conditions, and the servee does not attempt to take the serve, the server's "hand is out." There is, however, one exception to this, viz. if the ball falls on the neutral ground short of the court, in which case it is a "let"—that is, the server is let or allowed to have another serve. Two consecutive lets put the server's hand out. Some players consider it a let if the ball is served into the wrong court. This is perhaps the best rule for beginners, but for more experienced performers serving into the wrong court should put the server's hand out. The server's hand is also out if after the first return either he or his partner fails to return the ball again clean over the net by hitting it once only, or returns it so that it does not fall into one of the opposite courts. If, however, the opponents attempt

to return the ball, notwithstanding that it falls out of the court, the return is “good,” and it counts just the same as though the ball had fallen within the court.

When the server’s hand is out, the opponents commence serving from their right-hand court. This rule only applies to the first service in every game, and for this reason: It is a considerable advantage to serve first, as skilful players serve in such a manner as to render it difficult for the opponent to take the service. Also the side serving cannot lose an ace until their hand is out, and the opponents have the serve. If, as before remarked, the servee’s side fail to take a good service, or to return the ball clean over the net at any subsequent stroke by hitting it once only, they lose an ace. The original server then serves again, but this time from the left-hand court, and so on alternately, and his side scores an ace each time the opponents fail to return a good service clean over the net, and so that it falls into one of the opposite courts. After the first service in each game, the side which serves has “two hands in,” i.e. as soon as the server’s hand is out, his partner serves as before. He commences to serve from the right or left hand court as the case may be, following the rule of changing courts after every service. Thus, A served last from the right court; A’s hand is now out; B (A’s partner) now serves from the left court into the opposite left court, and so on alternately until B’s hand is out, when both hands being out, the right of serving goes to the opponents, who commence serving from the right-hand court of their side; the player who originally stood in that court serving first to the player who originally stood in the diagonally opposite court. Once in the game the players may change courts for the purpose of taking serves; thus A (right court) serves to C (opposite right court). A’s

hand is put out, and presently A's side are hand in again. When this happens A must commence the round of his side by serving from his right court to C in the opposite right court, but once in the game C and D (partners) may change courts to take the service, when A would serve to D instead of to C. The game proceeds thus until one side gains 15 aces, when the game is won by that side. If the game arrives at 13-all it may be "set" to 5-all, or at 14-all it may be set to 3-all. After a set, the game continues until one side scores 5 or 3, as the case may be. After a game, the sides change courts. A match or rubber is the best of 3 games.

Cricket. Forming a Ground.—The field should be as near level as possible; a fall of 1 in. to the yd. is not an insurmountable objection; 240 yd. each way is a nice size. In the centre of this there must be at least 42 yd. square of drained or naturally dry land, laid nearly level, and, if possible, of poor, tough, and wiry grass and sod. This piece should be highest in the centre, and with a fall of ½ in. in the yd. all round, that the ground may dry quicker after rain. With a dry subsoil, you can at once make a cricket ground, without the expense of any drainage. If an open loose subsoil, sand, gravel, peat, and wet, it must be made dry; in subsoils of this kind one deep and large drain will frequently effectually cure a large field. Until the subsoil is dry you cannot put soil and sod on it that will be good and safe to play cricket upon. As to clay subsoil, there is no other way to dry this kind of ground except by drainage. Drains must be near together, and deep enough to take away the water sufficiently low down to prevent the earth from sucking it up to the surface: 3 ft. 6 in. to 4 ft. deep, and 4-5 yd. apart, 3 in. tiles, and a fall of not less than ½ in. to the yd., will make this

subsoil dry enough to put on a cricket surface. These drains should be filled with broken stone, coarse gravel, or rough cinders to within 12-18 in. of the surface of the ground. The tiles of main drain should be larger than the 3 in. pipes of which branch drains are made, and larger in proportion to the number of branches it has to receive. The opposite ends of branch drains to the main drain should be connected by an air drain, one end of which should be open to the air; for in dry weather, when drains are making no water, a draught of air through and under the ground may cause the seams in the ground to open and crack, and so prepare it for more effectual and quick drainage when wet weather comes. The first thing to be done is to take up the sod: 1½ in. is about the thickness. Wheel them to one side of the piece you intend to take up, and stack them 5 or 6 cartloads together; this presses them, and causes the old rough coarse grass to rot off. When the sods are off is the best time to drain. If chalk is handy, it is the best possible foundation. Not more than 1½-2 in. of mould is required between the turf and the chalk; or dig out some 6-7 in. of the soil, and replace with cinder-ashes procured from a furnace, if chalk cannot be obtained. Pass the ashes through a coarse riddle, and put the rough at the bottom, the fine at the top, ramming it well down; return the sod, and make firm by rolling with the heaviest roller at command—daily rolling for an hour or two; mow when necessary, and that by a machine.

Renovating a Ground.—Before applying any stimulant to encourage growth, first of all get the bare patches filled up with plants of the finest kinds of grass. For 70 yd. by 40, 1 bush. fine lawn grass mixture, obtained from some trustworthy seed establishment, should be sown at once and covered

with finely sifted soil of a gritty character, such as road scrapings; when dry enough, run a light roller over it, and repeat the rolling frequently. As soon as the young seedling grasses appear, a dressing of soot and lime should be given to keep slugs in check, and also to act as a stimulant. When the young grass gets any way long, it should be cut with a scythe; the mowing machine should not be used until it has become well established, and sheep be kept off during periods of drought. After many years' wear and tear it would be advisable to relay the ground with fresh turf, for when once it begins to get patchy and worn, any other remedial measures are seldom entirely satisfactory. Guano sown during showery weather, about 2 lb. mixed with wood ashes, and sprinkled evenly over the surface, will impart verdure to the grass and otherwise help it, for where it is kept closely mown, the soil soon gets exhausted.

Playing on Coconut Matting.—The matting must be well stretched and pegged down lightly; spikes will be found to damage the matting and trip up the wearer. The thing to see to is that the ground (whatever it be) below the matting is quite smooth, as, if there are any inequalities in it, the ball will bump off the matting just as it would off an ordinary pitch. In India they remove what grass there is, so as to have a perfectly smooth surface; this is watered and rolled and kept hard, and on it the mat is pegged down. The result is a very good and fast pitch.

Football. Association.—The following memoranda have been drawn up by the committee of the Football Association for guidance.

(1) Calling attention to two points in Law 2 of the game—First, that the kick-off must be in the direction of the opposite goal line, and, therefore, all

back kicking is illegal; and, secondly, that the other side shall not approach within 10 yd. of the ball until it is kicked off.

(2) Law 4 enacts that "a goal shall be won when the ball has passed between the goal posts." A goal, therefore, cannot be scored until the whole ball has passed over the goal line. The ball is also in play until the whole ball has passed over the touch line.

(3) Law 6 commences thus:—"When a player kicks the ball, or it is thrown out of touch, any one of the same side who at such moment of kicking or throwing is nearer to the opponents' goal line is out of play." This is plain enough. All players of the same side as the player kicking the ball are off-side if they are in front of but not if they are behind the ball. If players would always remember that when they are behind the ball, at the moment of kicking or throwing, they cannot be off-side, but when they are in front of the ball they are always liable to be off-side, it would simplify the reading of this Rule very much.

Briefly then, (1) A player is always off-side if he is in front of the ball at the time of kicking unless there are 3 or more of his opponents nearer the goal line than himself. (2) A player is never off-side if there are 3 or more of his opponents nearer their goal line than himself at the moment the ball was last played. (3) A player cannot be off-side if the ball was last played (i.e. touched, kicked, or thrown) by one of his opponents or by one of his own side who at the time of kicking is nearer his opponents' goal than himself.

Law 6 further enacts that a player being off-side shall not in any way whatever interfere with any other player.

(4) By Law 8 a goal-keeper "is allowed to use his hands in defence of his goal." The committee do not consider a goal-keeper to be in defence of his own goal when he is in his opponents' half of the ground.

(5) Rule 11, which reads as follows, should be strictly carried out by the umpires and referees in all matches. "No player shall wear any nails, excepting such as have their heads driven in flush with the leather, or iron plates, or gutta-percha on the soles or heels of his boots or on his shin guards. Any player discovered infringing this Rule shall be prohibited from taking further part in the game."

The attention of referees is particularly called to the following new Challenge Cup Rule, which should be rigidly enforced in all matches in the competition. "If bars or studs on the soles of the boots are used they shall not project more than ½ in., and shall have all their fastenings driven in flush with the leather, and in no case shall they be conical or pointed. Any infringement of this Rule shall lead to the disqualification of the player, and the referee shall prohibit him from taking any part in the game." It is not necessary for a referee to have an appeal made to him before putting this Rule in force.

(6) Rule 13, "In the event of an appeal for any supposed infringement of the Rules, the ball shall be in play until a decision has been given." Umpires should remember how very important it is for the proper working of this Rule that their decisions should be given as quickly as possible, and if a claim is made and one umpire allows it, the referee, if he agrees with him, should instantly sound his whistle, without waiting to ascertain the opinion of the other umpire, it being understood that the umpires should allow an appeal by holding up a stick, and the

referee by sounding a whistle.

(7) A ball touching an umpire or referee is not dead.

(8) It is the duty of the referee to see that all free kicks, kicks off from goal, and corner kicks are properly taken, and it is not necessary for him to wait for an appeal in the event of any infringement of the Rules referring to those points. In the case, though, of a throw-in from touch, where a penalty is attached, an appeal is necessary before he can give a decision.

(9) Umpires should bear in mind that it is entirely against the spirit of the Rules to give any advice to or make any claim on behalf of either side, and should be careful to ascertain that a claim is made by one of the players and not by a spectator. Also that they are bound to give a decision one way or the other when appealed to. In cases where an umpire is so placed as to be doubtful about a claim, he should decide in favour of the side appealed against.

Rugby.—The referee must not interfere except on an appeal to the umpires otherwise than in the following cases, and then only on a claim by the opposite side:—

(*a*) At "kick off," when it shall be his duty to see that the players on the side which has the "kick off" are not in front of the ball when it is kicked off.

(*b*) At "kick out," when it shall be his duty to see that the kicker's side are behind the ball when kicked out.

(*c*) In the case of a "fair catch," when it shall be his duty to see that the kicker's side are behind the ball when it is kicked. In the event of players (in his

opinion) breaking the law on any of these points, he shall, on a claim by the opposite side, order a scrummage to be formed in the case of “kick off” in the centre of the ground, and in case of “kick out” at a spot 23 yd. from the kicker’s goal line, and equidistant from both the touch lines, and in the case of a “fair catch” at the spot where the “fair catch” was made.

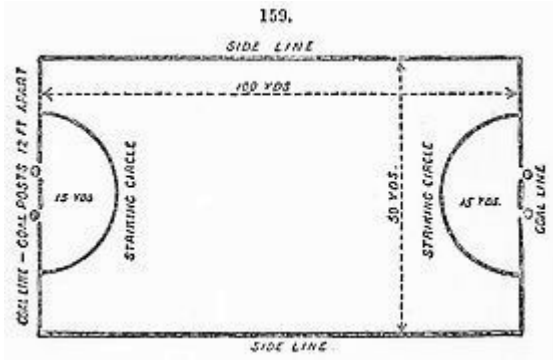
(*d*) In the case of a try at goal, if any of the defending side charge before the ball touches the ground, he may, provided the kicker has not taken his kick, on a claim by the opposite side, disallow the charge.

When a player is down in a scrummage, and the referee considers it dangerous for the game to proceed, it shall be his duty to order the game to stop until he thinks the danger is over.

The ball is dead whenever it touches an umpire or referee, and a scrummage shall be formed forthwith at the spot where the touching occurs.

In the case of an appeal to an umpire play shall not cease pending a decision.

A player who is off-side may, nevertheless, run until an opponent actually has the ball, but must stop directly he has it.



159. Hockey Field.

Hockey.—Fig. 159 shows the ground properly marked out. The lines must be marked with white, as in lawn tennis, and not cut, as it has been proved that the ball mis-bounds as it is dribbled past the striking circle if the line has been cut in the turf.

The cricket ball must be painted white with ordinary oil paint.

A player is off-side unless there are 3 of his opponents nearer their own goal line, and when off-side he must not prevent his opponent in any way whatever from playing the ball. If, where a player is off-side, the ball is hit by one of his own side, he is still off-side, unless the players have moved sufficiently to place 3 of his opponents between him and their goal line.

The ball must be played from right to left, but a player, by twisting his stick so as to present the playing side of it to the ball, may poke or hit the ball in any direction, except that when hitting behind him it must pass to his left-hand side. If the ball passes between his legs, and the right foot is on the ground, it is a fair stroke.

Lacrosse.—The following notes are taken from a couple of letters which appeared in the *Field* some time since.

Where the checking is patient and sure, the man who holds the ball, instead of passing it on, merely delays the game for just so long as he detains the ball; his chance of scoring is nil. When the ball is thus held it is usually done by a player who is being kept by a defence player some 30 yd. or more from the goal. Carrying his crosse on the far side of him, he is endeavouring, by running in wide circles and suddenly doubling back, &c., to get on the inside of the checker, or to induce another opponent to molest him, and so leave another of his side uncovered. This manœuvre in good matches is pure waste of time. The checker simply moves with his man, keeping his eye steadily on his body, and no more regarding the ball than if it were not there. As the checker is inside the attacker, he is moving in smaller circles, and so finds it very easy to keep between the latter and the goal, whilst nothing is more remote than the possibility of a second checker, who is looking after another home man, leaving that man so long as the holder of the ball is taken care of. In the end the ball is merely lobbed on the goal, as it might have been in first instance, when a far greater chance would have existed of the defenders being out of position. In lacrosse, all movements should be as rapid and as unexpected as possible. Given the defenders all in position, scoring becomes exceedingly difficult, and the defence show their knowledge of this fact by their extreme reluctance to leave their posts to follow roving opponents. The evil worked by the man who holds the ball is in the fact that he gives the opposing defence ample opportunity for quietly arranging themselves in position, and when the ball

does come it finds them prepared and cool, instead of flustered by the rapidity of its arrival.

One cause of this phase of weak play is the want of confidence in homes of their throwing power. In Canada, a home devotes himself assiduously to the art of throwing the ball at express speed at goal the instant it touches his crosse. If he be only 30 yd. from goal he is able to put in a shot which will take some stopping. We are not saying that, as they throw now, English homes should throw 25-30 yd., but that they should practise assiduously until they make their shots dangerous at that distance. Any one desirous of perfecting his throwing at goal can do so by the simple aid of a wall. Upon the wall mark out a goal, and then, standing 25 yd. away, commence peppering, the ball always being thrown as soon as possible after it is received upon the crosse. Nothing could be more simple or satisfactory, as the ball is always returned to the thrower by the rebound. It is better to have 2 men throwing at once, as one can toss the ball to the other, and so more nearly approach the conditions met with in the field; whilst, of course, the instant the practice can be obtained against a goal-keeper, the wall should be discarded. In thus practising the thrower should be careful to make the ball pitch some 6 ft. in front of the goal. A ground shot, which touches only once, and that a few feet only in front of the goal keeper, is the most deadly.

The attack player’s task is far harder, since his object is not attained unless he directs the ball at a space only 6 ft. square, and that in such a manner as to elude the vigilance of a person stationed there for the special purpose of guarding it. Of the defence men pure and simple, i.e. the 3 men out from goal,

point, cover-point, and third man, it is only demanded that they shall throw the ball as hard as they can to the other end of the field, so soon as they come into possession of it. The more directly they can throw towards their opponents' goal the better undoubtedly; but, as a matter of fact, the whole breadth of the field is open to them; and, if they throw wide, they are not throwing a chance away, as is a man shooting at goal and missing it, although they undoubtedly give the homes a lot of unnecessary work.

Yet, simple as this feat of getting rid of the ball to some kind of advantage is, it is astonishing how extremely difficult some contrive to make it for themselves. A powerful defence man, capable of throwing the ball 120 yd. with ease, shall have the missile upon his crosse, with nothing to do but to cast it from him into the air, and yet unable to do so because a small but nimble antagonist watches every movement, and meets it with a counter one. The reason for all this trouble is that defence men learn to throw in one way only, and that way generally a very bad one. The long throw, which is the easiest to check, is the one made low down past the side, with the face turned nearly full towards the direction in which the ball is thrown; and yet this is the throw which the majority of players who do not throw overhand are adopting. When this throw is employed, it is impossible to keep the bend, from whence the ball invariably quits the crosse, out of range of the crosse of the checking opponent, who can either actually arrest the ball itself before it has travelled a yard through the air, or, what is both easier and safer, he can always interfere with the throwing crosse sufficiently to spoil the throw. The low underhand throw is bad, for two reasons. First, it

is more easily checked than any other; and, secondly, the greatest distance for the power expended is not attained, whilst the ball travels with a large amount of spin upon it, which renders it extremely difficult of capture by those for whom it is intended at the other end of the field of play. In this throw the ball, whilst upon the crosse, is made to descend from a height, to a lower one, from whence it again rises, to quit the crosse. Hence the spin put upon the ball, and the loss of power sustained.

Players do not seem to grasp the fact that, to make the ball travel smoothly, i.e. without spin, and with the least expenditure of force, the crosse must travel, as it were, on even keel. Between the points at which the throw is commenced and finished, the crosse must not describe the least curve, but move in a perfectly straight line. When this is done the ball can be transmitted to a considerable distance at the expenditure of a surprisingly small amount of power. But it is impossible of accomplishment if the thrower place himself so as to almost face the direction in which the ball is thrown, as then the crosse, in order to attain directness, must be brought close past the body of the thrower, with the bend describing a segment of a circle, and nearly, if not actually, as is often the case, striking the ground at its lowest point. All this would be avoided if the thrower were to turn away from the object aimed at, so as to almost turn his back upon it, and throw, more round than past himself, over the left shoulder. It is a good plan to commence by throwing the ball straight backwards over the head, and then by degrees bring the crosse lower towards the left shoulder, with succceding throws. The first gain is that the ball travels evenly, and the second that, owing to the high point at which the ball leaves the crosse, it is very difficult to

check it. It may be taken as a standard rule that the closer one is checked the more perpendicularly should the throw be made, so as to keep the bend as high out of reach as possible. But there is another very important advantage gained in assuming this recommended attitude. It is that the thrower is enabled to change his throw instantly from the underhand one over the left shoulder, backwards, to the overhand throw from the left shoulder, whilst facing the direction thrown to. If a player be facing his opponent's goal, and about to make the underhand forward scoop, and he is checked on his throwing side, his only tactic is to suspend the operation of throwing, turn round so as to bring his crosse out of the checker's reach, and run and dodge until he succeeds in getting the latter on the wrong side of him. If the checker is good, as in good matches he would be, he will take care always to keep on the throwing side, and the trouble he thereby causes may be imagined. Now, if the thrower would only learn the left shoulder shot as well as the underhand throw over the left shoulder, and would condescend to take a wrinkle and stand as above directed, he would find matters greatly simplified. Standing almost with his back towards the foe, with his left leg well to the rear, all he has to do on being checked on the throwing side is to lower the crosse (keeping it nearly horizontal), turn the left hand under with the knuckles up, in preparation for the shoulder shot, and bring the left leg a yard or so further round to the right. All this can be done in one movement, and in an instant, and the ball is propelled on the side of the player opposite to that intended. The cause of all the trouble introductorily alluded to is this want of ability to throw from corresponding sides. There are plenty of men who

throw from the right shoulder overhand and pass the left side underhand, and vice versâ, but there is no assistance derivable from these accomplishments, since the check which frustrates a right-hand shoulder throw is equally successful in the case of an underhand throw past the left.

The crowning fault of all English players is, that they trust so much more to their legs than to dexterity with the "stick." The beauty of the game lies in the ability with which the crosse is handled.

Lawn Bowls.—The players arrange themselves in sides, usually of 4 each, and each player is provided with 2 bowls. These bowls, instead of being the large lignum-vitæ bowls of 6-8 in. in diameter, are but little bigger than a tennis ball, easily held in the hand, and are enamelled with ornamental colours and various designs, looking bright and pretty on the green turf. A white ball is first thrown to one end of the lawn, and the aim of the players, who stand at the other end, is so to send their bowls that they may lie as near as possible to the white ball. The side whose bowls are nearest the white ball reckon one point for each bowl so placed—7, 14, 21, or 31 make game, according to mutual arrangement beforehand. It requires a little practice to send the bowls straight. The game also has the advantage of not taking up much room, and may be played in some quiet corner of the garden, provided the ground be level, and the grass short and well mown.

Lawn Skittles.—This game may be played in the shade, even under the branches of a tree; it does not occupy much space, and any number of players, if divided into two equal sides, may be pressed into the service. The apparatus consists of a pole firmly fixed in the ground, and to which is attached a rope, from

whose end a heavy ball is suspended. Two square slabs of stone are let into the ground at opposite sides, and at certain distances from the pole. On one of these stands the player, and on the other are ranged 9 pyramids, resembling large ninepins. The player takes the ball in his hand, and, swinging it round the pole, aims at knocking down the ninepins. He is allowed 6 chances, and then another player takes his turn. This sounds easy enough, but is far more difficult than would be imagined, as it requires a good player to swing the ball round the pole before letting it fly at the men or ninepins. Before commencing, the number which is to be considered game is agreed upon.

Lawn Tennis.—Grass Courts.—The following ways of making lawn-tennis grounds suggest themselves: (*a*) The adaptation of an existing field or lawn; (*b*) laying down turf to form a lawn; (*c*) making a lawn by sowing grass seeds.

(*a*) Having determined upon the particular portion of the field, the first work to be done will be to roll it as soon after rain as may be, with a heavy smooth agricultural roller. This will generally level the lawn sufficiently, at least as a first process. This done 2 or 3 times will show if there are any serious uprisings or tumps, or, on the other hand, hollows or depressions. If the latter, let the turf be lifted from such sunken parts, which should be filled up with some good garden soil. This should be rolled down to a smaller extent by a somewhat heavy garden roller, and when pretty firm the farm implement may be applied, as it will perhaps smooth down the hillocks to a level with the mended-up depressions; if not, it may be that the turf should be lifted beneath these slight hillocks, some of the earth removed, and the

turf pressed into place. In operations of this kind, wherever the turf has been cut, it is well to sift some fine mould over the parts before the rolling is performed—at least for the first time the roller is used. The rolling will soon show if there be any hard-rooted tussocky kind of grass or other plants interfering; if so they should be removed, and the same finely-sifted earth restored, and a very small quantity of fine grass seeds sown on the bare spots before the roller be used.

(*b*) In laying down turves, care has to be taken to make the base as level and solid as possible; this is done by filling up and paring down, while the turves are being got ready from some nice even and fine grass, cut of uniform size and thickness, laid and stamped down with the utmost care, and when laid, fine rich mould should be sifted over the whole, especially over the joints. This, if dry weather supervenes, should be watered. At first light rollers should be used, to be succeeded by heavier ones. If well done, it is the quickest and most efficacious way of planting a lawn.

(*c*) Lawns may be well made by preparing the soil, then levelling, and sowing with grass seeds, which should be well rolled down. If only a temporary lawn is required, the best grass to sow will be *Poa annua* (annual meadow grass). This should be sown somewhat thickly; it comes up quickly, bears clipping well, and, if not allowed to flower, it will become almost a permanent grass. If the lawn, as is mostly the case, is to be permanent, less of the *Poa* should be used; but its quantity should be made up with the following proportions: *Poa annua* (annual meadow), 1 lb.; *Poa pratensis* (smooth meadow), 1 lb.; *Festuca duriuscula* (hard fescue), 2 lb.; *Lolium*

perenne Devoniensis, (Devon ever), 4 lb. With this mixture the *Poa annua* will soon be lost, unless the grasses be seeded, which would not be good for the lawn; but the other three species, which grow well together, will soon form a good lawn. Lawns to be kept even and smooth want to be frequently mown and rolled; but, if the soil be poor, the constant mowing and removal of the grass will damage the turf. Injury of this kind may be prevented by a dressing of superphosphate in autumn, and of soot soon after the breaking up of frost.

Marking Grass Courts.—The following plan might be very useful to those who do not wish to disfigure a lawn with whiting, and do not object to some expense. The webbing ought to be 1½ in. wide, and if strained tight should be rather bare of the true measurements. Purchase 75 yd. webbing at 1¾*d.* a yard, being sufficient to go round a court 78 ft. by 30 ft. and allow for splicing and corners as follows (the webbing is that used in the manufacture of chairs): Take 5 rings nearly 3 in. in diameter; curtain rings would answer the purpose. Sew the first ring to the end of the webbing with saddlers' needle and twine, lapping the webbing once through the ring. At 78 ft. farther cut the webbing and sew it to one side of a second ring; on the other side of the same ring again sew on the webbing, and you have turned the first corner of the court. The next corners, at distances of 30 ft., 78 ft., and 30 ft. are treated in the same way, except that the 2 ends should not be joined. Then, for convenience of painting, wind the webbing perpendicularly over a door or a gate; or a sort of tambour frame, made of 4 poles tied together to the shape of an Oxford picture frame, answers the purpose. Paint the webbing with 2 coats of white paint on one side, and one coat on the other. It will

take a boy 2 long days, and consume about 3 kettles of paint. Make 4 hoops, about 3 in. high, and 1½ in. wide, of iron wire, nearly as thick as croquet hoop wire. Peg the webbing down by the corner rings with these hoops, putting as heavy a strain as possible on each piece before pegging. The 2 end rings will be pegged by the fourth hoop. Webbing so treated does not trip the players, only requires the above 4 hoops or pegs, is too heavy to be moved by wind, does not twist and kink like tape, and is practically indestructible. A light drum or winch, 16 in. diameter, 6 in. flange, and 5 in. wide, much facilitates carriage of the webbing to and from the courts, and keeps it stored in small compass. (D. W.)

Waterproof Net.—The nets dressed with gutta-percha by the Manchester Cotton Twine Spinning Company, Corporation Street, Manchester, are impervious to wet, are not affected by the sun, and may be left out in all weathers without injury.

Asphalte Courts.—(*a*) The probable cost ought not to exceed 10*l.* if laid down by own workpeople, and less if tar has not to be purchased. It is pleasanter to play on than real asphalte, having more elasticity, and the colour is excellent for seeing the balls, which are not blackened or worn out quickly, as is the case on cinder courts. Mix thoroughly well sand and gas tar, in the proportions of 1 cub. yd. sand to 24 gal. tar (the more it is mixed the better). About 8⅓ cub. yd. sand and 200 gal. tar will make a court. This quantity is to be made into a heap 3 days before laying down. Keep turning the heap every day, and, immediately before putting down, add 5 or 6 shovelfuls of dry lime to each cub. yd., and 24 gal. tar. For foundation, 6 in. of small broken stone or brick rubbish, on which put some fine gravel, or,

better still, coal cinders, to give a smooth surface; bring this to a level with straight-edge and spirit level, and press down with a heavy roller. The mixture of sand and tar should be laid on 1 in. thick, and should be rolled well with a roller having round edges, sprinkling fine sand on it all the time to prevent the roller sticking to it. The court should have a slight fall of 4 in. from centre to ends, and the ground should be well drained underneath and around the court, which should be laid down with a large margin, to give plenty of room at the ends and sides. The best time for making the court would be late in the spring, after all chance of frost has disappeared, the ground having previously been prepared by drainage, &c.

(*b*) A mixture of coal tar and cinders makes a rough and dirty court, and is very liable to work uneven from the nature of the material. It is necessary to lay these courts on a dry foundation, or they would be lifted by frost, and the cost is from 20*l.* to 30*l.* Covered balls cannot be used on them, and shoes are soon cut to pieces. A way might be found to put a finer surface on these courts, but they can never be made very durable.

(*c*) Real asphalte runs into a very high figure.

Cinder Courts.—(*a*) Plain cinder courts may be laid at very trifling cost, wherever steam power is used, and engine ashes can be had gratis, and only cost the carriage. Cinders, however, if not laid on a dry foundation, after they have been beaten down to a smooth surface, will puddle up with frost.

(*b*) Pare the turf off, and level the ground; give a sprinkling of agricultural salt, to kill the grass roots; put in a drain or two of 2 in. pipes, if the subsoil is clayey or retentive. Get 25 cartloads of factory or

other cinders; wheel on (as they are) as many as will make a strip all across about 9 ft. in width and 2½ in. in thickness; rake off the very large ones as a foundation for next strip. Roll all thoroughly well; then put on the 9 ft. strip a layer or covering of finely riddled cinders, and again well roll, and so on throughout. Keep the roll going every day for a week, and then you may play every day in the year except during snow or rain. Use uncovered balls in wet weather; they bounce sharper, and wash clean. (Geo. H. Wade.)

(*c*) Foundations are first prepared of broken stones as for cement, into which a few field drain pipes are laid, upon this a covering of 3 in. of coarse cinders; and over this a finishing coat of riddled ashes mixed with a tenacious clay laid on with plenty of water, and worked up with a trowel in the same manner as cement. The ashes used may be furnace ashes from a colliery engine, of a red colour, the reddest being selected. The result is a fine smooth surface of an agreeable colour (an important consideration), and easily kept in order by a small roller. No ordinary shower affects it, and it can be placed on very soon after heavy and continuous rain. The surface is sufficiently yielding to be agreeable to the feet, and prevent the balls from playing too lively.

(*d*) Take 50 chaldrons fine cinders, 2 barrels tar, 1 chaldron white builder's sand, and 2 cwt. agricultural salt. Having prepared a piece of ground by removing the grass roots, and making it quite level, sprinkle the salt to kill any remaining roots of grass, then spread the cinders 6 in. deep quite smooth; boil the tar, and pour all over the surface with a watering pot; then sieve the sand over it to prevent the roller from sticking. Then roll with a

heavy garden roller with 2 men constantly for 2 days. Occasionally roll for a month after it is finished, and before it gets firmly set. There should be no rain during the operation. Around the ashes put small red gravel, the same depth as the cinders, for a pathway. The court slopes on one side enough for the rain water to run off; all along the outer edge of the lower path place a drain pipe 6 in. under the surface for the water to escape. After the hardest rain, in one hour the court will be quite playable. (A. H.)

Concrete Courts.—(*a*) First lay out the level with pegs, rather over 6 in. high, and fill up the floor with broken brick and stone rubbish to within about 1½ in. of the peg tops. Have a quantity of river gravel first passed through an ordinary gravel screen, putting the large aside for the roads. The gravel that passes through the first screen is again passed through a fine wire lime screen to separate the sand. The medium gravel thus separated is mixed with 1 part Portland cement to 4 of gravel, and laid over the broken bricks, bedded well among it, and coming nearly up to the top of the pegs. This covering is worked as level as possible, and allowed about an hour to stiffen, after which a fine surface is laid on of 1 part cement mixed with 2 of the sharp sand and grit that has been screened from the gravel. This surface is dressed over and finished about an hour after it is laid on.

(*b*) Take 50 loads broken rubbish (brick or stone), 5½ tons Portland cement, 11 tons screened gravel, 5½ tons sharp sand. The expense will depend on the prices at which the rubbish and gravel can be procured, but the cement will cost 11*l.*; and if the rubbish is put at 3*s.* per load, the gravel at 5*s.* per

ton, and the sand at 4*s.*, the cost of material will be 22*l.* 7*s.*; allowing 5*l.* for labour, in laying and levelling the court, the whole expense will amount to about 27*l.* Such a court will be as good and as durable, for light work, as one costing 100*l.* A court with a good surface could be made considerably cheaper by using less cement and less solid foundation; but with a concrete court it is necessary to secure such dryness and solidity below as will prevent the risk of the floor being lifted and cracked by frost. (P. S. W.)

(*c*) One authority quotes the price per yard at 2*s.* 9*d.*, for a floor of concrete, 4 in. thick, faced with 2 in. of best cement.

(*d*) A proportion of 1 (by weight) of cement to 2 of clean sharp sand and 4 of clean gravel, broken stone, &c., makes excellent concrete. These proportions are 6 to 1.

Quoits.—Rules of the Game.—(1) The quoits shall be not more than 5¼ lb. in weight, nor more than 8½ in. diameter outside, and 5½ in. in the inside, nor more than 1½ in. in height, and made of malleable iron. Quoits faced, or partially faced, with steel shall not in any case be allowed.

(2) The pins shall be placed in tempered clay ends, confined by a wooden frame, and shall not project more than 3 in. Pins to be not less than 3 ft. long, and the exposed point ½ in. in diameter.

(3) The pins shall be placed at such distances apart as may be agreed upon, and in the centre of the clay. The pins to be readjusted and the clay made up only at the discretion of the umpire.

(4) No quoit shall count that is a greater distance

than 18 in. from the pin.

(5) When a match is played, one umpire shall be chosen by each side, and their decision shall be final. Should, however, an umpire have occasion to appoint another in his place, the last-named in all cases shall be the umpire for the time being. No person except the umpires shall interfere, but each captain may instruct his men if requested.

(6) A player in delivering his quoit shall stand with his foot opposite the pin, but not more than 2 ft. therefrom, and must deliver his quoit before the second step is completed. Should he not do so, the quoit pitched shall be called a "no quoit," and treated the same as a "no quoit," as per Rule 11.

(7) The 2 quoits nearest the pin shall count one each, if belonging to the same side. If not, then only the nearest quoit counts one. The quoit touching the top of the pin to count before a side-toucher.

(8) When the inside of a quoit, taken perpendicularly from the pin upwards, shall surround the top of the pin, it shall be called a ringer, and count 2. If a player has 2 quoits in this position, they shall count 2 each, unless his opponent has one dividing them, then the last ringer only shall count.

(9) No quoit shall count as a ringer when a quoit under it covers, in a perpendicular direction, any part of the top of the pin.

(10) If a quoit when pitched shall hit the frame surrounding the clay in alighting, or shall alight outside the frame, it shall be called a "no quoit," and shall not count or hinder any other quoit from counting, and shall at once be removed.

(11) No clay shall be removed in measuring the distance of a quoit from the pin, neither shall any quoit be removed to facilitate the measurements.

(12) When 2 quoits belonging to opposite parties shall rest at equal distances from the pin, the leading player shall retain his lead.

(13) Any player claiming a point or points after pitching one quoit shall not be at liberty to go back and play his second quoit.

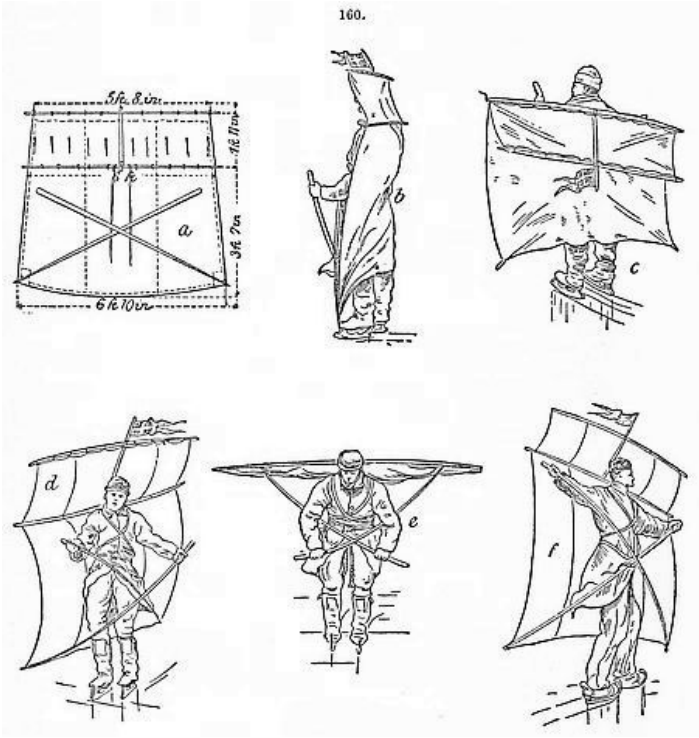
(14) A player in any match must have been a member of the club he plays with for at least one calendar month previous to that time.

Making a Ground.—(*a*) Procure a large treacle or oil cask, cut the ends off (leaving them about 5 in. deep inside); take care that there are 2 iron hoops on each end; fix an iron pin (¾ in.) firmly in the centre of each, to stand about 7 in. above the edges of the tub, then fill it with stiff clay, raising it from the sides towards the top of the iron pin, leaving so much bare as shall be sufficient for a mark; have a waller's trowel to smooth the surface when required. These can be placed in any convenient position for quoiting into, and may be removed when not required. Have a frame made of lightwood or iron, cone-shaped, and covered with waterproof canvas, to cover the tubs when not in use.

(*b*) If the land lies high and dry, and the soil is clay, which during hot weather becomes very hard, dig 2 pits the size required, and about 2 ft. deep. Asphalte the bottom and fill in with the clay.

Racquets.—Making a Racquet Court.—A court should be about 65 ft. by 30 ft. front wall 30 ft. high; back wall 12 ft. high; floor made of asphalte, and walls plastered very smoothly. The expense varies

according to size, and cost of labour and materials. It must be lighted by skylights. The area of a double court should be 80 ft. by 40 ft.; front wall 30 ft. high, back wall 12 ft.; side walls sloping towards back wall, with a very slight decline of floor down towards the back wall.



160. Sail Skating.

Sail Skating.—When the ports of the Baltic are closed by ice during winter, the pilots and sailors of Arnager Isle, at Copenhagen, occupy their leisure hours with the exercise of skating by sail. This sport requires much skill and quite a long apprenticeship; but, after a person has become dexterous at it, it

offers a very peculiar charm, and, when a swift wind causes him to glide over the surface of the ice, he feels himself lifted, as it were, and experiences a sensation analogous to that of flight. Fig. 160*a* shows a diagram of the apparatus, as employed by the Danish skaters. The sail, which is formed of a light but strong fabric (such as Chinese pongee silk) is stretched over a bamboo frame whose dimensions are given in the cut. The centre crosspiece, which must be placed at the level of the shoulders, is fastened to the skater's body by bands that cross the breast and afterwards pass around the waist, so that they may be tied together in front. Large crosspieces of wood, attached to the lower corners of the system, are held in the skater's hands, so that he may trim the sail in one direction or another. When the skater wishes to be carried along by the wind, he must stand very erect, without stiffening his body too much, and bend backward in proportion as the wind blows fresher. Confidence is acquired by practice. Fig. *b* gives the position of the skater going with the wind and under full sail. When the wind is too violent, the topsail may be readily lowered (Fig. *c*), so as to thus moderate the impulsion derived from the moving air. By inclining the sail in one direction or the other, the skater may tack to the larboard or starboard (Figs. *d* and *f*). Finally, when it is desired to move against the wind, by skating in the usual way, the body is bent forward in such a way that the sail lies horizontally, and no longer offers a purchase to the aerial current (Fig. *e*). The skater can thus return to his starting point, and from thence be driven forward again by the wind.

This exercise is a very agreeable one, and not very dangerous; and the falls that a person gets in beginning are not to be dreaded, because they almost

always occur backward. The degree of speed that can be attained by a practised skater is considerable. When the skater has done with his apparatus, he detaches it from his shoulders, winds the sails around the bamboo sticks, which may be separated from them, and thus has an object that is no more trouble to carry than an umbrella would be. When the winters are severe, it is not unusual to meet upon the ice numerous groups of skaters by sail who are endeavouring to excel each other in speed. Young people are often seen, too, setting out on an expedition over the frozen sea between Denmark and Sweden, and traversing the entire Sound. These latter use the sail when the wind is favourable, but fold up the apparatus when the contrary is the case, and make use of their skates in the ordinary way. Danish hunters, likewise, often have recourse to skating by sail in order to rapidly reach points where wild ducks and geese have been observed.

Skating.—The art of skating is far too intricate to admit of being dealt with in a chapter, but the following notes on skates will interest all skaters.

To a man who simply makes skating an excuse for an outing and a jollification, the Acme is the best skate, because it is easily carried, easily put on and off, and with it he is enabled to do the little skating he is capable of as well as if he had the most expensive and elaborate pair.

To the enthusiast who looks on figure skating as a science to be studied, it is essential that he should have what he conceives to be the best skates that can be made.

Assuming, then, that the skater will not object to carrying a bag large enough to hold a pair of boots and skates, we think that the “Mount Charles” is the

best, as it is the simplest, lightest, and neatest. It consists of a skate blade attached by means of plates screwed to the sole of the boot. The front plate is under the ball of the foot, and the heel plate at the heel, and if a very thick-soled boot be used, the absence of support between the two points of attachment, is not practically felt. But a heavy boot is not only unsightly, but fatiguing. If a thinner-soled boot be used, the heat of the foot softens the leather of the sole, which, bending, no longer supports the instep, and fatigue and cramp ensue. Gillett and Co., of Sheffield, hit on a plan which obviates the necessity of a thick and heavy boot, by making the sole of wood instead of leather. A Mount Charles skate with Dowler blades, fitted to wooden-soled boots or clogs, is perhaps the most comfortable, effective, and neat skate produced.

Next in merit to the Mount Charles come the "Barney and Berry." These also are skeleton skates, being fastened to the boot, either with a **T** plate for the heel and movable clamps for the toe (the clamps worked by a key), or having movable clamps at both heel and toe. The mechanical arrangement of the Barney and Berry is a great advance on the Acme; but, as the toe clamps catch the sides of the welt, and do not lap over it as in the old club skate with toe clamps, it is necessary to screw the toe clamps somewhat tightly, and this has a tendency to curl up the soles of the boots, especially if the sole be rather thin, or when it gets soft from the heat of the foot or from skating on wet ice.

Skaters, as a rule, use the boots they skate in simply as skating boots, and never attempt to walk any distance in them; a rigid sole of wood would therefore be no disadvantage. If a piece of oak board

the length of the boot be shaped so as to touch the footstock of the Barney and Berry all along the iron plate, which extends from the instep to the toe, and the board be attached to a thin pair of well-fitting laced-up boots, all the discomforts of the clamps pinching the sole will be obviated, and the heavy thick boot may of course be dispensed with. There is no doubt that a rigid-soled boot is a distinct advantage, whether the Mount Charles or the Barney and Berry skate be used.

It sometimes happens that the skater has to change his boots some little distance from the ice and walk down in his skates—a proceeding that in nowise improves them; and under these circumstances the Barney and Berry has a decided advantage over the Mount Charles, as the skater can put on his boots and walk down in them to the ice, and then adjust his skates.

It is unnecessary to go into the merits of the "Dowler" blade, as its advantages over the straight-sided blade were duly chronicled in *The Field* of Oct. 11, 1879. Since that time the new form of skate blade has been gradually growing in favour. There was some difficulty at first in getting these blades properly made; but Hill and Son, of the Haymarket, and Walter Thornhill and Co., of New Bond Street, turn out Dowler blades in a way that leaves nothing to be desired.

There are, of course, numerous skates other than the Mount Charles and the Barney and Berry, most of which display considerable mechanical ingenuity; but, if we were asked to point out the skate we considered "the best," we should, without hesitation select either the Mount Charles or the Barney and Berry. (*Field.*)

Swimming.—This can never be learned from books; it should form a part of every boy's school training as much as reading or writing. A few hints to non-swimmers will be acceptable, and may prove highly valuable if kept in mind.

The human body weighs 1 lb. in the water, and a chair will carry 2 persons—that is, it will keep the head above water, which is all that is necessary when it is a question of life or death. One finger placed upon a stool or chair or a small box or board will easily keep the head above water, while the two feet and the other hand may be used as paddles to propel toward the shore.

It is not necessary to know how to swim to be able to keep from drowning. A little experience of the buoyant power of water, and faith in it, is all that is required. A small boy who cannot swim a stroke may propel himself back and forth across a deep, wide pond by means of a board, that would not sustain 5 lb. weight. Children and all others should have practice in the sustaining power of water. In many cases the knowledge that what will sustain a lb. weight is all that is necessary to keep one's head above water will serve better in emergencies than the greatest expertness as a swimmer.

A person unfamiliar with the buoyant power will naturally try to climb on top of the floating object on which he tries to save himself. If it is large enough, that is all right. But it is generally not large enough to keep all entirely above water. This often happens when pleasure boats capsize. All immediately want to get out of the water on top of the overturned or half-filled boat, and all are drowned except those whom the craft will wholly bear up.

If they simply trust the water to sustain 99 per

cent. of the weight of their bodies, and the disabled boat the other 1 per cent., they all might be saved under most circumstances. An overturned or half-filled wooden boat will sustain more than it will carry. It would keep the heads above the water of as many people as could get their hands on the gunwale. These are simple facts easily learned, and may every day save life.

Velocipeding.—The following are a few hints on the prevention and cure of accidents to tricycles.

A very common accident in tricycles fitted with plain bearings, is "firing." The cause is generally want of oil. Friction, which oil greatly reduces, makes the bearing heat. The heat increases, and, after running heavily for some little time, the metal expands, so that a dead-lock is the result, and the part refuses to move. The best remedy is to get some boiling water and cloths, which, being soaked, and laid round the outside, will in a short time unfix the most obstinate bearing. A good oiling should be given. In a new front steerer, unless the balance gear and driving axle be well oiled there is a tendency to "fire," as the fitting is very close. It is better to over-do the lubrication than otherwise in a new machine, owing to this same close fitting.

Another accident tricycles are liable to, especially in light ones, is a bent axle. The cause is either the jar occasioned by riding over a large stone or brick, a thick dress being violently "wound up" in the chain, or the fact that the rider is too heavy for the machine. The fact of the axle being bent is painfully evident in a bad case from the "wobbling" of the wheel nearest the seat of the damage. A slight bend may be detected by tilting the machine, and spinning one wheel with the hand, watching the stationary

one. If this oscillates slightly, there is a bend. If the axle is bent, it can only be rectified by a skilled mechanic. If an axle bends again it is most politic to have a new axle fitted, as, for an axle to break at full speed, is the most dangerous of accidents.

A bent steering rod is a very common occurrence. It often happens that the adjusting screw at the end of the fork arm works tight, and, as the screw is only meant to work as a pivot, the tight joint often "jams," and, unless slackened, the rod either bends, or, worse still, breaks. Another cause of the same accident is the steering head working tightly—deficient lubrication again. A blow on the rod or a flaw in the steel may cause a like result. A bent steering rod may be pulled straight without much trouble, a broken one is a more serious matter. A good plan is to tie the head of an umbrella or walking stick, if of a suitable shape, to the spanner fitted on the head or the arm of the steering head, and steer in the Bath-chair fashion.

The screw connected with the steering rod has a trick of working loose, and, if the lock-nut drops off, the screw may become so loose as to follow. A hairpin twisted in the hole and round, forms a very good temporary connection.

A broken crank is a very tiresome and awkward accident. The cause is either a flaw in the metal or the crank being of insufficient strength. A smart snap is generally the only warning given, and the crank "yields" all round as though made of putty. A crank does not, as a rule, break clean through unless in very faulty iron. It begins to open and "gape," and finally breaks. The rider can do nothing except tie up the fracture (if not occurring at one of the crank axles) in splints with string, and then inquire for the

nearest station, or trundle the machine to the nearest smith, and let him weld it together, in the case of the crank being solid. It often happens that country smiths are only used to rough work. It must, therefore, be impressed upon them most strenuously, that rule-of-thumb will not do. The following method of mending a solid crank has been given by a skilful repairer:—

The broken crank axle, when taken out, should be laid upon a board or piece of stout paper; then, ends being joined at the fracture, the smith should carefully mark round with a pencil the exact size, and, referring to his plan, he will see and mark the amount he may allow to weld, so that the thickness may be the same, and also the throw, and that the two projections fitting into the bearings are straight and level with each other.

Hollow cranks are mended by putting a piece of iron inside, riveting and brazing.

For a broken axle, the best remedy is to get the machine along as well as possible on one driving wheel and the steerer, getting it either carted or carried to the nearest station, from which, if no qualified repairer is near at hand, it can be sent to the maker to be fitted with a new one. It may be comforting to know that, unless in a very light machine, broken axles occur in the proportion of one in a thousand.

Very unpleasant and very common among lady riders is the accident called “being wound up” in the driving chain. Insufficient dress guard is one reason; a full skirt and a gusty day are others. Such misfortunes are to be prevented by fitting a piece of tanned cord netting at the side from the framework to the tilt rod stay, if it is on the same side as the

chain, which most of them are. This netting is laced on with fine waterproof twine, both of which can be obtained of Unite, in Edgware Road. The cost altogether of a yard of netting is 2*d.*, and whipcord 2*d.* more. The netting is impervious to wet, can hardly be seen when riding, and is easily attached, making no noise or rattle. Wire netting rattles dreadfully, and is not nearly as good, whilst 20 times more expensive.

Most bad accidents are due to recklessness. An opinion is common amongst people that to ride a tricycle is the simplest thing in the world, and that, as the machine will stand alone and is tolerably safe when going slowly, no care is requisite in descending hills. It is easy to distinguish between an old rider and a novice in going down a steep hill. The experienced rider, knowing the danger, goes with feet on the pedals and machine well in hand, both braking and back-pedalling until the bottom of the hill is well in view, when she indulges in a “fly,” still keeping under control, although going fast.

The novice, not knowing how dangerous it is to lose control, comes down erratically—in many cases quite unable to stop—and if she does manage to, by means of a strong brake, strains the machine, and does damage that way. Most of the notoriously dangerous hills in England have danger boards erected by the National Cyclists’ Union—in the form of small painted iron plates on a post, bearing the following: “Notice to Cyclists.—This hill is dangerous.” Accidents may be avoided by “braking” and back-pedalling down the steepest part until well in sight of the bottom of the hill. If the hand brake of a front steerer get oily it fails to check the machine properly. The remedy for this is to dust powdered

resin over the drum, which dries up the oil, but makes the brake almost too powerful; therefore, after applying resin, it should be used with caution. If a machine from any cause—such as the brake refusing to act, or being out of order—runs away down-hill, the only thing is to try to keep clear of ruts, and avoid swerving by keeping a firm hand on the steering and a cool head. If presence of mind is once lost, a bad accident is a foregone conclusion. On the other hand, a cool rider may manage to guide her machine safely to the bottom.

A common consequence of a run-away is a "buckled wheel." This looks a most alarming accident, but can be rectified in a few minutes if the wheel is well built. The wheel assumes the form of an erratic 8, the spokes are bulging, loose, and twisted.

To set matters right, the rider should place her knee on the bow of the hub, and, putting one foot on the rim at the bottom, with the two hands take hold of the rim furthest from her inwards. Pulling at these simultaneously, and pressing with the knee the rim with a snap will resume its round form, and a little adjustment with the spoke-tightener of such spokes as are loose completes the operation.

Loose tyres can hardly be called an accident in themselves, but as causes of such they demand attention. If they become loose, a gas jet should be held under the rim until the cement begins to bubble and ooze out between the rim and the rubber. The tyre should be pressed into place and tied firmly with string, and left like that for 12 hours to set. If no cement remains in the rim, some of Rockhill's, or, if nothing better can be obtained, Prout's elastic glue, should be melted in an iron spoon and run into the

felloes. Singer's tyre heater is a good one to use where gas is to be had; but if in the country, where it is not available, recourse must be had to a blacksmith, who should be persuaded to heat relays of red-hot irons, which are held under the rim, as in the case of gas. If a tyre comes loose suddenly, it may be firmly fastened by tying it to the iron felloe with thin string at every 2 in. Each tie should be quite distinct from the others, and the string drawn so tightly as to sink into the indiarubber tyre. A machine will run many scores of miles before any of these strings is cut, and then they can be easily replaced. (F. J. Erskine, *Field*.)

SUPPLEMENTARY LITERATURE.

'Revised Laws of Lawn Tennis.' London. 6*d.*

M. S. F. and S. F. Monier-Williams: 'Combined Figure Skating.' London, 1882. 5*s.*

H. E. Vandervell and T. Maxwell-Witham: 'A System of Figure Skating, being the theory and practice of the art as developed in England, with a glance at its origin and history.' London, 1869. 6*s.*

'Rules of the Game of Hockey.' London. 6*d.*

E. D. Brickwood: 'Boatracing, or the arts of Rowing and Training.' London. 5*s.*

E. D. Brickwood: 'The Rowing Almanack and Oarsman's Companion.' London. Yearly. 1*s.*

W. Wilson: 'The Swimming Instructor: a treatise on the arts of Swimming and Diving.' London. 2*s.* 6*d.*

C. Box: 'The English Game of Cricket: comprising a digest of its origin, character, history, and progress, together with an exposition of its laws and language.' London. 21*s.*

H. F. Wilkinson: 'Modern Athletics.' London. 1*s.* 6*d.*

THE WORKROOM.

It is impossible within reasonable limits to give a comprehensive treatise on all the various forms of useful and ornamental needlework. Moreover, so many changes take place in fashions that no book can keep pace with them, and the best information is to be found in the newspapers specially devoted to women's wants, notably the *Queen*. To this journal readers are referred for the many developments of fancy needlework, and to it is due the credit of the following brief notes on some of the most widely useful methods of effecting darns, patches, and repairs.

Patching.—When a large hole or thin place makes its appearance, it must be mended by a patch, matching exactly in texture and pattern. The fresh piece should, if possible, be slightly worn, to prevent a too great strain on the old, causing the tear to start afresh. Hence the importance of storing up odds and ends. A careful housewife has always a good stock in her piece-bags, one of which she reserves for white, the other for coloured scraps. In repair, and with a

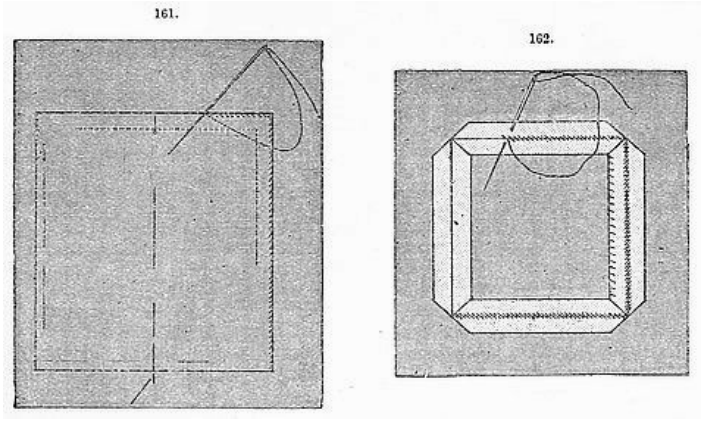
plain material, patching is comparatively an easy matter; but stripes, checks, and brocades call for some ingenuity in arranging the design so well that no break is perceived. When the fabric is cut on the bias, the renovating piece must correspond, though as a rule patches are either square or rectangular in form. Squaring corners constitutes the chief difficulty of patching. To manage these perfectly, they need mitreing or nicking as the case may be, and both piece and hole have to be sewn even to a thread. Garments, specially children's, occasionally require mending at the elbows and under the arms. To prevent an unsightly repair, it is necessary to rip up the seams, and, having sewn the patch in neatly on either side of them, to join the sleeves or armholes again. In articles too shabby to be worth very careful doing up, the added piece may be slip-stitched on, provided it follows and never breaks the seam. Judgment is likewise requisite in the choice of cotton and needles, both as to colour and size. If too coarse, they draw up the threads, and the cotton if too fine breaks away from the stuff altogether. The easiest way of patching is to fix the fresh piece on the right side before removing the old. There are three different methods of doing this, viz. counter-hemming, slip-stitching, and sewing and felling. These are by some considered best for new materials.

Counter-hemmed Patch.—This could be utilised for almost any repairing, except that it takes such wide turnings. For its execution, cut out a piece of material considerably larger than the hole or worn part, and turn it down all round about ¼ in. Place it smoothly over the decayed fabric, taking care not to strain too much, or the stuff underneath will set in rucks. Tack and hem down neatly on each side, letting the stitches be extremely close at the corners.

Turn the work on the wrong side, cut out the worn part, and make a hem on the patch itself.

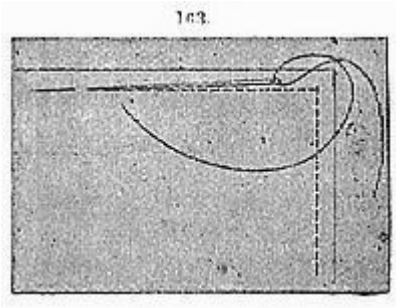
Slip-stitched Patch.—Proceed as before, but, instead of hemming, slip-stitch neatly on the right side. The result will be a very tidy patch, specially suitable for cashmere, silk, merino, and other fine materials that do not wash. Slip-stitching also answers remarkably well in home contrivances, such as recovering ball shoes when faded, and thus utilising scraps of silk, &c., to harmonise with the toilette.

Sewn and Felled Patch (Fig. 161).—Crease the material on the right side at about 2 in. beyond the thin place. Cut a suitable patch straight to a thread, allowing ¼ in. turning all round for the wrong side. Tack or pin it upon the fabric, and sew regularly; flatten the seam, and turn the work. Lastly, remove the worn place, and finish off the patch by a narrow hem on the under surface. If necessary, make a tiny slit at each corner to keep the fresh piece square. More experienced menders prefer to cut away the threadbare portion first, and then let in the patch. This is decidedly the best way, though it makes the management of the corners more tiresome; however, a little practice soon overcomes the difficulty.



161. Sewn and Felled Patch. 162. Sewn Patch.

The Sewn Patch (Fig. 162).—Remove the worn part entirely, and nick the corners of the hole for the turnings. Cut out the patch ¼ in. wider all round. Crease the edges of both hole and patch, and tack them together on the wrong side. Mitre the corners of the piece to make the repair set well. Sew the four sides neatly and closely, taking the stitches only one or two threads into the stuff, and fasten off securely. Fell down the turnings, or only overcast them if mending a woollen, silken, or extremely stout fabric, such as coutil, &c. When completed, flatten the seams by the thumb-nail or thimble or, if necessary, press with a hot iron.



163. Run Patch.

The Run Patch (Fig. 163).—Prepare the hole exactly as for the sewn patch, and crease down a turning as a guide to the stitches. Cut out a fresh piece to fit, allowing ¼ in. on each side. Fix it in place, and run carefully on the wrong side, taking care not to pucker in the least, and letting the stitches be closer together at the corners. Make the seam neat by felling which will set without mitreing the corners.

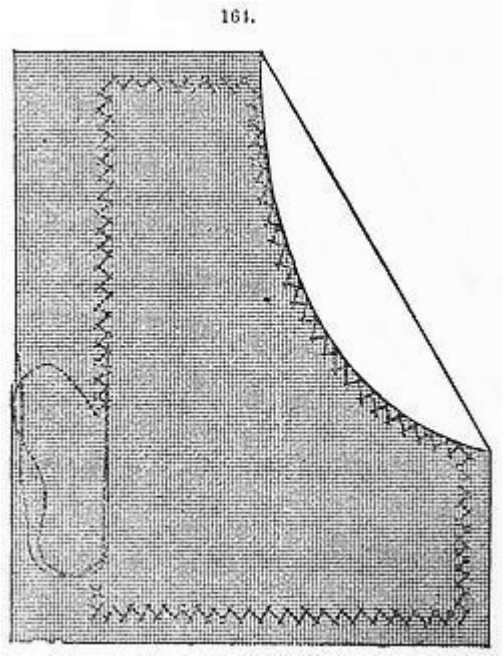
The Darned Patch is frequently employed, when short of scraps, for mending or strengthening play-room knickerbockers, carpets, or any rough fabrics. The small bit, or even a piece of another material, matching as nearly as possible in colour, may be placed under the hole, then secured, and almost concealed, by rows of neat darning.

The Seamless Patch is very similar to the preceding, but the darning, instead of covering the weak part, merely surrounds the edge. The repair often appears in sheets, towels, &c., wherever, from scarcity or frailty of stuff, a seam is undesirable. Cut a piece of the same material a little wider than the hole itself; tack it upon the wrong side of the fabric, letting the edges of piece and hole overlap. When both have been pared, secure the patch to the stuff on the right side by darning backwards and forwards about 6 stitches in height. Leave regular loops, and see that the needle takes in both upper and under surfaces. The darning crosses at the corners, thereby giving them additional strength. With the exception of the corners, neither rows nor stitches should be as close together as in ordinary mending.

The Buttonhole Patch surpasses the seamless patch

in neatness and flatness, and is reserved for the best linen in cases of accidental burns, stains, &c., where the damage cannot well be rectified by darning. The patch is very valuable in stockings, and has recently suggested an excellent plan for seaming petticoat bodices without the slightest ridge, thus facilitating the perfect fit of the fashionable corsages. To make it, cut out the worn part and prepare a piece, identical in material, and of the exact dimensions of the hole; work separately the edges of patch and hole in close buttonhole stitch, with embroidery or flourishing thread. Secure the piece to the fabric by 2 or 4 pins at the corners, and sew it on by passing the needle from the loop of each stitch over the opposite one.

The Flannel Patch.—There are three ways of mending flannel. In the first fix the piece exactly like the seamless patch, then herringbone all round on the right and wrong side, letting the upper row of stitches exactly cover the under one. For the second process, commence as for the run patch, but, instead of felling, herringbone the turnings. In the third and lightest method, crease the 4 sides; manage the corners as already described; set in the patch so that the former exactly correspond with those of the material; then herringbone the edges of the renewed part and hole together. Flannel patches are equally well adapted to the repairing of old quilts.



164. Flannel Strengthening Patch.

Flannel Strengthening Patch (Fig. 164).—This repair, as shown by the illustration, is in frequent requisition for thin places round the armholes, &c. Cut out a piece of fresh flannel the desired shape, tack it upon the material, and herringbone all round. The stuff, being so apt to stretch, needs the hand to be held rather loosely in working.

Joining.—In the alteration as well as the mending of garments, joining is in constant requisition; hence a neat and imperceptible mode is invaluable for all kinds of needlework. To this department belong herringboning, matting seams, net mending, laced and fine drawing, besides various ways of joining fur, canvas, carpets, and velvets.

The well-known herringboning is a most useful

method of uniting two hemmed or stitched edges of flannel, list, or woven underclothing. It also replaces drawn-work insertion, in antimacassars composed of linen or embroidered strips, as well as in coloured handkerchief borders, where it unites squares, &c., of lawn or cambric. The lacey stitch adds to the ornament of the handkerchief, besides suggesting a pretty way of using up scraps. When not utilised for the join itself, herringbone stitches are often made on the right side of the material to conceal the seam. These are sometimes caught down with stitches in a contrasting tint, and at others worked over a braid.

Fur Joining.—When a piece of fur has to be divided into narrower bands, say about 4 in. in width, no scissors must be used. To separate it, lay the fur lightly on the table, hair downwards, and with a ruler and red chalk pencil mark out the divisions boldly on the skin. Take a sharp-pointed penknife, or, still better, a chisel, and, holding it quite perpendicularly, cut by the red chalk lines, resting the penknife against the ruler, in case of slips. Bear slightly when cutting, just enough to let the knife pierce quite through the pelt without touching the hairs. If this operation be successfully performed the skin will separate into bands with smooth, even edges, and the fur remain untouched. Before joining, two things have to be considered—the right way of the fur, and its various shadings. Some specimens, such as the skunk, chinchilla, and squirrel, graduate very much in tint; therefore a little contrivance is required for the ends to match as nearly as possible, and not to place a dark hue close to a light one. If this, however, cannot be avoided, let it be done regularly, in order that the colour shades off at equal distances and the fur has no patched-up appearance. With regard to the right way of the fur, the joining

offers no difficulty in straight bands, but calls for some management in corners, &c., especially when the pieces in hand, being already worn, have slits or shabby spots that need replacing. Now the fur is quite ready for joining. Take a fine needle and smooth cotton or silk, bring the two edges of the pelt together, and unite them by a flat sewing, pushing back meanwhile any stray hairs. Do not pull the cotton too tightly, for fear of spoiling the skin.

Transferring.—In applying old or new woolwork to satin, cloth, or velvet, cut about ¼ in. beyond the design, turn under the edge and tack firmly on the foundation. Conceal the join by a silk cord, chenille, or rows of gold thread. Appliqué work suggests many good ways of utilising ancient needlework, that has lasted intact long after the ground is threadbare. The embroidery is cut out with sharp scissors, and lightly tacked to a fresh foundation; then secured with a kind of running, taken invisibly—a buttonhole, cord on net, herringbone, or any stitch employed in appliqué. Washing fabrics obviously require the firmest sewing. By such means, the well-known Swiss muslin embroidery is transposed, and antiquated collars, handkerchiefs, &c., are adapted to the reigning styles.

Canvas Joining.—Strips of Berlin woolwork frequently run too short for the purpose intended, and need joining to additional bands. To accomplish this neatly, overlap the edges for about 1 in., letting every bar lie exactly in a line with the one underneath. Tack them in place, and cover with cross-stitch in the groundwork colour, drawing the wool rather tightly at the join, to keep the double thickness as flat as the rest of the work. In the same way squares for Berlin wool carpets are united.

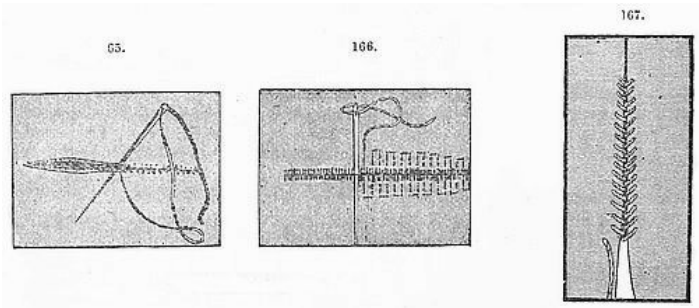
Borders with a running or broken pattern are more easily connected, as the scroll, spray, &c., merely require matching; but with equidistant medallions or geometrical figures the necessary space has often to be made up by letting in strips of canvas. The same process can be applied to tapestry repairing, which now comes more within the sphere of ladies' work, thanks to the introduction of the faded tints, so much admired. Time-worn or worm-eaten spots are cut away, and a piece of new canvas basted outside the hole. Then, with wool matching precisely each tint, the decayed part is copied in again, perhaps with the alteration of a stitch here or there, to make it meet unbrokenly the original work; if well done the replenishing cannot be detected. In woven tapestries the woof threads, after a lapse of years, give way, and countless slits make their appearance between the ribs. These may be effectually mended by drawing together the breaks, with crewels of the same colour, fastening off on the wrong side by passing the needle in and out 2 or 3 tapestry threads. If extremely worn a good strengthening is a backing of stout crash.

Carpet Joining.—Felts and all light fabrics are simply seamed by flat sewing; but in Brussels, Wilton, and thick piles the joins to lie smooth are connected by passing the needle in and out first one edge and then the other. Should the seam set full, dashing on a little water will rectify it. If in case of accidental burns, &c., the carpet has to be mended on the floor, the only available plan consists in placing on the patch, and securing both surfaces by darning. Repairing carpets when up gives the opportunity of strengthening patches, hems, &c., by felling stout webbing on the wrong side. When stair carpets require binding, the webbing matches the

predominant colour in the pattern.

Matting Seams.—These are made in the following manner: Bring the two edges together, take a straight stitch over both, pass the needle slantwise under one edge, and through the adjacent one. Thus the right side presents a row of slight sewing, the wrong a series of sloping stitches taking in one selvedge only.

Velvet Joining.—Faults or cuts, &c., in velvet and plush are concealed by very careful seaming on the wrong side. The needle enters half the thickness of the material (Fig. 165), leaving no stitches visible on the upper surface, and the sewing is drawn till the edges just meet and no more. Care must be taken to work in all stray filaments that no fluffiness disturbs the smoothness of the pile. When finished make the seam still firmer by rows of darning, 4 or 5 stitches in height, and running parallel to the sewing; leave no loops, but pass a horizontal stitch from one darning line to the other (Fig. 166). The preceding is also adapted to satin repairing, though on account of the close shiny surface this cannot be quite as satisfactorily made. Complete the mending by passing the wrong side of the fabric over a cool iron, the steam of which raises the pile.



165. 166. Velvet Joining. 167. Laced Joining.

Laced Joining (Fig. 167) consists in the uniting of torn edges of a slit accidentally made by a thorn, knife, or scissors. In every home it is constantly needed for the temporary repair of those well-known three-cornered rents caused by mischievous nails, knobs, spikes, &c. Laced joining is also the only way of stopping cracks in old silk dresses, umbrellas, and parasols; for the latter being neatly strengthened and concealed by a narrow galloon run on both right and wrong sides. To execute the seam, trim the torn edges, and draw them together, holding the work between the thumb and fourth finger of the left hand. Imitate a kind of lacing thus: point the needle from the chest, and pass it under the right edge; turn the needle in the contrary direction, and slip it beneath the left edge, and so on. Be sure to take in enough of the fabric to bear the stitches, which are to be as close as necessary for the material. Judgment is indispensable also for the placing of the stitches; a knife-cut in a delicate material has a sharply defined edge, and can be drawn together straight to a thread, but in a jagged or worn part the stitches enter more or less deeply into the worn part, according to the state of the piece.

Fine-drawing.—This is almost exclusively used by tailors in their beautiful repairs, and is suitable for all kinds of cloth and thick woollen textures. The method of working is as follows: Having, if possible, turned the article wrong side outwards, place the rent horizontally across the second and third fingers of the left hand. Thread the needle with very fine sewing silk, and slip it between the cloth nearly ¼ in. from one edge. Bring the needle out and take a tiny stitch on the top of the cloth, slip it through the fabric back to the edge again, then insert into the opposite side, repeat the small stitch, and return in

the same manner. Continue thus to the end. If skilfully done the seam can scarcely be unripped, and completely defies detection, provided all the cloth be the right way of the grain. Fine-drawing comes in excellently for connecting stars, &c., in cloth patchwork. For more ordinary purposes an invisible, though not equally strong join, is by a flat sewing taken midway through the thickness of the stuff. In either case the repair needs careful pressing.

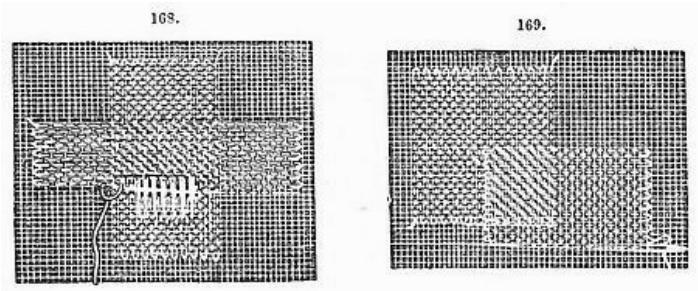
Darning.—The plain, or ordinary darn, was for a long time the only one employed in repairing any material, whether linen or woollen; the materials, soft darning cotton, merino, Angola worsted or Berlin wool, and filoselle, rather finer than the fabric to be mended.

In using filoselle for darning or for embroidery, it is necessary to feel for the right way of the thread, or the filoselle will become rough and work against the grain. Before threading your needle, draw the filoselle through your finger and thumb, and you will soon learn to know the difference between the smooth and the rough way. A great help in feeling anything is to shut the eyes. When you buy new stockings and socks, do not wear them until you have sewed them over heel and toe. There is an open bar in heels and toes that soon breaks, unless secured by sewing over. To do this, stretch the heel or toe very tightly over your left hand; this opens these little bars, and enables you to see holes top and bottom, when you can sew them over. You must not do it like herringboning, but straight, and from left to right. This plan prevents many a darn.

The Plain Darn is not limited to the repairing of house linen or garments; it is also applied to carpets,

curtains, tapestry hangings, and even chair cushions and covers, which all need a close inspection after a periodical cleaning. For all these we mostly have recourse to the darn called *point de reprise*—the great distinction between this and the *point de toile* being that, instead of precisely taking up one and leaving down one, it consists in taking up and leaving down an irregular number of stitches, according to the value and strength of the material. The *point de reprise* is also used in lace-making, embroidery, wool and guipure work; besides, on account of its quick execution, it is generally chosen for the mending of stockings. Materials: A darning or egg-eyed needle, and either cotton, silk, merino, Angola, or linen thread. Method of working: When a hole has to be mended it may be prepared in two ways, either by drawing together all the broken threads as nearly as possible into their original position, and securing them with a needle and fine cotton, or by cutting off all irregularities, and carefully paring the edges; the latter method is undoubtedly the neater. Hold the part to be mended well stretched over the first and second fingers of the left hand, and for the foundation proceed as follows: Point the needle from the chest, and make an ascending row of regular perpendicular stitches, leaving a rather long loop to allow for stretching or shrinking in washing. For the descending row turn the needle towards the chest, and return in the same manner, taking up the thread left down in the preceding row, thus inverting the order of stitches; continue to do this till the hole is well covered by a series of long threads parallel to each other. Crossing: Place the work so that the threads run horizontally, and darn as before, commencing the same distance from the sides, as from the upper and lower edge, or else a hole will

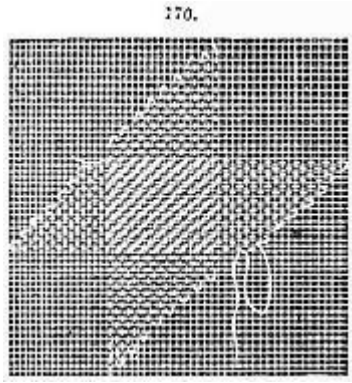
soon make its unwelcome appearance close to the new darn. A little judgment is necessary in deciding the closeness of the stitches, as it is evident that a worn-out material will not bear such close and heavy mending as a comparatively new one. The best mode of covering a plain darn is that which gives it the form of a cross; to this there are a few exceptions, such as the diagonal darn and the double square darn shown in Fig. 169.



168. Plain Darn. 169. Double Square Darn.

Double Square Darn.—When a fabric wears gradually from actual age, the hole is more generally confined to one spot, but in these accidental slits the damage extends over a considerable portion of the material, while the latter is still sound, hence the necessity of specially shaped darns, in which the crossing to avoid clumsiness merely covers the part suddenly torn. The double square darn is principally used for sheets, tablecloths, &c., which have been blown about by the wind while drying, and caught by an unlucky thorn or nail. Materials: A fine darning needle and linen thread. Method of working: With the needle bring the torn edges together, and secure them on a piece of toile cirée, then conceal the slit with rows of darning, which measure exactly double its width and its length; reverse the work, and

repeat the process, so that the tear forms two sides of a square of crossed darning.



170. Diagonal Darn.

Diagonal Darn.—This is an irregular-shaped darn, often had recourse to by experienced housekeepers in the repair of those unfortunate slits, constantly discovered in kitchen or nursery tablecloths, or in linen pillow-cases, sheets, &c., when they have seen their best days. As the tear is made on the bias, the mending threads must of course run in a corresponding direction; this imparts to the work the peculiar shape of a double pyramid or egg-boiler, with a square in the centre, inclosing the slit, putting us in mind of the star pattern familiar in knitted quilts. Materials: Flourishing thread, and a fine darning needle. Method of working: Commence at the extremity of the slit at the distance of its own length above it, and terminate the first row of darning at an equal length below it; proceed by letting each row decrease one stitch on the upper side, and increase one stitch on the lower side in harmony with the tear. Turn the work, and cross in exactly the same manner.

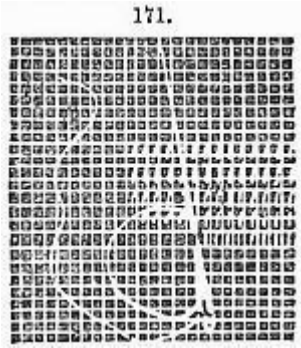
Mottled Darn.—To mend a material woven in two

shades, form the fresh warp by a series of foundation stitches matching exactly the texture and tint of the ground; then cross the former threads by others of the same colour as the woof. This method will produce a speckled darn.

Strengthening Darn.—When upon inspection an article is found to be wearing thin, strengthen the weak parts by a few rows of darning, worked rather far apart, so as not to put too much strain on the material. Both cotton and needle must be very fine, for fear of breaking the threads. For strengthening stockings there is a new and pretty way of doing so on the right side, which imitates a spotted pattern, and leaves no loops. It consists in crossing the webs with horizontal rows of stitches, passing the needle over and under one web alternately. This style is very appropriate for heels and toes, but in the case of frail spots here and there an invisible strengthening may be effected by passing the needle upwards and downwards between the webs.

Reprise Perdue or Imperceptible Darn is nothing more than a skilful execution of the linen stitch, with the exception that it is worked with the ravellings of the material itself, and that no loops are left, the thread being cut as each row is completed. In the days when linen held pre-eminence in fabrics, the *reprise perdue* was a name which belonged exclusively to this particular darn; but, as each new material was introduced, the need of a repair in its exact imitation was naturally felt and met; hence the term has now extended itself to any darn which reproduces the worn fabric so exactly that the most practised eye can scarcely detect any difference. The imperceptible darn is specially used to conceal an accidental tear or burn in costly textures, such as

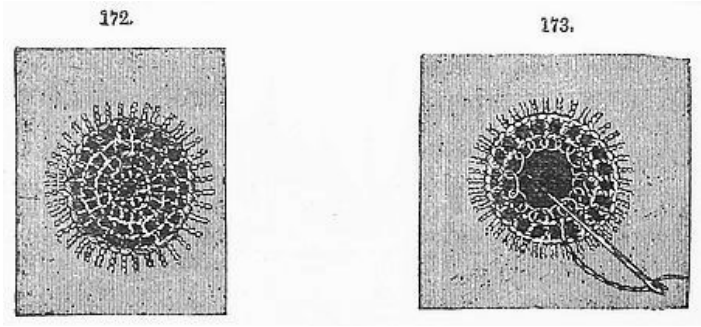
Indian muslins, cashmeres, and fine cambric, and in spots where the defects would be likely to attract much notice, as the front or sides of boots and slippers made of satin or prunella, &c. Above all, however, is this style of darn valuable to manufacturers, for hiding either the faults or the accidental damages done to their goods. Materials: A long fine darning or straw needle, and ravellings of the fabric. There are one or two materials, such as cloth and baize, which do not ravel out. For the repair of the former it is best to use very fine silk, and for the latter ravellings of mohair braid of the same colour. When the exact shade of the material cannot be matched by the mending thread, the darn should be well stretched on a board in front of the light, and completed by a few touches of paint carefully applied with a camel's-hair pencil. Method of working: Draw the broken threads as nearly as possible to their original position, and cut off the frayed parts so as to have the edges perfectly even. When practicable, turn the stuff on the wrong side, and mount the hole on a piece of stiff paper—not newspaper, as the printing will dazzle the eyes. A piece of toile cirée would here be specially valuable, as its green colour affords great relief to the strained sight. The work being now ready, execute the darn in the pattern of the material, letting the rows, instead of forming a decided line, be rather irregular, and lose themselves in the fabric.



171. Rep Darn.

The Rep Darn, as its name implies, is employed in the repairing of rep, as well as poplin, Brussels carpeting, and, in fact, any ribbed material. This darn generally consists merely in replacing the surface by covering each rib with a perpendicular row of sewing stitches, slanting one thread downwards. If by chance the warp threads be also much worn, they will require strengthening by one or two threads passed across vertically, and secured to the back by a few run stitches. Materials: Worsted, wool, or twist to match precisely the colours of the fabric, and a darning needle.

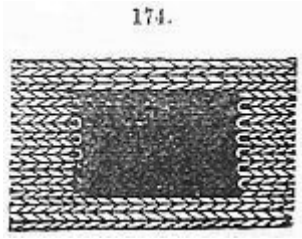
Lace Patch or Darn.—This circular patch is a light and pretty way of mending a hole caused by the accidental fall of a spark or cigar-ash on tablecloths, napkins, &c. It may be executed in any of the open stitches so much used in guipure work, though the feston stitch, being the one generally adopted, is illustrated in Fig. 172. The same stitch can also be applied to lessening the width of stretched-out buttonholes, making an openwork gusset between the fore-finger and thumb of a kid glove, widening the sides of fingers, or filling in a hole that has split near the welt, to which is then added an elastic loop.



172. Lace Patch. 173. Lace Patch.

Detail of Lace Patch.—Materials: Embroidery cotton or flourishing thread, which, being soft and flat, fills up the little interstices after washing, and renders the patch almost invisible even in damask; in this case, therefore, twisted cotton or silk should never be employed. Egg-eyed needle.—Shape the circle carefully, then overcast the edge of the hole by buttonhole stitches placed rather far apart, and taken in more or less deeply, according to the texture of the stuff. Fill in the space by working rows of feston or buttonhole stitches round and round, keeping the thread all the time under the needle, and gradually decreasing in circumference till the centre is reached, when draw the thread closely, and secure it safely on the wrong side. Before attempting this patch on the article itself, it is well to practise it upon a piece of coarse material, in order to acquire dexterity in the work, and thus avoid either puckering or tightening. For a triangular patch such as the one used in gloves, lay the foundation on the widest side, letting the stitches be more or less apart, according to the size of the silk or the openness of the work. Form the patch by rows of buttonhole stitches, going from left to right and from right to left, without breaking off the silk, putting the needle in the centre of every

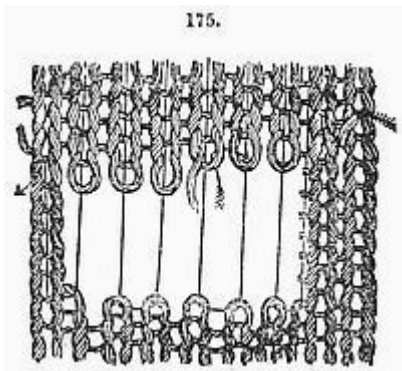
loop, and slipping a stitch at each row, until at the angle there is but one left.



174. Swiss Darn.

Swiss or German Darn.—More appropriately called web stitch, as it imitates exactly the web itself, and is, therefore, the true stitch for mending all hosiery and knitted articles. By the web is understood the texture of threads woven in a loom, forming a tissue of threads interwoven with each other, those extending in length being called the warp, and those stretched across, the weft or woof. The origin of this stitch is comparatively of recent date, for it can only have been known since the introduction of stocking knitting in the reign of Elizabeth. The method comprehends the plain web, the rib, Jacob's ladder, and grafting. Materials: A sewing needle, rather finer than the loop through which it has to pass, smooth darning, or, still better, embroidery cotton, wool or silk matching to a shade, a wooden or indiarubber ball, and a piece of stiff brown paper or toile cirée. Method of working: Cut the hole even, ravel out the edges of the horizontal sides, leaving at each a row of open loops, clear and distinct as if prepared for picking up dropped stitches in knitting. (Fig. 174).—Foundation. Secure the thread on the wrong side by 3 or 4 perpendicular stitches of common darning. Turn the work, stretching it over the first and second fingers of the left hand; keep it in place by the third finger and thumb. Cover the gap by a succession of

vertical threads, commencing, one or two webs from the edge. Bring the needle out at the top between two webs, pass the thread alongside the hole, and insert the needle at the lower part, in the centre of the right-hand web, and draw it through the centre of the left-hand web. Carry the thread upward to the same point from which it started, that is, by putting the needle in the same hole, and take up a complete web. The result will be an elongated **V**, with the angle uppermost. Form a second **V** in the same manner, and there will then remain half a web only from the hole. Pick up, on the needle, this half web and the first loop, and pass the thread upwards to form the point of the **V**, by meeting the thread on the last bar; that is, put the needle in the hole from which the previous thread has emerged, and again take up two loops. Continue thus till the gap is covered, letting the needle point always towards the left, and passing it back one loop to the right at each stitch. This fresh ground will then represent a series of long narrow vandykes. Finish by fastening the thread on the wrong side, in the same manner as at the beginning.

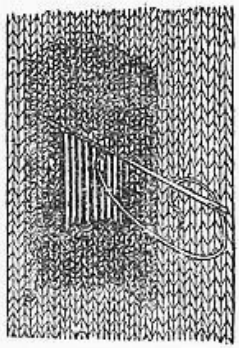


175. Crossing.

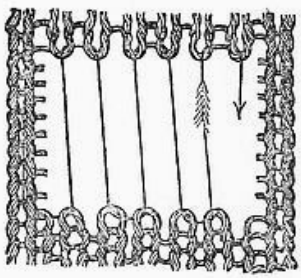
Crossing.—Conceal the foundation by working

backwards and forwards rows parallel to each loop in identical imitation of the web. For the first line attach the thread to the work, and bring the needle out between two webs, precisely as for the first process. Take up the two bars on either side of the thread, entering where the woven stitch is indented, and emerging where it comes out; then insert the needle above, and one bar to the right, picking up again two bars or stitches (Fig. 175). Next enter one bar below, and to the right raise two bars, and so on to the end of the row; each web thus forms a **V** shape. Special care is needed for the 1st row, as on it depends the arrangement of the webs. This line completed, bring the needle out one bar perpendicularly downwards, in readiness for the second, and work from left to right instead of from right to left, putting the needle above every accompanying purl of the wrong side, or the stitches will be disconnected. The beauty of the work consists entirely in its evenness and flatness, hence the utility of the toile cirée or wooden ball, as it keeps the work well stretched. When a ball is used, the stocking is strained over it and held in place by the left hand, the thumb meanwhile resting on the top of the ball.

176.



177.



176. Web Stitch. 177. Foundation of Single Web.

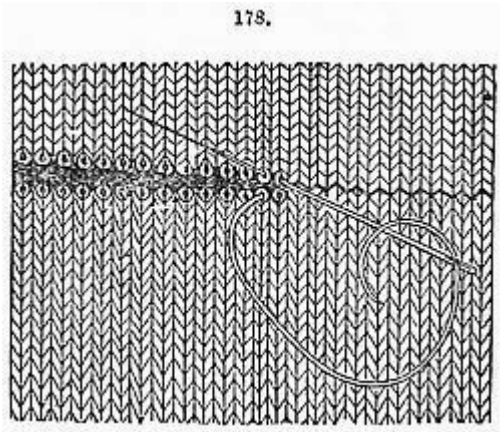
Single Web.—Having now thoroughly explained the ordinary or double web stitch we will just mention the single one, a lighter and consequently less durable mode of repairing, often employed in silk and Lisle thread stockings. Its execution is very similar to that of the former stitch. For the foundation, bring the needle out in the centre of a web, pass the thread across, along the side of the hole, insert the needle again in the centre of a web and the first loop. Then continue to take up alternately two loops on the upper and lower edge, letting the last loop of one stitch be the first of the next. The foundation will then have the appearance of a succession of elongated **U**'s in contrast with the series of **V**'s formed by the double web stitch (Fig. 176). The crossing follows the same rule as the foundation (Fig. 177). Another single web, more rapid, but not so neat, is executed as follows: Make the whole perfectly even, and holding the stocking lengthwise towards you, fill up the gap with common darning, taking up the edge web on either side, not placing the rows too closely. Now for the imitation of the web, turn the work so that the darning lines are horizontal, commencing at the lower part of the hole, and ascend to the top by twisting the thread under each bar, to resemble a kind of cord stitch. Descend by stitches in the reverse direction, and thus complete an exact web.

The Rib is a variety of Swiss darning scarcely known, and will doubtless be highly appreciated by mothers in particular. This stitch, though apparently showing the wrong and right side alternately, is really completely executed on the right side alone. Method of working: Lay the foundation, as for a

simple web; then cover by an equal number of pearl and plain stitches. The change from plain to pearl is executed thus: instead of putting the needle straight under two threads, pass it beneath the second bar of the raised web, and over the first bar of the adjoining one; point the needle downwards and bring it out one bar to the right, cross over two bars and slant it upwards one thread to the left, so that it emerges from the identical hole the first stitch entered. Continue to slip the needle over two bars, sloping it alternately upwards and downwards, till the hollowed web or purl stitches are completed. Then reverse the work by crossing over the last bar, and passing under the first bar of the raised web or garter stitches, in readiness for the next plain one. The wider the rib, the more easy its imitation.

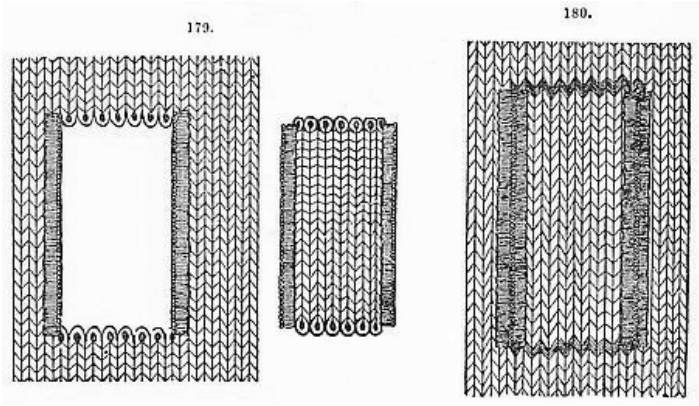
Jacob's Ladder, or *Dropped Stitch*.—This frequently occurs in stockings, as well as in silk or cotton gloves, knitted petticoats, &c., and so rapidly forms a long ladder of open bars that we can here almost literally apply the maxim, "A stitch in time saves nine." No better remedy seems to be devised by careless workers than passing the needle under and over the bars, which, being wider than the space left for them, cannot be properly stretched, and the result is an unsightly and puckered darn, especially when the mischief extends to two or three adjacent rows. The following mode is undoubtedly the right one: Take up a dropped or slipped stitch, as in knitting, by inserting a fine crochet hook into the first loop below, and draw through it the first rung or bar of the ladder. Then continue to pass each succeeding row into the loop left on the crochet needle till all are raised, when the last remaining loop is fastened firmly and neatly by a needle threaded with cotton, silk, or wool. A chain stitch is

thus formed, very similar to the web.



178. Grafting.

Grafting.—To graft means to join one thing so that it receives support from another. In the mending of stockings, &c., the term signifies joining two pieces together, or strengthening a thin part. The joining consists of seaming, patching, and refooting. In stockings, vests, sleeves, &c., where the worn part can be taken off all round, a fresh piece is put in by means of a seam perfectly invisible, provided the cotton or silk match precisely in colour and quality. Cut off the decayed portion, and prepare the edges of the piece to be united. Rest the work on the first and second fingers of the left hand, keeping it flat by the pressure of the thumb; or hold it as for sewing, in which case graft rather loosely to avoid any ridge. Take up on the needle two loops parallel to each other (Fig. 178), pass the thread through these, drawing two webs together. Repeat on the opposite side, and continue thus to the end of the row; the needle at each time enters a loop already picked up and a fresh one. Fasten off as for web stitch.



179. Detail of Patch. 180. Patch set in.

Patching is a neat and expeditious method of filling up large holes, specially valuable for weak sight, or in repairing silk and thread stockings; or, in short, any fine material with loops so small as to render the raising up of each stitch a very tedious task. It is very similar to the linen buttonhole patch. Method of working: Cut out the unsound part straight to a thread, and prepare a patch of the same material to fit the gap exactly. Border with rather close buttonhole stitch the perpendicular edges of both hole and patch (Fig. 179). Attach lightly the 4 corners, graft the upper and lower edge, and sew the buttonholed by drawing together the opposite loops of each stitch (Fig. 180).

Refooting.—This process comprises herringboning, and the three different stocking, seams—grafting, buttonholing, and stitching. When the foot of a stocking is apparently past mending, separate it from the sound part of the leg, and rip up the 4 seams, thus detaching the sole from the upper part with the heel. Pin or tack each part on brown paper, outline the shape in chalk, then cut out, allowing nearly ¼

in. for turnings. Unpick the leg seam of any old stockings, spread them flat, and upon them place the paper pattern, the lines of which are followed precisely in the cutting out. The two pieces being ready, unite by buttonholing the side seams of the foot, and the centre seam of the leg. Method of working: Leave ¼ in. turnings, and buttonhole each folded edge. Then holding the work as for sewing, join the rows, either by a buttonhole stitch taken in each of the opposite loops, or by neat sewing. In most cases, however, a single buttonholed or sewn seam may suffice. When completed flatten the seam, and secure each turning by tiny herringbone stitches, carefully avoiding puckering. If preferred, a tiny ribbon sewn over the seam, can replace the turnings, though it will not be equally lasting. The toes and the two parts of the heel are united by stitching on the right side. Ravel out the edge loops, and lay the pieces opposite each other as for sewing, with the loops of the back in exact correspondence with the front ones. Insert the needle in the first loop, and bring it out in the next one, pass it back to the hole it first entered and bring it out again; thus each stitch occupies two bars. The joining of the sole and heel is accomplished on the wrong side. The ravelled-out loops of the sole are stitched on the ⅛ in. turning of the heel, which is fastened down on the latter itself by an almost imperceptible herringbone. This stitched seam is also occasionally used in stockings reheeled by knitting. The new foot is lastly grafted to the leg. It is almost useless to make any remarks on the most advantageous way of cutting out the pieces, as this depends so much on the size and condition of old legs at command. Nevertheless it may be advisable to suggest that if the width is insufficient to manage the instep and heel in one single piece,

the latter can be slit up at the clocks, thus making two heel parts, to be connected with the front by the buttonhole seam, scarcely visible on the right side, especially when hidden by an embroidered spray. Such refooting may be considered rather long and complicated, but is most important for the elaborate and expensive hose now worn.

SUPPLEMENTARY LITERATURE.

Misses S. F. A. Caulfield and B. C. Saward: 'The Dictionary of Needlework; an Encyclopædia of artistic, plain, and fancy needlework; with over 800 illustrations.' London, 1882. 21*s.*

Beeton's 'Book of Needlework; including tatting, crochet, knitting, netting, embroidery, point lace, guipure d'art, Berlin work, monograms, initials, names, crewel work, pillow lace, and lace stitches.' London. Latest edition. 7*s.* 6*d.*

THE LIBRARY.

The library in a house is a haven to which the unlucky wight, kept indoors by a steady rain overhead and a slushy mire underfoot, may, or ought to be able to, seek retreat and pass many hours of quiet and thorough enjoyment, instead of wandering aimlessly about the house, and looking out of the

windows with an idiotic expression on his face at the dim and misty landscape. But how can it be a peaceful, restful refuge, when the would-be reader finds a vast number of volumes, treating of all manner of subjects, intermixed in a most marvellous fashion; flighty romantists, witty memoir writers, heavy theologians, enigmatic scientists, and deep-thinking philosophers elbowing each other and almost crushing the unlucky poets out of sight? Dismay seizes the daring explorer of the wonders of a country-house library; the book he wants is not to be found, and what is more he does not know where to look for it, great names stare at him from all sides, and seem to sneer at him for being so foolish as not to read them; but then he wants a particular book, and in despair, rather than face the long row of books which seem to jeer at his unsuccessful attempt to get what he is in search of, he composes himself down to read *Punch*, or stare out at the drip, drip, dripping rain.

Let us see if this can be avoided. Of course it can; the way to change the whole aspect of affairs is so to arrange the books on their shelves that the veriest stranger, after he has been in the library a couple of minutes, should know where to look for what he wants, and put his hand on the book if it be in the collection.

The twelve essential rules for the management of the library are:

1. Arrange your books on their shelves into classes, according to the subjects they treat of.

2. Put everything in its proper place.

3. Always keep directories, peerages, gazetteers, atlases, county maps, and lexicons in convenient and

easily got at places. It will often save much time and trouble to keep them in book slides on the table, or in a separate bookcase.

4. Write your name and address in a large bold handwriting on the fly-leaf of every volume.

5. If you have your books specially bound, let the same style and colour of binding be used for one class of books.

6. Never allow animals in a library. They are apt to do serious mischief to MSS. and books, while chasing some imaginary rat. Newton had the results of many years of hard brain work completely destroyed through the pranks of his favourite little dog.

7. Keep servants out of the library, except at stated intervals, and, when admitted, let them be under your personal supervision. Everybody will remember that the first part of Carlyle's 'History of the French Revolution,' while yet in MS., was used by a servant to light a fire.

8. Avoid *dampness* or *excessive heat*; books require *warm dry air*, in order to preserve their bindings. Thus it will be seen that the more the books are read the better it will be for the books.

9. On no account let the library be turned into a refreshment room for a juvenile party.

10. Never allow MS. notes, letters, &c., to litter the tables and the room. MS. notes should be kept in folding pads, or in drawers, and letters carefully filed and put away.

11. No book should be left open and placed face downwards, in order to mark the place where the reader has left off; no other practice so speedily

spoils books as this.

12. *Always have a good index or catalogue of the contents of your library.*

The last is as important a rule as any. A library without a catalogue is, as Thomas Carlyle expresses it, “A Polyphemus without an eye in his head.” Isaac D’Israeli, who has left us such a vast treasure-house of book lore, says that the man who possesses a fine library cannot be “more animated than a leaden Mercury who does not aspire to make some small addition to his library, were it only by a critical catalogue. He must be as indolent as that animal called the sloth, who perishes on the tree he climbs, after he has eaten all its leaves.”

The task of cataloguing must not dismay the amateur; the task is a most useful one, and can easily be managed. The best catalogue would be this:

Let it be divided into three primary divisions: The body, containing the titles, authors’ names, date, and place of publication, and the size and description may be added if considered necessary; index of authors’ names, with the number of the pages of the catalogue on which their works will be found, and an index of subjects.

The body should be divided into thirteen divisions, which are: 1, Theology; 2, history and biography; 3, science and philosophy; 4, art; 5, bibliography; 6, antiquities; 7, political and commercial; 8, poetry; 9, travels; 10, MSS.; 11, novels; 12, miscellaneous; 13, periodical literature. These may be subdivided, if necessary. The subdivisions are: History into (1) national, (2) local, (3) biography, and (4) genealogy; science into (1) medicine, surgery, and chemistry, (2) natural history, (3) geology, and (4) mechanics; art

into (1) painting, sculpture, &c., (2) music; antiquities into (1) chronicles, ballads, and other ancient literature, (2) history of antiquities; political into (1) standard works, (2) pamphlets, &c.; travels into (1) ancient, (2) modern; miscellaneous into (1) law, (2) drama, (3) educational, (4) miscellaneous.

The books in the body should be entered under the authors' names, alphabetically arranged, under each division, the full titles, description, &c., following. A very good plan is to tack to each entry in the catalogue *finding symbols*, as "Bookcase A, shelf 3," which denotes where the book is to be found.

Now as to the actual mode of taking the census of the books to be catalogued. A large number of sheets of paper, about the size of ordinary writing paper, must be procured, each sheet being divided into three columns. The centre column (the largest of the three) is reserved for the full description of the book as it is to stand in the body of the catalogue; the column on the left is reserved for the exact account of the subject treated of by the book; that on the right for the author's name, as in the following example:

Subject Index.	Travels.	Author's Index.
Columbus, Life and Voyages.	Irving, Washington.	Irving, Washington.

Page*	The Life and Voyages of Christopher Columbus. 3 vols. Crown 8vo. One vignette. London, 1850.	Page*

* Of course, the number of the page which should follow these entries cannot be filled in until the body of the catalogue is properly written out, when, as each entry is made in the catalogue, the number of the page in which the entry is made is placed both in the left and right columns.

The slips, when duly filled up, should be set aside in packets under their respective divisions. As soon as every book has been noted down, there remains nothing more to be done but to transcribe alphabetically the various slips on sheets of foolscap, and the task is completed.

Any works which are published anonymously should be entered in the third primary division under the heading “Anonymous,” and have the abbreviation “Anon.” added in the body or first primary division. Supplements may be from time to time prepared, carefully pursuing the same method as observed in forming the original catalogue. The supplement is then attached to the catalogue, the first page having a piece of parchment gummed on, with about an inch protruding from the cover; on this the words “Supplement of 188-” should be written.

The ancient learned Greeks and Romans had their book-shelves, or rather rows of niches, in which the parchment rolls were placed, made of cedar wood,

encrusted with precious metals. Although this would, perhaps, be impracticable in our days, still the bookcases should be solid and massive, yet elegant. In some libraries the bookcases run right round the room, but no higher than 3 ft. to 4 ft., the tops forming a resting-place for various curiosities. This method, of course, leaves the upper part of the wall clear, whereon to hang pictures, trophies of arms, armorial shields, or other mural decorations. Other libraries have cupboards, or rather bookcases, with wooden panelled doors of 2 ft. to 2 ft. 6 in. high, the regular bookcases being placed on the top of these. This is a very good plan, for the lower part of the bookcase may serve as a convenient resting-place for magazines, pamphlets, newspapers, and drawings.

One great point to be observed is to have the books protected by good glass; it gives a better appearance to the whole room when the glass is really good, and, above all, the books are safe from the injurious effect of dust or damp.

Magazines and periodicals are generally bound, and, therefore, may be placed on the shelves. A number of pamphlets relating to a certain subject may be cheaply, neatly and easily bound at home. Each pamphlet should be taken and opened at the middle; then, with the aid of a needle and some strong twine, it should be sewn in such a manner as to leave two loops, occupying about two-thirds of the length, on the outside at the back. When each pamphlet has been treated in a like way, taking especial care that each loop is of equal size, two strips of coarse canvas must be cut, long enough to wrap entirely round the whole set of pamphlets. Two pieces of pasteboard, of the exact size you wish the volume to be, must be procured; then, having

previously passed the canvas strips under the loops of twine, you carefully paste or glue the canvas, and place them on the boards. Two pieces of clean paper, well gummed, are placed inside the cover over the canvas strips. A piece of canvas, or, better still, leather, of about double the thickness of the back of your volume, and the exact height of the pasteboard cover, is glued on to the back, a good piece overlapping on each side of the cover. Now nothing remains to be done but to glue a piece of parchment behind, writing on it the description of the contents. The whole is placed under a substantial weight, and in a couple of days you have a neat volume instead of a collection of stray sheets of printed paper.

Dabblers in literature, and the searchers after general knowledge, frequently cut out from papers and periodicals articles and paragraphs which interest them. These accumulate and soon encumber the writing-table, library-table, and the mantelpiece, and ultimately find their way into the fire or the waste-paper basket. This may be obviated and a more orderly appearance be given to the room, by collecting these newspaper scraps in a box or drawer, and at convenient intervals pasting them, in alphabetical order, into a large book formed of cheap paper. The cartridge paper should be folded twice; thus each sheet gives eight pages, and the printed scraps pasted in in two rows or three columns, leaving a good margin, whereon the subject treated of in the newspaper scraps should be legibly written, the date and name of the paper whence the scrap has been cut being written at the end of each cutting.

The foregoing notes are due to the late E. C. Rye, Librarian of the Royal Geographical Society.

Books placed in a library should be thoroughly

dusted two or three times a year, not only to keep them in all their freshness, but also to prevent any development of insects and to disclose signs of dampness. The interior of a book also asks that care, which unfortunately is neglected very often. After having taken a book from the shelves, it should not be opened before ascertaining that the top edge is not covered with dust. If it is a book that has had the edge cut, it should be dusted with a soft duster, or the dust simply blown off. If it is a book which has uncut edges it should be brushed with rather a hard brush. By this method in opening the volume, one need not be afraid that the dust will enter between the leaves and soil them.

A library has generally three kinds of enemies to be guarded against, viz. insects, damp, and rats or mice. Every one knows how to guard against damp and rats or mice. Several means are adopted to keep insects at a distance. The first consists in the proper choice of woods: these are cedar, cypress, mahogany, sandal, or very dry and sound oak. All these are compact or of very strong aroma, and are such as insects do not like to pierce. Another source of safety is the use of astringent or poisonous chemicals in the binding of books.

The insects that make ravages in books multiply very rapidly; and very few libraries are free from them. The microscopic eggs, that are left by the female, give birth to a small grub, which pierces the leather boards and book for its nourishment, and to get to the air. These are familiarly called bookworms, but by the scientific world they are known as *Hypothenemus eruditus* which eats the leather, and *Anobium striatum* which bores through the paper. The larvæ of the *Dermestes* also attack wood as well as

books.

Alum, as employed in the paste used by binders, is not an absolute preventive, although it contributes greatly to the preservation of the leather. Resin as used by shoe-makers is preferable, and in effect works in the same way; but oil of turpentine has a greater effect. Anything of strong odour, like aniseed or bergamot, mixed perfectly but in small quantities, preserves the paste during an unlimited time.

THE FARMYARD.

This chapter will embrace the ordinary domestic animals, birds, &c., usually kept at a country-house.

Horse.—*Choosing and Buying.*—The weak points of a horse can be better discovered while standing than while moving. If sound, he will stand firmly and squarely in his limbs without moving any of them, the feet flat upon the ground, with legs plump and naturally poised; if a foot is lifted from the ground, or the weight taken from it, disease may be suspected, or at least tenderness, which is a precursor of disease. If the horse stands with his feet spread apart, or straddles with his hind legs, there is a weakness in the loins, and the kidneys are disordered. Heavy pulling bends the knees. Bluish,

milky cast eyes in horses indicate moon blindness. A bad tempered horse keeps his ears thrown back. A kicking horse is apt to have scarred legs. A stumbling horse has blemished knees. When the skin is rough and harsh, and does not move easily to the touch, the horse is a heavy eater, and digestion is bad. Never buy a horse whose breathing organs are at all impaired. Place your ear at the side of the heart, and if a wheezing sound is heard it is an indication of trouble. (*Rural Record.*)

Examine the eyes in the stable, then in the light; if they are in any degree defective, reject. Examine the teeth to determine the age. Examine the poll or crown of the head, and the withers, or top of the shoulders, as the former is the seat of poll evil, and the latter that of fistula. Examine the front feet; and if the frog has fallen, or settled down between the heels of the shoes, and the heels are contracted, reject him, as, if not already lame, he is liable to become so at any moment. Observe the knees and ankles, and, if cocked, you may be sure that it is the result of the displacement of the internal organs of the foot, a consequence of neglect of the form of the foot, and injudicious shoeing. Examine for interfering, from the ankle to the knees, and if it proves that he cuts the knee, or the leg between the knee and the ankle, or the latter badly, reject. “Speedy cuts” of the knee and leg are most serious in their effects. Many trotting horses, which would be of great value were it not for this single defect, are by it rendered valueless. Carefully examine the hoofs for cracks, as jockeys have acquired great skill in concealing cracks in the hoofs. If cracks are observable in any degree, reject. Also both look and feel for ringbones, which are callosities on the bones of the pastern near the foot; if apparent, reject.

Examine the hind feet for the same defects of the foot and ankle named in connection with the front feet. Then proceed to the hock, which is the seat of curb, and both bone and blood spavins. The former is a bony enlargement of the posterior and lower portion of the hock-joint; the second a bony excrescence on the lower, inner, and rather anterior portion of the hock; and the last is a soft enlargement of the synovial membrane on the inner and upper portion of the hock. Either is sufficient reason for rejecting. See that the horse stands with the front feet well under him, and observe both the heels of the feet and shoes to see if he "forges" or overreaches; and in case he does, and the toes of the front feet are low, the heels high, and the heels of the front shoes a good thickness, and the toes of the hind feet are of no proper length, reject him; for if he still overreaches with his feet in the condition described, he is incurable. If he props out both front feet, or points them alternately, reject. In testing the driving qualities, take the reins while on the ground, invite the owner to get in the vehicle first, then drive yourself. Avoid the display or the use of the whip; and if he has not sufficient spirit to exhibit his best speed without it, reject. Should he drive satisfactorily without, it will then be proper to test his amiability and the extent of his training in the use of the whip. Thoroughly test his walking qualities first, as that gait is more important in the horse of all work than great trotting speed. The value of a horse, safe for all purposes without blinds, is greatly enhanced thereby. Purchase of the breeder, if practicable.

The *Field* has often warned its readers against describing any horse they might have for sale as a "perfect" hunter, or "good" hunter. Describing a horse as a good hunter is giving a very

comprehensive warranty of performance, and to a certain extent of soundness as well. No horse can be called a hunter unless he can jump, and his jumping powers may depend a great deal upon the man who rides him. If he jumps at all, he may either take the bit in his teeth and "commit" his rider to a fence 40 yd. off; or he may require a resolute man and a cutting whip to get him over anything like a ditch. No horse to whom either of these peculiarities attaches could be called a "good," much less a "perfect," hunter. It has never been expressly decided whether, under these assumed conditions, there would be a breach of warranty if the horse were so described, but the probabilities are against the seller. A horse that is in the very slightest degree touched in the wind is unsound, yet for practical purposes a whistler or a grunter is ten times more useful as a hunter than a horse with bad navicular, or a sprained sinew. But, so far as the law goes, the lame horse might be sold as a good hunter, while the whistler could not. Upon this ground, if a court were to decide that a horse described as a good or perfect hunter must be sound in wind and eyes, there would be every reason to expect that the same tribunal would hold that he must be sound on his feet and legs, or at any rate fit for immediate use. In the case of harness horses, however, it has been held that a warranty of soundness is not involved in one of quietness. Warranties of soundness are going out of fashion. But as the pedigree, or antecedents, of a horse often have a material influence on the price paid for him, a statement concerning one or both is often made by the seller as an integral part of the contract. Such assertions are just as much a warranty as if they referred to his quietness, age, or soundness, and, should they prove false, render the seller liable

to an action for breach of warranty. It would be wise of the seller to say nothing, unless he himself received a written description with the horse, which statement he could show and explain to the person purchasing from him, when, should the contents be untrue, he will not be liable. When a horse is sent for sale to a commission stable, the commission agent is justified in repeating to a buyer the description given to him (the agent) by the owner of the horse, and the seller will be bound by that description. Of course the agent has no right to exceed his instructions and give a warranty on his own account. Should he do so, the seller will not be bound. But a warranty by an ordinary servant, or by a person directed by another to sell a horse, and put, for that purpose, in a position which to a stranger might seem to imply an authority to warrant, would bind the seller.

Keeping.—Horse keeping must always be costly. Grooms' wages, rent of stabling, hay, oats, straw, beans, carrots, bran, linseed, taxes, coals and candles, gas or oil, shoeing, stable implements, and veterinary attendance cost money in every establishment. When the whole cost is taken into account it will be found that in the case of full-sized horses the expense of each varies, according to circumstances, from about 30*s.* to 36*s.* or more a week, even when there is no waste. The prime cost of horses, carriages, and harness will depend to a great extent upon the purpose for which they are required. It is well to be circumspect in buying a second-hand vehicle, as getting up worthless carriages for sale is a regular trade. With harness and saddlery the best goods are everywhere the best economy.

The first item is the stable. If one is attached to the house, no extra cost will be incurred. The average

charge for renting will be about 5*s.* per horse per week, inclusive of rates and taxes, but exclusive of fire, lights, or straw. If stabling be rented by the year, the weekly average will be less, as also in places where there is not much demand, and where it is rather of makeshift.

The groom should be a thorough stableman, conversant with the proper mode of dressing horses, methodical in habit, and honest. From 25*s.* to 30*s.* per week should secure the services of a good man, and for this sum he would find himself in everything. If accommodation allows, he might sleep on the premises, but should he sleep and live in the house his wages will be much less. He should know how to clip, singe, foment, put on a bandage properly, and give a horse a ball; but it is well to allow no drugs or physic to be given without the directions of a veterinary surgeon. If the man is a hard worker, he will look after 3 saddle horses and clean his master's breeches and boots, single-handed; but this is rather trying him, and is more than the majority of grooms would undertake; in most instances it would be necessary to have a second hand—a lad at about 14*s.* a week would do—to "muck out" the stables, help dress the horses, and do rough work. Similarly, 2 hunters, a harness horse, and vehicle, will be heavy work for one man.

Many persons have their horses foraged by contract, supplies being sent in at fixed periods. In London some contractors do it for about 1*s.* or 1*s.* 2*d.* a hand, i.e. a horse not exceeding 16 hands will be foraged for about 16*s.* per week, while a pony not exceeding 12 hands would only cost 12*s.* When living in the country, purchase of neighbouring farmers. Let all forage be of the best quality—it is

cheapest in the end. Oats and hay must be old—that is to say, oats and hay harvested in 1884 should not be used in the stables till the July or August following at the earliest. Some people give the last cut oats after Christmas; but it should never be done. A horse requires feeding often; though 3 times a day is sufficient, 4 times is better. Horses should drink before they eat, because water does not remain in the stomach, but passes through it into a large intestine called the cæcum. If a horse be fed first, the water passing through the stomach would be likely to carry with it particles of food, and thus bring about colic. Whatever a groom may say, let a horse drink just as much as he likes. If he be watered 4 times a day he will never take too much to be good for him. It will be cheaper to buy enough forage to last the season or more, than to be perpetually getting in small quantities. If a hunter—taking him as the typical horse, because he requires the best keep—be fed 4 times a day, he will have a quartern of oats at each feed, or a peck a day (4 quarterns = 1 peck), or 1 bush. of oats will last 4 days, and in 1 week he will eat 1¾ bush. With each feed a couple or three double handfuls of chaff should be given, as this will cause the food to be more thoroughly masticated. Hay is given in the rack morning and evening, about 6-8 lb. each time; though where horses are not limited as to oats they will not require so much. A truss of hay weighs 56 lb., so the weekly allowance to each horse may be set down at about 1½ truss. Some good judges recommend that hay should be in the rack between feeding times. Beans are more nutritive than oats, but are heating, and should not be given to a 4-year-old at all. A 5-year-old should not have them unless he works hard, and then not more than 1 lb. per diem; aged horses may

have about 2 lb. per day divided into 3 feeds; but during a frost, or when only used for gentle work, such as hacking in the London season, beans should be dispensed with. Bran is chiefly used for mashes, and it is advisable to follow the time-honoured plan of giving one every Saturday night. Linseed gruel is, by some horses, preferred to that made from oatmeal; but the latter is refreshing and soothing if the horse will take it. A few carrots given every now and then will tend to keep the blood cool. Study the appetite of each horse.

For bedding there is nothing better than wheat straw. Oat straw is permissible, and cheaper. Barley straw must on no account be used. The quantity of straw required per week will vary with the care with which the groom separates the clean from the soiled in the morning, the wish of the owner as to the look of his stable, and the size of the box or stall. Speaking roughly, a careful groom can manage in an ordinary sized loose box with about 50-60 lb. per week, and with this allowance a horse can be well bedded and kept clean; this, of course, after the bed has been originally formed with about 2 trusses.

As to cost. Oats vary from 3*s.* to 4*s.* per bush.; best upland hay may be set down at 5*l.* a ton (40 trusses of 56 lb. in a ton); straw at 3*l.* 10*s.* a ton; and beans at a trifle more than 1*d.* a lb. Thus the cost of keeping a horse for a week will be:—

	s.	*d.*
2 bush. oats, at 3*s.* 6*d.*	7	0
1½ trusses hay, at 2*s.* 6*d.*	3	9
14 lb. beans	1	6
60 lb. straw (say)	2	0
	14	3

Something must be allowed for bran, linseed, and carrots; these may be set down at about 2*s.* per week.

Groom's wages must be added. Suppose he receives 25*s.* per week, and only has one horse to look after, that one horse will cost the owner 39*s.* 3*d.* at the lowest estimate; if there be 2 horses, they will each stand at 26*s.* 9*d.*, and so on. Shoeing may be set down roughly at 3*l.* per annum; the tax for a groom is 15*s.* per year; the veterinary surgeon may have to be called in occasionally; while coals and lights must not be left out of sight. From a money point of view, therefore, keeping horses in a private stable is, generally speaking, no cheaper than sending them to livery at 30*s.* per week; but the advantage is that they are generally better done at home. (*Field.*)

Horses need well-ventilated stables, free from draught and damp. The floor should be smooth and nearly level. It should be well drained and light, for sudden change from darkness to light is trying to the eyes, and a damp, offensive odour is injurious. Then, again, the bedding and litter should be carefully separated from that which is foul. They should be well shaken up and dried, and the stall should be thoroughly cleansed; and when the stable is empty, let in plenty of fresh air. A horse's stall should be large enough to allow him to lie down comfortably

in any position. A tired horse will be glad to lie down with his legs stretched out if he has room; but if you cannot give him a loose box, then a light halter block should be used, and care taken to arrange the halter so that it may travel freely to allow the head to come easily to the litter, for rest and sleep are as necessary as food and water. If a horse comes to the stable wet, he should be rubbed dry before the blanket is put on. If he is standing about in the cold, it should be put on. The legs should be rubbed, and the hoofs always examined for stones. When dressed and made comfortable, leave a bucket of chilled water in the box, which should be filled up with cold the last thing at night when closing the stables.

Cleaning.—One of the most important things in the management of farm horses is their cleaning, and yet nothing is more neglected. The horse should never be cleaned or harnessed while it is eating breakfast. Let horses eat their food in peace, for many, from sanguine temperament or greed, bolt their oats when handled during the time of feeding. Harness can be quickly enough put on after the feed is eaten, and time should then be taken to comb the mane and tail, and use a wisp of straw on the body and legs. When the horses come in at dinner-time, they should at once be *unharnessed*. The feed is then to be given, and before the harness is again put on, the horse should be thoroughly rubbed down with a wisp of straw or hay. If the horses are very warm on coming in, they should be rubbed down immediately after the removal of the harness.

The cleaning or grooming, which should be done at night, consists first in currying the horse with a currycomb to free him of the dirt adhering to the hair, and which being now dry, is easily removed. A

wisping of straw removes the roughest of the dirt loosened by the currycomb. The legs ought to be thoroughly wisped, not only to make them clean, but to dry up any moisture that may have been left in the evening; and at this time the feet should be picked clean by the foot-picker—i.e. an iron instrument made for the purpose—of any dirt adhering between the shoe and the foot. The brush is then to be used to remove the remaining and finer portions of dust from the hair, which is cleared from the brush by a few rasps along the currycomb. This wisping and brushing, if done with some force and dexterity, with a combing of the tail and mane, should render the horse pretty clean. The skin of the farm horse should at all times be *clean* if not *sleek*, and a slap of the hand upon the horse will show if there is loose dust in the hair. The currycomb should not be used below the knees, as it is apt to cause injury. For cleaning the legs and feet, nothing is better than the water brush.

At morning stables, after the carriage horse is "mucked out," the next step is to quarter him over and pick and wash his feet out. The first quartering may be done with an old water brush, and means roughly removing from the horse with water alone anything imparted to his side by manure. By the time the horse has done feeding the quartering will have nearly dried. If the animal is for morning exercise the above is sufficient. The dressing proper can be done when he comes home. If he is for hunting or hacking that day a good stableman will set to work at him as soon as the horse has finished his feed. If he is a grey, and has become stained with manure in the night, the groom should well rub in, with his hands only, plenty of common brown soap (not soft soap), and use plenty of tepid water in doing it. Then take a

clean water brush, and let his shoulder go at his work until the stain is out. This is easily seen, because if the man finds no discoloration in the water in the bucket when he has sponged (with a perfectly clean sponge) all the soap off, no particle of stain will remain. If the water used in stable work is hard, a little soda dissolved in it will cause the soap to lather well. The horse should be tied up short while being washed, and after the sponging the wet places should be thoroughly dried with a rubber, which should be cleanliness itself. Worn-out table linen makes the best stable rubbers, the older the better. When the washed parts are quite dry, the horse should be well dressed with a clean horse-brush; one with any old dirt or grease in it will make fresh stains. After dressing with the horse brush, his coat should be again well rubbed the right way with another dry rubber fresh from the towel-horse and the saddle-room fire. Lazy stablemen are in the habit of using powdered charcoal to remove stains from grey horses. The practice is idle and dirty. In the case of clipped horses, stable stains can be removed in a very short time, and not much more is requisite with that of a well-done horse with his summer coat on. When the coat is shifting, a little more labour is requisite.

Driving.—Strict adherence to the rule of the road will not necessarily protect a driver from being liable for the result of a collision between another vehicle and his own. Sometimes he may be held to be negligent because he remained on the near side, and did not pull out of the way, even into the opposite gutter, if necessary. It is not possible to say what acts constitute negligent driving; the nearest rule that can be given is that drivers should act as reasonable men in the management of their vehicles. If they do

anything that a reasonable man would not do, or omit to do anything that he would, then they are guilty of negligence; but acts that would amount to negligence in one case would not necessarily be so in another. Negligence on the part of a driver is not excused merely because the victim was also guilty of some degree of negligence, provided of course that it did not contribute to the *immediate* cause of the accident. If, however, the proximate cause of an accident be a driver's unskilfulness, the injured driver may not recover, although the *primary* cause of the accident was the wrong-doing of some one else. If a man leave a horse and cart standing in the street without any one to look after them, and the horse, either by itself, or on being struck by a passer-by, backs into the window of a shop, and damages goods, the owner of the cart, having chosen to leave it in the street, must take the risk of any mischief. In cases where there is negligence on both sides, the rule to be deduced is, that a person injured by the negligent driving of another, cannot recover damages if but for own negligence, the accident would not have happened at all. Sometimes it may happen that a person who is driven into, or over, must bring his action, not against the driver of the vehicle inflicting the injury, but against a third party; as, for instance, if one carriage be so improperly driven as to compel a second carriage to take such a line as to make it collide with a third, the driver of the first carriage would be liable to the owner of the third. Lastly, in a pure accident, in which no one has been guilty of negligence, the injured party has no right of action at all. It is not because a man's horse runs away, or becomes unmanageable, that the owner is to be responsible for any harm that may be sustained by a member of the public; a mutilated person is always

entitled to sympathy, but not invariably to damages. (*Field.*)

Hiring.—Horses, carriages, or both, may be hired under 3 conditions: (*a*) Where the hired property remains on the owner's premises; (*b*) Where, during the period of hire, it is transferred to the premises of the hirer; (*c*) Where it is hired from the owner for a particular journey, and returned to him as soon as this is performed. Under either of the 2 first conditions, the hiring may be for a period exceeding a year, or for any shorter time. All contracts not to be performed within one year from the time of making must be in writing and signed. An agreement made on the 1st of May, 1887, to hire horses for one year from that day, will terminate on 1st of May, 1888, and therefore be completed within the year, and so not require writing; but if the agreement (made on the 1st) be for a year's hire, to commence on the 20th of May, the contract will not be completely performed until the 20th of May, or 20 days after the expiration of the year, consequently writing will be needed.

The chief inducement to hire instead of buying carriages and horses is, that by payment of an inclusive charge, the trouble and annoyance inseparable from keeping a private stable are avoided. The owner of a carriage let out to hire undertakes, in return for the sum paid, to do certain repairs, varying according to circumstances.

Most coachmakers now bind themselves to execute only such repairs as may be rendered necessary by fair wear and tear; accidents, however arising, being expressly exempted. The result is that, in the event of a "smash," the hirer has to pay the owner for the damage; and, if the former or his servant is in fault,

the loss falls on him; while, if the other vehicle be in the wrong, the hirer has to get his damages from its proprietor—the owner of the hired carriage being indemnified either way. If the carriage is bought out-and-out during the period for which it was originally hired, the seller is not bound to repair gratis after he has sold it.

Under ordinary circumstances the hirer of a horse is not responsible for any damage that may happen to it, so long as he has not been guilty either of negligence or of using the horse for a purpose other than that for which it was hired. But if he has broken the agreement made at the time of hiring, then he is liable for the loss resulting from his conduct. Where a horse is hired to take the hirer to a certain place, the usual and customary route should be taken, for should the hirer deviate unnecessarily from the most convenient road, he will be liable. In hiring horses for a special journey, care should be taken by the hirer to point out when he does and when he does not mean to go from place to place by the most direct or usual route. So long as he provides for a deviation he is answerable only for negligence or improper driving; but if he deviate materially, such deviation will amount to improper driving, although his coachmanship may be without reproach.

If a person hire a horse or carriage for a stated period, but return it before the expiration of the time, the owner must keep it on his premises till the time for hire has determined, if he wishes to recover the charge from the hirer. He cannot earn his money twice over; so, if he sells in the meantime, the hirer will not be liable for the price of the hiring.

The liability of a person sitting in a carriage to make good any damage occasioned to the property of

others by the driver's negligence, depends upon the relationship subsisting between the driver and the person driven. This relationship differs according to the ownership of the equipage, or its component parts. The owner of horses and a carriage, driven by a servant in his exclusive employ, has cast upon him the most extended liability for his servant's negligence; while, on the other hand, the occupant of a hack fly is discharged from any thought of the horses or the driver. If horses and a carriage are jobbed in the manner already described, they are the hirer's own, so far as the general public are concerned; and if driven by his own coachman, he will be as liable for the latter's negligence as though he purchased them outright. Provided the hirer of horses use ordinary care in the selection of his coachman—not a job one—he will not be answerable to the owner of the horses for the casual negligence of the servant so engaged. If the driver be a servant of the jobmaster, he does not cease to be so by reason of the owner of the carriage preferring to be driven by that particular servant where there is a choice amongst more, any more than a hack postboy ceases to be the servant of an innkeeper, where a traveller has a particular preference for one over the rest, on account of his sobriety and carefulness. Even wearing the hirer's livery does not affect the question.

No satisfactory line can be drawn, at which, as a matter of law, the general owner of a carriage, or rather the general employer of the driver, ceased to be responsible, and the temporary hirer became so. Each case of this class must depend upon its own circumstances; and the jury taking these circumstances into consideration, must decide whether, at the time of an accident, the driver is

acting as the servant of the hirer, or as the servant of the owner. Generally it may be taken that when the hirer of horses also has the owner's servant to drive, the servant still continues in the jobmaster's employ, the ownership of the carriage being immaterial. The horses and man may be reckoned as one, as constituting the motive and guiding power.

A hirer of horses may by his own conduct render himself a co-trespasser with the driver, or even constitute the driver his own servant for the purpose of becoming liable for the result of an accident. If the hirer of a whole equipage direct the owner's servant to drive at an increased pace in a crowded thoroughfare, or in some other way assume the control of the horses, he will draw on to his own shoulders that responsibility which would under ordinary circumstances rest with the jobmaster. Still more will this be the case if he drives himself. (*Field.*)

Care of Carriages.—(*a*) The coach-room should be large, dry, and well ventilated; the walls and ceiling lined and finished in oil or varnish; the windows large, but curtained with blue curtains, so as to admit a moderate amount of light; the floors and ceilings should be kept free from dust or dirt; if the floor is wet when sweeping, the carriage should not be put in until it is dry.

(*b*) If the stable is of brick or stone, the walls should be lined with a close board partition at least 3 in. from the wall, with openings at the top and bottom to allow a circulation of air between the wall and partition. Never allow a carriage to stand near a brick or stone wall, or any other that is damp, as the dampness affects the paint and trimmings.

(*c*) Ammonia destroys varnish and affects colours. Care should be taken, therefore, to locate the

carriage-room in such a manner that it will not be exposed to the fumes of the stable or manure heap.

(*d*) A carriage should never be allowed to stand in the carriage-room without being protected from dust by a cotton or linen cover; but this cover should not be put on when the carriage is wet or dusty. Dust if allowed to remain on eats into varnish: the cover should be so arranged as not to touch the carriage.

(*e*) Carriages should be washed frequently, even when not in use. They should also be dusted every 2 or 3 days, and be exposed to the air in a shady place. In washing, use cold water and a sponge. Soften the mud by squeezing the water from the sponge on the panel or other part, and do not pass the sponge over the paint until the mud is soaked off. After sponging, dry with a "shammy," but do not use the sponge and "shammy" in the same pail of water. Be careful to dry thoroughly, and protect the trimming from injury by water. Do not allow any part of the carriage that is washed to dry before wiping with the "shammy," as it will stain the paint. Hot or even warm water or soap should not be used. Never allow mud to dry on a carriage, as it will produce spots or stains. Always wash in a shady place.

(*f*) Enamelled leather while new does not need much washing; it should be well dusted, and may be wiped with a moist "shammy"; if it becomes dimmed, make a suds of soft water and Castile or crown soap. Apply it with a sponge and dry with a "shammy" moistened in clean water; if the leather shows spots, rub them with cotton waste and linseed oil; if the leather becomes hard, wash it clean and oil with neatsfoot oil; when the oil has permeated the leather, wash the surface oil off with crown soap suds. Dash and other smooth leather should be

treated in the same manner as the paint.

(*g*) The trimmings require a great deal of attention. All roll-up curtains, aprons, &c., should be unrolled and stretched out smooth. The joints should be "struck" so as to slack the leather, but not enough to allow the top to fall. Cloths, cushions, and other removable portions must be well beaten and brushed, and all immovable parts be well brushed; this, while preventing injury from dust, is also a protection from moths. Moroccos can be cleaned by rubbing them with a moist "shammy."

(*h*) Mountings should be kept clean by repeated rubbing; all acids or powders injure the paint, leather or cloth, and it is impossible to clean metals with them without coming in contact with the trimmings. If the metal is tarnished, use a small piece of "shammy," that has been prepared by having rottenstone, or other fine polishing powder, rubbed into it and afterwards whipped and brushed to remove all surplus powder, then rub with a dry rag. To clean lamps mix whiting with spirits of wine; apply to the reflector and other inside plating; when dry rub off with a rag, clean the glass with water and polish with paper.

(*i*) Oil the axles frequently, but use but little oil at one time. Support the axle by a jack, having a leather padded top; take off the nuts, and if much soiled, remove the grease with spirits of turpentine; remove the wheel and clean the axle arm and hub box thoroughly, then apply a few drops of castor oil, replace the washers, wheel, and nuts, seeing that each has a thin coating of oil. The fifth wheel and king bolt should also be oiled enough to prevent the metal surfaces from grinding.

(*j*) A carriage should be inspected carefully to see

that there are no moths in the trimming, carpet, &c.; if discovered they can be expelled by beating and brushing; moth preventatives are valueless as against the moth grub, but they will prevent the fly depositing its eggs. Musk and other strong perfumes will keep the flies from depositing their eggs in the trimmings.

(*k*) If repairs are needed, it is best to send to the carriage shop; but the paint will become worn off of step pads and tires, which can be restored by a little black japan, which should be laid on thin.

(*l*) Carriages should be revarnished as often as once a year; but if the paint cracks badly, varnishing increases the deformity, and there is but one way to correct it—to burn off the paint and repaint from the wood. Repairing is as much of an art as building, therefore do not send a carriage for repairs to any but skilful mechanics.

(*m*) If a carriage is not in regular use it should be run out of the coach-house once or twice a week, and thoroughly ventilated, by removing cushions, carpets, &c., and opening the doors and windows. After being well aired, it should be thoroughly dusted, and washed before it is returned to the house.

(*n*) The person having charge of the carriage should examine it closely each day after it has been used, to see that there are no loose or broken nuts, bolts, tires, &c. If proper attention is given to this matter the carriage will always be ready for use.

Cow.—*Choosing.*—Form, general appearance, and the "touch" of the skin, are points to be attended to; with regard to these, an idea may be obtained from

the following description of a good dairy cow:—Head small, long, and narrow towards the muzzle; horns small, clear, bent, and placed at considerable distance from each other; eyes not large, but brisk and lively; neck slender and long, tapering towards the head, with a little loose skin below; shoulders and fore-quarters light and thin; hind-quarters large and broad; back straight, and joints slack and open; carcass deep in the rib; tail small and long, reaching to the heels; legs small and short, with firm joints; udder square, but a little oblong, stretching forward, thin-skinned and capacious, but not low hung; teats or paps small, pointing outwards, and at a considerable distance from each other; milk-veins capacious and prominent; skin loose, thin, and soft like a glove; hair short, soft, and woolly; general figure, when in flesh, handsome and well-proportioned. The extent of the upturned hairs on the escutcheon indicate the properties of the 2 hind-quarters of the cow's udder as to the quantity of yield of milk, but not as to the 2 fore-quarters. These latter should be separately investigated; judges generally look at the size of these and examine the size of "milk vein" which runs along the belly.

Breeds.—The Yorkshire yields very large quantities of milk when fed liberally; the Ayrshire is held in high estimation for cheese making; and the Alderney (Jersey) for butter and cream. The Suffolk is well fitted for districts where the pastures are poor; the yield of milk is good, and it is comparatively rich in butter. Weight for weight, shorthorns are about 50 per cent. heavier than Ayrshires, and require ⅓ more food. At the same time, it is found that Ayrshires yield quite as much milk as shorthorns. The only difference claimed in favour of the shorthorn is, that it maintains more flesh than the Ayrshire, keeps its

money value together better, and can be finished for the butcher with greater ease and more satisfactory results. The small Scotch race is found to be, when used for the production of milk for sale, of greater value than the ordinary dairy shorthorn, producing an equal amount of milk at much less cost, while a far smaller amount of capital is required in the formation of the herd. As a butter maker, the Holstein is nowhere with the Jersey; nor yet as a converter of ordinary farm produce into milk, because no value set upon the Dutch superiority in skim milk can bring them up to the Jersey standard for butter, when the difference in consumption is taken into account. The Jersey milk contains 26 per cent. more solids of all kinds than the Dutch; whilst of butter-fat the Jersey milk contains 80 per cent. more.

Keeping.—Amateur cowkeepers are advised not to think of breeding at all. Buy a cow, newly calved; do not let her be served; feed her very highly all through her time, and when the milk ceases to pay for the keep, sell her at once to the butcher and get another. This is the town dairymen's system, and they would not so universally follow this plan if it were not the safest. Above all, sentiment must be shunned. The amateur must keep a close watch over each week's expenditure and income, and sell the cow, however favourite a one, directly these approximate. Then the trouble of settling a newcomer will have to be faced over again. On the whole, it may be doubted if one amateur in a hundred will ever succeed in making a cow pay, even where there is a garden and small paddock, by reason of the costliness of good dairy servants. (*Field.*)

The great art of feeding is in selecting the foods most suitable for the purpose in view, without entailing waste, or an undue strain on the digestive system. Every cow should have no less than 650 cub. ft. of breathing space; the cold air should be admitted near the floor line, with ample ridge ventilation, for the escape of the vitiated air; the building itself should be kept clean and free from fermenting or decaying animal odours or vegetable matter (underground drainage, however skilfully executed, is an utter abomination in a cowshed); all the inside walls should be limewashed at least twice a year, and the beds, floors, and passages well washed and scrubbed once a week. Whatever tends to increase the health and comfort of the animal economises food, as well as increases its effective results; every source of irritation, whether in the field or the stall, entails an undue waste of food, whilst for the time it reduces the flow and deteriorates the quality of the milk. The quality of the drinking water has a great influence on the yield of milk. Soft water is preferable to hard; hence the water from running streams or ponds is preferable to well water, which is generally at a low temperature. The action of the atmosphere on ponds or reservoirs has a softening influence on the water, a favourable condition for milk cows; impure or tainted water should be excluded. Unlike the food, a portion of the water taken in by the cows passes direct to the third stomach, and enters at once into the circulation. The influence of the food on the yield of milk is well known. Chemical investigation proves that the milk solids are only slightly affected by the food, the casein and sugar being nearly stationary, whilst the quantity of butter fat varies considerably; the greatest variation is in that of the watery

constituents.

Decorticated cotton cake exclusively used as an auxiliary in conjunction with large quantities of roots and hay is not an economical food for dairy cows, owing to the large percentage of flesh formers it contains, whilst practically cotton cake, though admirably adapted for rearing and fattening purposes, when given to milking cows in quantities of 4-6 lb. a day produces a leathery cream, and certainly not a superfine quality of butter. A mixture of pea and palm-nut meals will produce a rich milk, though not of the finest quality. A mixture of rice and linseed meals will produce a large yield of butter of a somewhat oily character. If quality is, as it should be, the chief desideratum, nothing can equal the home-grown cereals—beans, peas, wheat, barley, and oats; under ordinary circumstances these will produce a quality of milk, cream, and butter that cannot be surpassed.

The cowhouse must be kept as near as possible at a uniform temperature of 60° F.; the cows may be turned into the fold-yard daily for ½ hour, about noon. Large quantities of cold water taken into the system are positively injurious, lowering the temperature of the body, which is maintained in a normal state at the expense of the food. For cows in full milk, cooked food is much preferable to raw, entailing less labour on the organs of digestion and assimilation. The mixture of chop, meal, roots, and grain may either be boiled in the ordinary cast-iron boiler or steamed. To obtain the most effective results, the food should be given to the animals in a sloppy state, and at a temperature of 55° to 60° F. Regularity of feeding and milking must be strictly observed. The morning meal should be given before

milking commences, and the dung removed from the beds and grip. As milkers, females are preferable, the hands being soft and pliable compared with the horny hand of man. The quantity of food necessary to supply the wants of individual animals is governed by its weight. A cow in full profit consumes daily 3 per cent. of her live weight. During April, a cow in full milk should have, in addition to boiled or steamed roots and hay or straw chaff, 2 lb. bean or pea meal, 2 lb. wheat meal, 2 lb. ground oats, and 2 lb. bran. If these cannot be grown on the farm or purchased at moderate cost, 2 lb. linseed, barley, or Indian corn meal may be substituted for the wheat meal. If the aim is quality, it is essential that bean, pea, or oat meals be used. Care must be exercised in regulating the quantity of food to meet the wants of the different animals, and not, as is too often the practice, of serving a uniform quantity to each. In every case the mangers should be cleanly swept out before feeding. By far the best kind of hay for milking cows is well-saved clover or mixed seeds cut just before coming into flower. Dusty or highly heated hay injures the health and deteriorates the quality of the produce. The chief part of the hay and straw should be cut and mixed with the meal and boiled roots. Only a small quantity of long hay should be given twice a day in order to excite rumination. Raw roots are only admissible when given as a mid-day meal. As in the case of the steam boiler a quantity of fuel is wasted in raising the temperature of the water from the freezing to the boiling point, so it is in the animal system; the fat producers which, under favourable conditions, would increase the quality of the milk, are expended in bringing a large quantity of water to the heat of the body. Brewers' grains are highly charged with water,

and consequently open to a similar objection. Pastures, if saved during the spring months, will be ready for stocking from the first to the middle of May. With the first bite of spring grass the food must be changed; the boiled roots should be gradually discontinued; the same quantity of meals cooked and mixed with chopped hay as before, fed in a less soppy state, in order to counteract the opening tendency of the young succulent grasses. This régime may be continued to the middle of June, when the quantity of meal may be reduced one half, or, if the pastures are good, discontinued till the autumn. So long as the artificial feeding is continued, cows must be fed in the stalls twice a day. By the beginning or middle of September, the early cabbage should be ready for use; this will increase the flow of milk at the expense of the quality. To maintain the standard, the use of meals and chop must again be continued, commencing with 2 lb. a day, with a gradual increase, arriving at the standard allowance by the 1st of November, which will be maintained throughout the winter and following months.

The estimated cost of keeping a dairy cow in full profit during the winter months, including labour of milking and attendance, is not less than 1*s.* a day, charging the home-grown produce at market price. Green hay is greatly to be preferred for milking cows, tending to enhance the value of the produce. Grasses should not be allowed to stand till over-ripe, causing the soluble matters to become converted into indigestible woody fibre; and sufficient labour should be employed; the hay should be constantly stirred from the time it is cut until it is placed in the stack, unless meantime showery weather should intervene; hay barns, too, are indispensable to the dairy farmer. (Gilbert Murray.)

Turnips give a disagreeable flavour to butter, when used in feeding, in autumn and winter. No mode which will prevent the taste of turnips being imparted to the milk is better than the practice of giving the turnips to the cow after she has been milked, instead of before.

When at pasture, cows are often tethered with chains or ropes of 12 ft. and upwards in length, having swivels to prevent twisting. At one end there is a ring, through which the chain is passed to form a loop that is passed over and tightened round the base of the horns, or secured to a head stall. The lower half from the swivel is sometimes made of rope, and at this end the tether is attached to an eye in a pointed iron peg of 9 in. or so long and about 1¼ in. in diameter at the head, which is flattened like the head of a nail. This peg is driven into the ground. The cows are shifted according to the weather and the grass they have eaten, averaging perhaps 6 times a day, the swivel referred to usually preventing the chain from fouling; and they are left out at night in warm weather only. The amount of grass economised by the tethering system is considerable.

Pig.—To make it pay, any kind of stock must be well treated. This is even true of the pig, and no animal pays better when well housed and fed. Much depends upon the system adopted—whether sows are kept for breeding, or whether the pigs are fattened. Some persons do best with breeding sows, and cannot make any profit out of the fatting process; others declare that fatting is very lucrative. In keeping pigs for profit, several points are to be considered.

Styes.—The styes must be practicable, dry, warm,

and easily cleaned, not facing the north, nor with a moist or damp earth bottom. Farmers generally fill the bottoms 1 ft. deep with chalk; but although this is better than nothing, it is a poor substitute for a proper floor, which should be of concrete, with a nice dry raised wooden bench at one end for sleeping. Wherever earth is found in a stye, there will be mud very soon—and very filthy, unhealthy mud too. The stye must be warm, and the straw clean—wheat barley straw is not so healthy, and encourages vermin as well as dirt. If it is true that a pig, put up to fatten, should be either sleeping or eating, then the bed must be as sweet as the food, and even at 35*s.* a load in the country straw will be paid for; but in a bad stye twice as much will be used as is necessary.

Breed.—Choice small breeds are too small for the market; they have not quick growth, and that is what is wanted in breeding for sale at 8-10 weeks; again, choice breeds, from men who exhibit, are sometimes wanting in vitality, sometimes diseased, and never produce so many or such vigorous litters as hardy breeds of another type. The best breed to select is, perhaps, the larger or middle York, which has quickness of growth, and makes a big strapping youngster in a few weeks. A cross with a strain of the same type, but of entirely different blood, is quite necessary for vigour, and to obtain large, strong, and frequent litters.

Breeding.—It is an old practice to advise that the pig should never be used for breeding until at least 15 months old. There is soundness in the advice, if a man desires to obtain the finest animals for stock or exhibition: but not when the object is to obtain as much money out of your stock as you can. Some

make a practice of obtaining first litters from yelts under a year old. A September litter is divided into boars and sows; the former are cut and fattened; the latter are well fed, and allowed to run out to increase their vigour until the following September, when they have a litter, having been put to the boar about the end of May. They thus grow fast during the best months of the year, and approach maturity just as they litter. The young do not show any symptoms of deficiency in stamina, but grow well, and are sold off in 8-9 weeks at 20*s.*-22*s.* each, and the mother is soon prepared for mating to the boar again, bringing the litter about the beginning of April.

A breeding sow costs very little when she is without pigs; but she is naturally an expensive animal when she has a litter. It has been said by many that a sow should be always in pig or with pigs, and this is very near the truth. When her pigs are taken from her, she should be dried and fed up for taking the boar as quickly as possible. Thus, as she goes 16 weeks with young, she will, if they are taken from her at 8 weeks produce 2 litters a year, if she has no accident, and if she is rightly managed, for she will at each time have just a fortnight for taking the boar. Of course, the thing will not always be managed so exact and so regular as could be wished; at the same time it is a good guide, and if 2 litters can be managed in the year, so much the better. Taking the pigs at 10*l.* at 8 weeks, this gives a return of 20*l.* and the value of the manure. Against this you may place 8*l.* as the cost of keeping the sow, where everything has to be bought, but much less where there is plenty of house wash, milk, roots, and refuse from gardens, &c.

In breeding little pigs for sale, there is not the

same element of chance that exists when pigs are fatted. The little ones vary but a shilling or two if they have not done so well as usual, whereas with a fat pig the process is longer, much more expensive, and may not turn out so profitable after all. When a large quantity of skim milk or refuse has to be consumed, fatting may be necessary, and, valuing the food at much less than meal and corn would cost, it may pay very well; but as there are plenty of men who buy young pigs for the express purpose of fatting, and who have no milk, no refuse, and, indeed, no stubble for them to clear up at all, but have to purchase everything, there must be some return.

Fatting.—When fatting will invariably pay for purchased food, is when porkers come in just right for the London market, nice in size and quality, and realise about 5*s.* 9*d.* per stone. A 16-stone pig would at this rate realise 4*l.* 12*s.*; and there is no reason in the world why it should not be attained in 16-20 weeks, instead of which it would, as a store, be worth at this age some 2*l.* Breed, attention, and feeding will help to bring this about. The youngsters must be continually pushing ahead; if they get a check, so much profit goes, and so much time is lost. To this end, too, it is of no use to go in for a small breed—the York or the York and Lincoln will do very well.

Feeding.—With regard to feeding there are many opinions; but barley meal is perhaps better than anything, only it must be good, and feeders should always grind their own. Mills are now generally made, and by no means expensive. Boiled barley is, again, first-rate food, and may be given with capital effect. Peas are useful for finishing off little pigs, and

they make the flesh of fat hogs firm and sweet; but cannot be compared with barley when cheap, and do not yield the same return. Maize is a good food when cheap; but it is better boiled than raw or ground. Feeding upon potatoes, although very cheap, is not the way to sell a second lot; a buyer of potato-fed pork is not very often anxious for a second consignment. (*Field.*)

Fowls.—*House.*—Where eggs alone are required, a few pullets may be kept in a moderate-sized run, and, when they cease to be prolific, may be changed for fresh birds, whose stamina has not been injured by confinement over ground saturated with their own excretions; but for rearing chickens satisfactorily, a good run is absolutely necessary. No particular dwelling is essential; any unused cart-shed, coach or tool house, stable, or similar building may be modified to suit the requirements of the inmates. It is exceedingly desirable that the perches should be of one uniform height; otherwise the contest for the highest leads to quarrelling and fighting. Nor should the perches be high, as in that case the confined space in a house renders it necessary that the birds should fly down perpendicularly, to the great injury of the feet, and frequent fracture of the keel of the breast bone. The house must be kept clean, which is best accomplished by movable boards under the perches, from which the droppings can be removed daily. The house must be ventilated, and so constructed that the fowls can be out at daybreak. The nest places, if intended for hatching, should be on the ground; eggs, to hatch well, must be placed in natural conditions, i.e. on the comparatively cold ground, so that they are cooler below than above, and exposed

to the moisture arising from the soil.

Breeds.—In selecting a breed, the first question is the principal requirement of the household. If eggs are the main object, it would be absurd to select Dorking or game. Nothing can exceed the prolificacy of fowls of the Mediterranean type, which includes Spanish, Andalusian, Leghorn, Minorca, Ancona, and other less known varieties. Of these, as regards hardihood and size, Minorcas are in the front rank, and can be strongly recommended as splendid egg producers—not show birds with combs 4 in. high, such as some breeders aim at producing, but the ordinary bird common in the south-western counties of England. Leghorn is good, but smaller in size of egg; Andalusian very good, but not so much in demand as Minorca. All these birds are non-incubators, and their production of eggs is consequently not interfered with by weeks of broodiness, which renders Cochins, Brahmas, and other birds of the Asiatic type so unprofitable where eggs alone are required; though nothing can surpass the pullets as winter layers, as they produce eggs quite irrespective of temperature. Hamburghs, particularly the black and the spangled breeds, are admirable egg-producers, but the eggs are small as compared with those of the Minorca. The recently introduced Plymouth Rocks are very good layers, but they are sitters, and therefore not as prolific as the Mediterranean type. The same may be said of Houdans and some others. If eggs alone are required, the choice lies between the Minorcas and the Hamburghs. The latter may possibly excel in numbers; but, if weight and size of eggs be taken into consideration, the Minorcas will certainly carry off the palm. The birds of the Mediterranean type may be described as somewhat leggy, of small or

moderate size, with largely-developed single combs, which are erect in the cocks and flaccid in the hens. They are not remarkable for abundance of breast meat, plumpness of body when killed, or any great tendency to fatten. The plumpest are the brown Leghorns; but these have been produced by crossing the white Leghorns with black and red game, and what they have gained as table fowl they have lost in egg-producing properties.

If there be no free and extended range, such as a farmyard, or grass run in orchard or paddock, the attempt to rear fowls for the table should be altogether abandoned; the profitable raising of chickens on ground saturated with the excrement of old birds is not to be thought of. But given a good grass run, the question arises as to the variety of fowls to be kept. If large household fowls are desired, the pullets of which will lay well in the winter, the Asiatic breeds may be selected, such as the Cochins, Brahmas, and Plymouth Rock. As table fowl the last is certainly preferable of the three, as, in consequence of its being bred from a cross with the old American farmyard fowl, the Dominique, it has more flesh on the breast, and, being free from the useless incumbrance of feathers on the legs, it is a better forager and scratcher on its own account. But as table fowl these breeds are far surpassed by a variety which has long been most highly esteemed in the West of England, where it is known as Indian Game. For plumpness and quantity of meat on the breast, these birds are unequalled by any large breed. The fighting Indian Game, known as Aseels, equal them in plumpness, but not in size. In both these breeds there is an absence of offal and waste parts that is remarkable. The bones are small, there is no

large comb or superfluous feather, and the size of the pectoral muscles, which constitute the flesh on the breast, is very great. As market fowls, the fact that their legs are not white may in some cases be an objection, as there is in the minds of some cooks a stupid prejudice against any but white shanks.

The Dorking is of great excellence, but has its drawbacks. Dorkings are harder to rear than many other varieties; the chickens are delicate; and the deformity of the extra toe is most objectionable, leading to extra deaths among the chickens, which are trampled in the mire by the splay-footed hens; and the plumpness on the breast is not equal to that of the Game or Indian Game. Where fowls are bred for home use, no better large birds can be raised than will result from a cross between the Dorking and a large game, either the ordinary English breed or the so-called Indian Game, which, out of Cornwall and Devon, is frequently termed the Pheasant Malay. (W. B. Tegetmeier.)

The French breeds good for table purposes are La Flèche, Crèvecœur, and Houdan. The two latter have topknots, which are a disadvantage. La Flèche is most prized, as it grows to an enormous size, and is a prolific layer. They are usually prepared for market by penning them separately, fattening them with freshly-ground barley and buckwheat meal, mixed to about the consistency of gruel with milk; they will then require no water. They are crammed for the last few days. Another mode is to force the food down their throats, giving them as much as they can take without overtaxing the digestive organs. The usual time is about 3 weeks, but in France it is carried on sometimes for 3-4 months.

Formation of Eggs.—The chief egg-producing organ

is the ovary, which is situated under the backbone at the end of the ribs, and protected by the pelvis. A young chicken has an ovary on both sides of the vertebræ, but only the one on the left side developes. The ova consists of different-sized granules, which, as the bird grows, become larger in size. They are attached to the ovary by a slight pedicle; when ready to enter the oviduct the ova breaks from this membrane, and sometimes, when eggs are formed too rapidly, this becomes ruptured, and a drop of blood will go down with the yolk—eggs in which this occurs should not be kept for breeding purposes. The oviduct is a funnel-mouthed canal into which the yolk enters; at its upper end it is very thin, but thickens as it nears the intestinal canal—the oviduct of a laying fowl is about 2 ft. long, and is folded backwards and forwards in the body of the bird. The yolk or ovum passes down the oviduct in a spiral manner, and becomes covered with layers of albumen, which are secreted by the oviduct. At one place the ovum is covered with a thicker stratum, and here the albumen becomes twisted at either end of the yolk into two cords which fasten the egg to the shell in such a manner, that the yolk, with the germ uppermost, is always near the upper side of the shell, though not touching it; if the egg is kept too long, and in one position, the albumen glues the germ to the shell when its vitality is destroyed. The ovum, covered with several layers of albumen, and the 2 cords (chalazæ), then goes down the oviduct, and becomes covered with 2 skins or membranes, which separate at the larger end to let the air into the germ; finally the egg is covered with its shell, which is formed with great resisting powers, its arch is much like a tunnel arch, and between the particles, or bricks, air passes into the egg. This shell, which is

very strong at first, with the heat of the hen's body disintegrates, and the particles separate, so that, when the chicken is ready to hatch, it is so brittle that the slight pecks of the horny cap on the mandible of the chicken is enough to break it to pieces. If the bird is fed on over-stimulating food, eggs are often produced too quickly. When such is the case monstrosities—such as two yolks in one shell, or two eggs one inside another—are produced, and very often they are laid without a shell.

Laying.—Several circumstances bear on the question of the supply of winter eggs; the most important are—(*a*) the food of the fowls; (*b*) their breed; (*c*) their age; and (*d*) their locality and lodging.

(*a*) The Food of the Fowls.—It cannot be too strongly impressed upon all poultry keepers that fowls do not create eggs: they only form them out of the materials existing in their food. This food also serves other purposes—namely, to keep up the warmth of the body, and to support the vital actions. If only sufficient food is given to supply these demands, it is evident that there can be none left for the production of eggs. The obvious inference from this is that it is necessary to feed your fowls very well if eggs are wanted in winter; and as the supply of nitrogenous food in the form of worms and insects is diminished, a little cooked refuse meat may be advantageously added during the very hard weather. A proportion of Indian corn, either whole or in the form of scalded meal, is a good addition to the winter food. It contains a larger amount of warmth-giving fat or oil than any other grain, and, by so keeping up the temperature of the animal, sets free the other foods to be employed in the secretion of

the substances that compose the eggs.

(*b*) The Breed of the Fowls.—Small birds offer a much greater amount of surface to the action of the cold in proportion to their bulk than such as are larger. These latter especially, when thickly clothed with fluffy feathers, as are the Cochins and Brahmas, are hardly amenable to frost; hence, all other circumstances being equal, they will be found the best layers in winter.

(*c*) The age of the hens is a matter of great importance. Early hatched pullets that have passed completely through the moult and acquired their adult feathers some weeks since, can be readily induced to lay by good feeding; whereas old hens that moult later and later each succeeding season only produce eggs at this season very sparsely, if at all.

(*d*) Much depends on the locality and lodging. To produce eggs in winter, the fowls must be in comfortable circumstances; they must have dry and well sheltered runs; they should not be confined to a small place, as they are apt to lose that high condition necessary to robust health, and then the production of eggs immediately ceases. Their roosting place should be well sheltered, and free from draughts of cold air or the access of moisture. Some suggest the use of a stove; but such an appliance is rather injurious than useful. The fowls are exposed to the cold during the day, and this alternating with the stuffy, close atmosphere produced by heating a fowl-house must be injurious. (W. B. Tegetmeier.)

Setting Eggs.—The favourite egg for setting appears to be as nearly oval as possible. The best breeders reject every pointed or irregular egg or a very large

one. It is customary to pick out the eggs very carefully in breeding fine stock. Generally 80 per cent. are rejected as liable to produce inferior chickens. In the ordinary practice little attention is paid to the shape of the egg; 13 eggs are picked out "just as they come," and put under the hen. Farmers generally have as an argument that the hen that "steals her nest" always brings out good chickens, even though the eggs are of all shapes and sizes. But few farmers can tell how really good these "stolen" chickens are. They appear to be vigorous when young, but running about as they do with other hens, any comparison as to egg production is mere guesswork. The ordinary farm poultry could be greatly improved by a more careful selection of eggs for setting. Eggs with soft shells, with a ring or crust on the shells, or with an uneven or rough surface, should be rejected. Very large eggs containing a double yolk are frequently set in hope of producing a very large chicken, two chickens, or a curious monstrosity. Such eggs very rarely hatch.

Testing Eggs.—All eggs should be tested on the tenth day of incubation. The best and easiest way is to cut a hole in a stiff piece of cardboard, a little smaller than the egg, hold the egg on its side close into the hole and put a strong light behind the cardboard, when the state of the eggs will be quite distinct. If the egg is fertile by the seventh day the body of the egg will be quite dark and a sharply cut air space will be quite distinct at the large end. If it is a sterile egg, the whole of the egg will have much the appearance of melted wax and the air space will not be very distinct. If the egg is sterile it is much better to take it away, as it is still fresh enough to be used for cooking, some people even using them for eating; they would at any rate be good for feeding

young chickens, whilst if they were left in the nest they would decay, probably be broken, and dirty the whole nest. If the nests are dirtied by a broken egg, the straw should all be taken away, and fresh put in its place, and the eggs washed in warm water, care being taken to prevent the eggs being shaken more than possible. If an addled egg is left in the nest, the germ, having been killed either by inherent weakness or by chilling, would decay, and sulphuretted gas would be generated, which would burst the shell, if it were moved about, and taint the atmosphere, and in that way hurt the chances of the others hatching.

Sitting.—The best method, if practicable, is to let the hen choose her own nest, leaving the eggs that she lays in the nest, and when she has laid her clutch of eggs she will sit and probably bring out a chick from each egg. A hen in a state of nature would only sit at a seasonable time of year; she would scoop out a shallow hole under the shade of a bush so that the moisture rising from the ground should not all evaporate. If a hen cannot sit in the place she has laid her eggs in, the best method is to put her into a coop with the earth as a floor, scooping it out slightly, then putting in a thin layer of straw or leaves, and sitting the hen at night on a few dummy eggs for the first 24-36 hours. When she has fed and returned quietly to the nest by herself, she may be given the good eggs, and, unless disturbed by animals or vermin, which latter can be kept away by allowing the hen a heap of ashes about the nest to dust herself in, she will bring out her brood at the proper time. A very good nest for a sitting hen can be made from a flour barrel turned on its side with ½ barrow load of mould put in, or a half sieve basket nearly filled with earth. Care must be taken that the hen has not to jump from any height on to her eggs,

or she is likely to break them. Reynolds's terra coop is a good one, as the wire flooring having mould put into it allows the moisture to rise from the earth to the under side of the egg. The sitting hen should not be disturbed by other fowls coming to lay in the same nest.

Incubators.—Taking into consideration the number of conditions absolutely necessary, a home-made, roughly constructed incubator is not likely to be successful. A machine which automatically regulates the temperature of the eggs, irrespective of that of the external atmosphere, is essential. Regulators are attached to all incubators in use at the present time. Tomlinson's works by the expansion of air; Christy's by the flexing of a compound metallic bar; and Hearson's by the volatilisation of fluid in a metallic capsule, which, by its sudden expansion at any desired temperature, cuts off the source of heat, and prevents the degree to which the machine is regulated being ever exceeded. In addition to the exact regulation of the temperature, an incubator, to be successful, must be so arranged that the eggs are heated from above, and that there must be a constant supply of fresh, moist air (not saturated with watery vapour). The advantages of incubators from a practical point of view as regards market and table poultry are due to their supplying hens with full clutches of chickens. In France, chickens are hatched in large numbers for sale to small proprietors, and reared by them under ordinary fowls, or in larger numbers under turkey hens. In our own country numbers of fancy poultry for the early shows are reared under artificial foster-mothers heated by paraffin lamps; but the results of endeavouring to rear chickens, except upon fresh runs where they can obtain natural food, are not sufficiently encouraging

to render it likely that foster-mothers will supersede the employment of hens in rearing fowls for the purposes of utility.

Chickens.—Chickens require no food for 24 hours, as just before they are hatched the yolk is absorbed, and they live upon this till it is finished. When the chickens are all out and dry, the hen would naturally come off and take them to where she could find them suitable food, such as eggs of ants, gentles, and small germinating seeds. The best food that can be given young chickens for the first week is custard, made of equal proportions of egg and milk, beaten up together, and just set by the fire. They should always be allowed from the very first plenty of green food, lettuces running to seed, dandelions, or onion tops chopped very fine. Rice boiled in milk, and with a little freshly-ground meal, is very good. Dari, millet, and canary seed are all good; grits and coarse oatmeal should only be given quite freshly ground, as they soon become pungent and rancid, and put the digestive organs out of order. Gentles, or flesh maggots, can easily be got in the summer for the young chickens by hanging a piece of meat or a dead fowl on a branch of a tree, or suspending it in some way out of doors, cutting a few slashes in the skin, and leaving it for a few days, when it will become thoroughly fly-blown; then bury it a few inches under the earth in a place that the fowls can get at; in a very short while the ova of the fly will hatch, and the maggots come to the surface of the earth; the hens will soon find them, and bring their chickens to them, and they will eat the maggots greedily. Milk is very good for the young chickens, but great care must be taken to prevent its turning sour. The chickens should also have fine-crushed quartz or gravel, such as is swept down the roadsides by heavy

rain, to help their digestion. It is much better to let the hen free with her chickens, but if she must be cooped, the best method is to put a coop with an open front to it, and the back against the wall of some building, and then tether the hen. A good tether is made with a strip of leather, one end being turned down about 1½ in., and a small slit being made through the 2 thicknesses of the leather, put the leg of the hen between these, and then pull the other end through the 2 holes, through the turned-down end first; in this way it cannot be tightened or hurt the leg of the fowl; then fasten a long piece of string to the end of the leather so that the hen can have a good run, as in a state of nature the hen would move to fresh ground day after day.

Fatting for Table.—However young a cockerel may be, if he has been running with hens, and if on killing he appears blue, there is considerable risk of its eating hard, though only 7 months old. A pullet which has only laid one or two of her first eggs is anything but first-class, and after laying out, and getting once broody, is no better than a hen 5 years old. A first-class table bird is a young, "straight," thick-breasted cockerel which has had nothing to do with hens, or a pullet a month before laying her first eggs.

In France, fowls to be fattened do not exceed 6-7 mouths old; pullets, put up before they have laid, are in good condition and well fed, from their birth up to the day on which they are cooped. Cramming is regarded as the most economical and effectual mode of proceeding. The fowls to be fattened are placed in coops in which each has its own compartment. The coop is a long narrow wooden box, standing on short legs; the outer walls and partitions are close boarded,

and the bottom is made with rounded spars 1½ in. in diameter, running lengthways of the coop; on these spars the fowls perch. The top consists of a sliding door, by which the chickens are taken out and replaced. The partitions are 8 in. apart, so that the fowls cannot turn round. The length of each box is regulated by the number of divisions required, the cocks and pullets, and the lean and fat lots, not being mixed up indiscriminately, because their rations differ, and the new-comers would disturb the old settlers by their noise. The floor below the boxes is covered with ashes or dry earth, which is removed every 2 days with a scraper. The food is chiefly buckwheat meal, bolted quite fine. This is kneaded up with sweet milk till it acquires the consistency of baker's dough; it is then cut up into rations each about the size of 2 eggs, which are made up into rolls about the thickness of a woman's finger, but varying with the sizes of the fowls; these are subdivided by a sloping cut into pellets about 2½ in. long. A board is used for mixing the flour with the milk, which in winter should be lukewarm. This is poured into a hole made in the heap of flour, and mixed up little by little with a wooden spoon as long as it is taken up; the dough is then needed by the hands till it no longer adheres to them. Oatmeal, or after that barley-meal, is the best substitute for buckwheat-meal. Indian corn-meal makes a short crumbly paste, and produces yellow oily fat.

In cramming, the attendant has the buckwheat pellets at hand with a bowl of clear water; she takes the first fowl from its cage gently and carefully, not by the wings or the legs, but with both hands under the breast; she then seats herself with the fowl upon her knees, putting its tail under her left arm, by which she supports it; the left hand then opens its

mouth (a little practice makes it very easy), and the right hand takes up a pellet, dips it in the water, shakes it on its way to the open mouth, puts it straight down and carefully crams it with the forefinger well into the gullet; when it is so far settled down that the fowl cannot eject it, she presses it down with the thumb and forefinger into the crop, taking care not to fracture the pellet. Other pellets follow the first, till the feeding is finished in less time than one would imagine. It sometimes happens in cramming that the windpipe is pressed together with the gullet; this causes the fowl to cough, but it is not of any serious consequence, and with a little care is easily avoided. The fowl when fed is again held with both hands under its breast, and replaced in its cage without fluttering; and so on with each fowl. The chickens have 2 meals in 24 hours, 12 hours apart, provided with the utmost punctuality. If they have to wait, they become uneasy; if fed too soon, they suffer from indigestion, and in either case lose weight. On the first day of cramming only a few pellets are given; the allowance being gradually increased till it reaches 12-15 pellets. The crop may be filled, but before the next meal the last must have passed out of the crop, which is easily ascertained by gentle handling. If there be any food in it, digestion has not gone on properly; the fowl must then miss a meal, have a little water or milk given it, and a smaller allowance next time; if too much food be forced upon the animal at first, it will get out of health and have to be set at liberty.

The fattening process ought to be complete in 2-3 weeks, but for extra fat poultry 25-26 days are required; with good management you may go on for 30 days; after this the creature may become choked with accumulated fat, waste away and die.

The fowls are killed instantaneously by piercing the brain with a sharp knife thrust through the back of the roof of the mouth.

After plucking and trussing, the chicken is bandaged, until cold, to mould its form; and if the weather is warm it is plunged for a short time into very cold water. A fowl takes usually rather more than a peck of buckwheat to fatten it. The fat of fowls so managed is of a dull white colour, and their flesh is covered with a transparent, delicate skin. Plucking should be done instantly the fowl is dead, as the feathers then come off with the greatest ease, and the skin is not liable to be torn. (W. B. Tegetmeier.)

Packing Eggs.—Packing in newspaper is found to be the best for the inside protection, and a wooden box better than anything for holding the eggs. Baskets and hampers are of no use at all; they are sure to get pressed in travelling, and cardboard boxes would be crushed directly. A wooden box, not necessarily of thick wood, resists all pressure, and the eggs are not likely to suffer from anything short of an actual fall if properly packed. Newspaper is best, and the *Times* best of all for packing them, the paper itself being so much stiffer than other newspapers. Tear the paper into pieces about 8-10 in. square; slightly crumple it in the hand in wrapping a piece round each egg, so as to show a rough surface; on no account rub it or make it soft, as it is the stiffness which gives support, and prevents the eggs getting too close together; they must neither be very near each other, nor to the sides or bottom of the box. Put a good layer of the crumpled paper at the bottom, then the eggs one at a time, each in its own crumpled wrapper; they must be so arranged as to fit closely and firmly together,

the paper giving enough pressure to keep them firm; there must be no spaces; every corner must be filled with the crumpled paper, of which there must also be a good covering before closing the box.

Ducks.—With regard to the variety that should be kept, two circumstances have to be considered. If large size, early maturity, and white appearance for the market are required, the Aylesbury will be found pre-eminent. If, on the other hand, small size with a strongly pronounced suspicion of wild duck is required, then choose a smaller variety, as the small black, called with equal inaccuracy East Indian, Buenos Ayres, and Labrador, or, still better, the tame-bred wild, or a cross between the two; but for family use Aylesburies must be relied on.

The great error in the usual management of ducks is not bringing them to rapid maturity. A duck should be so fed as to be large enough to kill under 10 weeks old. If it is allowed to live longer, it begins to moult, and consequently is not so good in flavour, and the nourishment given to it goes to form feathers, and not to increase its weight. It is obvious that if one duck can be made ready for the market in 2 months, it must yield a larger profit than another that is not fit for use till it is 4 or 6.

Ducks should be always shut up during the night, as they generally lay at that time, and, if allowed to be at large, drop their eggs in the water, where they sink and are lost. As early as possible in the season they should be set under large hens. A good-sized Cochin, Brahma, or Dorking will cover 12 or 13. The hens should not be set in the crowded, vermin-infested nest places that are usually seen in fowl-houses, but on the ground or in a circular basket or

American cheese box, nearly filled with moist earth, and covered with a very little bruised straw, not hay; this earth should be kept moist during the whole time of setting, so as to imitate the conditions of the nest in a state of nature.

The young should be hatched on the twenty-eighth day, that is, the same day of the week one month after they are placed under the hen.

When the young are hatched they should be left with the hen till well nestled, well dried, and strong enough to stand. Many scores of ducklings are lost by inexperienced persons through their impatience to remove them from the nest. The little duckling is at first clad with soft yellow down, which gradually disappears as the feathers grow. After a few days, 3 or 4 broods are put together with one hen, who is quite able to take care of them all. For market purposes the treatment of the ducklings is as follows: They are not allowed to go into any water, but are kept in hovels, or the rooms of cottages, each lot of 30 or 40 separated by low boards; it is no uncommon thing at Aylesbury to see 2000-3000 all in one establishment. They are kept very clean and dry on barley straw. Their food consists of hard-boiled eggs chopped fine, and mixed with boiled rice and bullock's liver cut up small. This is given to them several times in the day for about a fortnight or more. When they are capable of consuming more, they are fed on barley meal and tallow greaves mixed, together with the water in which the greaves have previously been boiled; some also use horseflesh to mix with their other food. This constitutes all that is necessary to produce early ducklings for the table.

They are killed at 10-12 weeks old, just before the

adult feathers come; as the energy up to that time has been spent in the growth of flesh, but is then directed to the feathers, and a duck at 5-6 months when plucked often does not weigh so much as one of 3 months. The hens should be set in December and not later than March, for then the demand for ducklings is greater than the supply.

As to the treatment of such as are intended for breeding and exhibition. To produce birds of great frame and weight, the same food is given during the earliest stage; but, after about 3 weeks, they are allowed to go to the water, and their food is varied as soon as possible, by giving them maize (or better, oats) and barley alternately, when they can eat the same. They should be fed 3 times a day, and always have a trough of water by them, or the grain be thrown into the water; and it is an advantage to have some gravel or sand at the bottom, so that when drinking they also get hold of some grit, which helps digestion, and tends to keep the bill in proper colour. Maize is apt to render the birds too fat, and increase the tendency to accumulate internal abnormal fat, and to go "down behind," in which condition they are perfectly useless as stock birds.

Geese.—Geese can only be profitably kept where there is abundance of grazing ground, as they derive the greater part of their nourishment from grass. Under suitable conditions no birds can be more profitable, but under other circumstances they cannot be recommended.

Of the three varieties, namely, the pure white or Emden, the grey or Toulouse, and the common saddle-back, the first name is to be preferred, as the birds pluck much better and clearer than the grey,

and are much larger than the common parti-coloured breed.

The management of these birds in suitable localities is attended with very little trouble. In the early part of the year the old geese should be well fed with oats thrown into water, so as to stimulate them to early laying in February, if possible. When she has laid from eight to thirteen eggs, the goose remains on the nest, and her eggs may then be given to her.

The nest should be on the ground, without any intervening boards; and, if in a dry situation, should be watered, so as to keep the mould moist. The hatching goose should be well fed with oats thrown into a pan of water when she leaves the nest, and she should be allowed to go on to the pond or river.

When hatched, the goslings require grass, meal slaked with water, or porridge made with oatmeal. After a few days, oats, in water, may be given, and with the food they find by grazing, the young will do well until fattening time, when they should be fed on oats, in water. In many parts the geese are partially plucked two or three times a year for the sake of the feathers. Nothing can be more injurious than the practice; the small sum obtained for the plumage is much less than the deterioration in the value of the bird.

In rearing geese for the market, every endeavour should be made to attain early maturity. Young birds should never cease growing from the time they are hatched until they are ready to kill. If they are so fed as to be kept without growing, not only is all the food they eat during the time wasted, but they are deteriorating in quality and in tenderness of flesh.

Turkeys.—Turkeys dislike all that is necessary for their well-doing. They like to roam far and wide like peafowl, and will roost, if allowed to, in the open air, whereas they should sleep under cover, have an elevated roost, and a well-ventilated sleeping room. A turkey hen sits on her eggs for 32 days; she is a very gentle constant sitter, but a very careless mother, for she will, unless carefully watched or cooped, lead her chicks out in the damp grass or into a bed of stinging nettles, both of which proceedings are fatal to the brood, for wet kills them, and so does nettles; but boiled nettles are good for their health, and should be given chopped small mixed with barley meal.

The young birds should be left to effect their exit, if possible, unassisted, and allowed to remain for 12 hours afterwards under the mother's wings. After that time they must be continually attended to and fed on curds, hard-boiled eggs, and crumbs, having a good boarded coop. Meal and grits must be given after the lapse of about 10 days; and when they are 5 weeks old, boiled potatoes, turnips, nettles, and lettuces may be chopped and mixed with their food.

Norfolk turkeys are considered the best breed to keep. When turkeys are put up to fatten, barley meal, bran, and potatoes well mashed and mixed, are the best food for them. Half-a-crown's worth of meal and potatoes, with other garden produce, is about the cost of feeding each bird for one month, when it is considered fat enough for the table; but the birds will generally be in pretty good case when put up, if they have been allowed the run of the fields and the woods, for turkey chicks are only delicate in their first stages of growth. Some poultry-keepers cram their birds, but such turkeys are never so delicately

flavoured as those fed in the natural way. (Helen Watney.)

Turkey hens are such admirable mothers, that they are largely employed in France to hatch and rear ordinary chickens. When young turkeys are hatched, they should be left undisturbed until they come out from under the mother, about 20-30 hours, and fed at first with equal parts of egg and milk beaten up together and set by heat. Fresh-ground oatmeal and milk should be given, and lettuces running to seed, full of bitter milky juice; this old and young will eat in large quantity and thrive exceedingly on it. Turkeys are much larger green vegetable eaters than fowls. In dry situations and seasons they are not delicate if properly fed and cared for. (W. B. Tegetmeier.)

Pigeons.—First and foremost comes the selection of the birds. The old-fashioned English so-called carrier is perfectly useless as a messenger or homing pigeon. The only breeds of any real value are Belgians. Of these, several somewhat distinct types exist, which are known as Liege, Antwerp birds, &c. In these birds the homing faculty has been developed by training for many generations, until at last an acquired instinct of indomitable perseverance in seeking their distant home has been developed, and this has become hereditary. Hence the necessity of breeding from good birds, and those which have been accustomed to fly long distances. To breed from birds without pedigrees is useless. So high a value is placed on the performance of the parents, that amateurs will spare no pains or expense in getting good, well-trained birds. Good birds, however, can be bought for moderate sums, when amateurs in Belgium are selling off the superfluous birds after the

racing season is over; 1*l.* 10*s.* to 2*l.* a pair will often procure birds that have done good work.

A flight of birds may be established in two modes. First, by obtaining pairs of old birds, shutting them up as prisoners, breeding from them, and turning out the young as soon as they can feed themselves and fly. The second is by buying young birds as they leave the nest, and letting them fly after they have been confined a few days in their new home.

As old birds would not remain in a new locality, they have necessarily to be confined as prisoners. For this purpose never select a close room or loft. A dry shed, not exposed to the north or east, if wired on the open side, is always filled with pure air. Shelves or open lockers, in which the birds will build their nests and rear their young, should be attached to the walls. A long, straight inclosure, covered at the top and sides with wire work, should communicate with the shed. In this the birds can take exercise, flying from the perch or landing-place at one end to that at the other. This open flight place should be, if possible, some 10 yd. long, and, being open-wired above, the birds enjoy the three great luxuries of fresh air, bright sunshine, and, above all, exposure to the rain.

For food, wheat, small round maize, sound beans, dark peas, and tares may all be given, and also millet, if it be accessible; some old mortar rubbish mixed with salt should be provided for the pigeons to pick at, this being most essential to their health; and, above all, a supply of clean water to drink, placed in vessels in which it cannot be defiled, is indispensable; also water for bathing, which may be put in a milk pan or shallow trough in the open flight place. Thus treated, the old birds do not suffer in

health. (W. B. Tegetmeier.)

Homing pigeons are protected from birds of prey in China by means of a whistling machine made of about 10 small bamboo tubes, which is secured to the bird's tail in such a manner that the rush of air across the tubes produces a shrill sound.

Bees.—The modern system of bee-keeping is entirely opposed to the older method, in which honey was obtained by the destruction of the bees, and almost equally to the more recent plan of removing the surplus honey in large supers. By the present system the hives and bees are under perfect control. The sizes of the former can be increased or diminished at the will of the owner to any required extent. The combs are in movable frames, which can be transferred at will from one hive to another without the slightest difficulty. The formation of new colonies can be accomplished as desired, or prevented altogether, and the whole energy of the bees devoted to honey gathering. The waste of honey in the secretion of wax can be in great part obviated —a most important matter, as each lb. of wax requires the consumption of 15-20 lb. of honey for its formation; and the pure honey, uncontaminated with brood or pollen, can be stored in small boxes, each containing 1-2 lb., capable of being conveyed by rail without injury, and possessing a marketable value at least 3 times as great as that of ordinary run honey. But in order to accomplish these desirable ends, bee-keeping must be followed with some amount of intelligence and interest, and a certain amount of capital must be invested in the pursuit. The knowledge of the modern system of bee-keeping has been very greatly extended by the labour of the British Bee-keepers' Association, which has published

an admirable series of tracts, with a sixpenny handbook for cottagers, has organised annual shows and expositions in many parts of the kingdom, and has raised bee-keeping in England to its present standard of excellence. Through its exertions a fixed size for frames has been determined, so that in a well-arranged apiary any frame of honey or brood comb can be transferred from one hive to any other with the greatest facility. The honey harvest is now gathered in great part in convenient sectional supers of a most marketable and attractive character, obtained without the destruction of a single bee; whereas it formerly consisted merely of run honey, acquired by the suffocation of the bees and the crushing of the comb, when honey, the fluid contents of the bodies of the larvæ, pollen, propolis, and wax, were all mixed indiscriminately together—the market value of this mess obtained by the destruction of the colony being less than one-third of the value of pure honey in virgin comb, as is obtained by the modern system.

Improved hives such as are now employed by all intelligent bee-keepers are made, as before stated, on one uniform standard, and, thanks to the energy of the association, may be procured of a number of makers in various parts of the country. In the modern system the old-fashioned bell-shaped straw skep is discarded, and bees are kept in wooden hives, the best of which have double sides, with an interval between, so as to equalise the temperature. The combs are in frames, each of which is movable, so that the hive can be enlarged or diminished at any time, movable partitions, termed dummy boards, being used to shut off the empty space.

As an example of a practically useful modern hive

may be taken one made by Baldwin, of Bromley, Kent. A flat platform or floor supported on 4 stout legs, and having a large oblique alighting board projecting to the front, supports the body of the hive. This has double sides, with air spaces, which may be filled with any non-conducting material, as powdered cork. On the front is a grooved penthouse, to prevent rain entering into the hive. The interior contains 9 movable frames, each of which is fitted with a thin sheet of pure wax foundation, which the beep utilise, to the great saving of honey, labour, and time. There are 2 dummy boards, so as to adjust the size of the interior to the number of frames in use. One section frame is made broader than the rest, so as to contain 6 sectional boxes, each fitted with a triangular piece of wax comb foundation. These in the season are rapidly filled with honey in virgin comb, and can when filled be removed and utilised separately. This frame is filled with sections, each with a triangular piece of wax foundation.

In order to prevent the queen bees laying eggs in any of these sections, a piece of perforated zinc is placed when required between the section frame and the front of the hive. The perforations are sufficiently small to prevent the queen passing through, but the workers pass readily.

The section frame is of use when the quantity of honey collected is comparatively small. In general the surplus stores, those that are available by the bee-keeper, are stored above the frames in a sectional super. This holds 21 sections, each perfectly distinct from the others, and all are furnished with triangular slips of foundation comb. As fast as these supers are filled they can be removed and marketed. The costlessness of these supers is one of their most

remarkable qualities. Each is made of a slip of wood partially divided and stamped, so as to form the four sides of the super when folded, the ends being tongued so as to interlock when pressed together. The demand for these sectional supers may be inferred from the fact that they are made in thousands by means of machinery, and are so cheaply produced that their cost varies from ⅓*d.* to less than ½*d.* each.

Such time as the supers are not in use the frames are covered over with warm quilting, which gives access to the frames and interior of the hive at any time, as it is easily removed. Apertures are cut through the quilts, so as to permit of feeding when requisite. The top of the hive is covered by a deep capacious roof, which protects the interior, sheltering the supers when being filled, or the feeding bottle when in use, and keeping the quilts dry and snug during winter.

The demand for improved hives of the construction recommended is so great that machinery is brought into play in their construction, and the consequence is extreme cheapness. The hive described can be sold at somewhat about 20*s.*, and cheaper hives, of the same kind, not quite so elaborately fitted, are made from 10*s.* to 15*s.*, and can be obtained of Baldwin, Bromley; Neighbour, London; Abbott, Southall; Walton, Newark, and many other makers. (W. B. Tegetmeier.)

Supplementary Literature.

Sir F. Fitz-Wygram, Bart.: 'Horses and Stables.' London, 1886. 5*s.*

M. Horace Hayes: 'Riding on the Flat and across Country: a Guide to Practical Horsemanship.'

London. 10*s.* 6*d.*

Mrs. Power O'Donoghue: 'Ladies on Horseback: Learning, Park-riding, and Hunting, with Hints upon Costumes, and numerous anecdotes.' London. 1882. 5*s.*

James Long: 'The Book of the Pig: its Selection, Breeding, Feeding, and Management.' London, 1885. 15*s.*

Modern Bee-keeping. London. 6*d.*

T. W. Cowan: 'British Bee-keeper's Guide Book.' London, 1885. 1*s.* 6*d.*

F. R. Cheshire: 'Bees and Bee-keeping.' London, 1886. 7*s.* 6*d.*

L. Wright: 'The Practical Poultry-keeper: a Complete and Standard Guide to the Management of Poultry, whether for domestic use, the markets, or exhibition.' London. Latest Edition. 3*s.* 6*d.*

J. Coleman: 'The Sheep and Pigs of Great Britain; being a series of articles on the various breeds of sheep and pigs of the United Kingdom, their history, management, &c.' London. 18*s.*

I. E. B. C.: 'The Farm.' London. 5*s.*

I. E. B. C.: 'The Stable.' London, 5*s.*

THE GARDEN.

GARDENERS' CALENDAR.

January.—Wheel out manure, trench and make ground for crops, mend fences, clean the stems of fruit-trees, do rough pruning and felling, and complete all arrears in winter work, as weather may permit. Every effort should be made to lay up as much land in the rough as possible; the more it is frozen through, the greater will be its fertility. In hard frost, wheel out manure; in rain, clear up all rubbish and let it smoulder in a heap, using the ashes as manure. Make ready for sowing peas, beans, cabbages, lettuce, silver-skin onions, radishes, carrots, and spinach in warm borders or frames. Protect artichokes. Manure asparagus beds without digging. Sow beans in rich deeply-dug ground in the open in the last week. Plant out cabbages. Sow cauliflower in frames for putting out in March-April. Plant crowns of horseradish 15 in. deep in dunged trenches. Sow peas in wooden or old zinc troughs in frames, and put out in the last week. Sow mustard and cress (separate) in pans or boxes in frames. Cover seakale with pots or plenty of litter.

Lawns should be well rolled after wet weather, and kept clear of rubbish. Walks should be re-gravelled and rolled, and the edgings kept level and regular. In favourable weather all empty borders may be manured and deeply dug, leaving them as rough as possible on the surface, so that the soil may be acted on by frost. Rose-beds should receive a heavy dressing of a mixture of pig-dung and horse-dung, lightly forked in during dry open weather; and see that the plants have the necessary protection. Planting may still be done when the soil is dry, but

November is the best time for planting roses. Standard roses must be well secured to stakes. After severe frost, carnations, pinks, wallflowers, alyssum, arabis, pansies, and other spring flowering-plants should be examined; if heaved or loosened, the soil when dry should be made firm round them. Hyacinths, tulips, and kindred flowers will be benefited by a mulching of old mushroom-dung or leaf-soil, and must be protected from heavy rain. If slugs are troublesome, occasional dustings with soot and dry wood-ashes will keep them in check; but hand-picking, resorted to early on mild mornings, is the best remedy. Examine crocuses frequently to see if they are discovered by mice. Keep conifers and evergreen shrubs free from snow, to prevent them from being broken or disfigured by its weight; and prune any deciduous trees and shrubs that may require it. Choice trees, shrubs, and any herbaceous plants that were set out in autumn or early winter should have their roots protected from frost by a mulching of fern or litter. Keep shrubberies free from fallen leaves and weeds; but digging amongst shrubs cannot be too severely condemned, for many of the fibrous feeders must be destroyed, and the plants injured in consequence. About the middle or end of the month place stock bedding plants (ageratums, alyssa, heliotropes, lobelias, verbenas) in moist heat, when they will readily furnish cuttings, which can be propagated in a hotbed of leaves and dung if no house is available. Calceolarias and pelargoniums must be kept cool and dry by ventilation, and decayed leaves should be picked off. Dahlia roots should have rotten portions removed with a sharp knife. Sow lobelias early in heat, and prepare to sow all subtropical plants. Get ready for potting pelargoniums.

February.—All empty ground must be dug deep and thrown up rough to admit the frost. On cropped ground, prick over lightly between the plants. Sow several sorts of cabbage for filling up blanks; also broccoli, in pans and on warm slopes. Sow early beans in warm dry situations, and late ones on strong land. Sow frame plants (capsicums, cucumbers, melons, tomatoes) in moderate heat, and avoid over-watering while frosts endure. When capsicums are large enough, prick out in good light soil, in greenhouse or a hot corner, for pickling pods. Early carrots may be sown in frames or warmest borders; and parsnips in very deep-dug ground. Cauliflower, sown in mild heat, on richest soil, well watered, should be pricked out in good mould when quite small, and finally transplanted at 2½-3 ft. apart. Plant early potatoes in warm, sheltered, dry ground, in open weather. Alternate 2 or 3 rows of potatoes with a row of early peas, at the same time; they help each other. Sow long radishes for early crops and round ones for stock, in old frames with plenty of manure. Let celery for September use be sown in gentle heat, and pricked out 3 in. apart on an old hotbed, watering well. Plant garlic and shallots on dry, strong, deep land. Make new rhubarb plantations, and cover old plants to induce early growth. Sow lettuce in frames and warm borders; plant out when hardened. Make very small sowings of mustard in frames at successive intervals. Sow parsley, and sow or divide most other herbs. Round-seeded spinach and small white turnips can be sown in warm borders.

Have the lawn rough-broomed or bush-harrowed to remove worm-casts, then rolled, and turfed where needed. New grass may be sown, having the land previously well-drained, deep-dug, and levelled, sow

in dry weather, rake and roll the seeds in, and repeat the rolling at intervals. Finish planting shrubs and climbers, and do pruning to these and summer-flowering roses in mild weather. Cleanse ferneries from dead fronds and weeds, and replace the surface soil with a dressing of peat and loam pressed well round the plants. Dig and manure beds filled with herbaceous plants. Plant choice kinds of ranunculus, and set out calceolarias and violas that have been confined in cold frames during the winter, pinching off the tops when they begin to grow. Pelargoniums may be boxed or potted off in leaf-soil, loam, and a little sand, keeping them in mild heat till well rooted. Take cuttings from plants put in heat last month, e.g. heliotropes, lobelias, and verbenas. Seeds of subtropical plants may be sown in heat, for putting out in large beds. Hardy annuals to succeed those sown in autumn may now be sown in pots.

March.—Hotbeds are now all-important for sowing capsicums, celery, egg-plants, lettuce, melons, New Zealand spinach, tomatoes, and vegetable marrow. Suckers of globe artichokes should be set out 2 ft. apart in rows 4 ft. asunder; whole sets of Jerusalem artichokes may be planted in strong soil, and are especially useful for hiding ugly fences. Weed and manure asparagus beds, and prepare for sowing new beds. Earth up early beans, set out seedlings raised in frames, and sow for main crop. Sow early beet. Several kinds of broccoli, Brussels sprouts, cabbage, and kale, should be sown now, the more delicate sorts in frames, and planted out in mild weather when forward enough. A second sowing of capsicums may be wanted. Early carrots may be sown at once, but main crops somewhat later in the spring. Set out early-sown cauliflower, and sow later kinds. Renew sowing and pricking out of celery. Divide and re-

plant chives, and lose no time in planting garlic and horseradish. Sow leeks for planting out. Plant out and re-sow lettuce of several kinds. Onions for salading and pickling may be sown in quantity. Do not forget parsley. The main crop of parsnips must be sown in good time. The later kinds of pea must now be sown for the main supply. Plant late potatoes in quantity and follow with early kinds (to avoid May frost). Make successive sowings of radishes out of doors. Sow or plant seakale. Sow plenty of spinach and turnips. Try watercress in pans standing in water.

Fork over the ground between spring-flowering plants and in shrubberies when the weather is dry and favourable. Remove protection from roses, and finish pruning. Start dahlias in a hotbed, and divide and pot when they show shoots 1-2 in. long; treat cannas and Salvia patens in a similar manner. Finish potting ageratums, coleus, cupheas, heliotropes and pelargoniums. Box variegated alyssum, lobelias and verbenas, or, when hardened, plant them in frames. Prick off subtropical plants into pans, or place them singly in small pots, when large enough to handle; remove into larger pots as they require it. Plant gladiolus bulbs either in warm sheltered beds, or first in pots in a cold frame. Canary creeper and sweet pea should be sown in pots for early flowers; the latter also in the open. Harden all annuals sown last month in pots, ready for planting out in April. Sow asters and stocks in a frame in mild heat. Watering needs much care this month, on account of drying winds and frosts.

April.—Pay the utmost attention to weeding and hoeing, and keep the soil opened to sunshine and rain. Again weed and dress asparagus beds and sow

or plant new ones. Sow a few beans towards the end of the month. Make a sowing of beet early in the month and a heavier one towards the end. Renew the sowing of broccoli at intervals, and keep up a constant succession of cabbage. Sow cardoons on level, heavily-dunged land, and main crops of carrots. Plant out cauliflower in mild weather, and protect with old flower-pots in keen winds and frost. Sow successive lots of celery in a warm open bed, and some in pans under frames for pricking out. Sow egg-plants in heat and pot when ready. Herbs such as chervil, chicory, clary, fennel, and hyssop, should be sown now in a dry sunny spot. Sow a little kohlrabi towards the close of the month; re-sow leeks. Keep up a succession of lettuce, sowing in frames and planting out. Sow maize in boxes in pits; harden off for transplanting at the end of May. Sow winter onions, and parsley for roots. Keep sowing peas for succession. Sow salsify and scorzonera early in the month in deep rich soil. Renew sowing of seakale in any good deep soil. Sow spinach (prickly seeded), and have a succession of turnips, freely hoeing and thinning as they come on. Sow vegetable marrow in gentle heat.

Let lawns be regularly rolled and mowed, and weeds rooted out. On thin places scratch up the surface with an iron rake, sow some seed, dress with fine soil and wood-ashes, and finish by bush harrowing and rolling. Mulch newly planted roses, shrubs, and trees, and well water in dry weather. Set out golden lilies from their winter frames among shrubs. Keep up potting and boxing cuttings. Plant hardy edging flowers, and those for carpet-bedding. Divide and re-plant violets, which, if massed in a border, can be taken up in October, put in a frame, and will then continue flowering through the winter.

Make two sowings of hardy annuals, one early the other late in the month; cover the seeds very lightly. Beware of slugs as soon as the plants show up. Sow half-hardy annuals in the frame prepared for them, in shallow drills, and shade with mats till the plants appear; apply tepid water through a very fine rose, air when the weather permits, and prick out in frames to harden gradually when large enough. Sow perennials and give them the same care as the last-named group.

May.—Every vegetable may be sown in this month, and it will often happen that seeds sown out of doors now will afford better plants than those sown previously in heat and gradually hardened. This said hardening process demands the most constant wariness. Thin asparagus seed-beds, scatter dry litter as a protection on the bearing beds, and cut shoots for table in a regular manner. Beans will hardly pay for sowing now; top the plants when in flower if black fly is present. Sow dwarf and runner kidney beans for summer supply. Make an early sowing of winter beet. Sow broccoli for succession and put out as convenient. Plant out the most forward Brussels sprouts for an early crop in a sunny spot; it is rather late for further sowing. Cabbage may be continually sown and planted out. Sow capsicums in the open in the second half of the month, and plant out from hotbeds in warmest localities. Thin carrots, and sow a little seed to afford a crop of miniature ones in late summer. Plant out cauliflower as weather and ground admit, providing shelter on cold nights and abundant water. In forward situations, celery may be planted out in well-damped trenches and kept well watered. Sow and plant cucumbers in large frames and out of doors, selecting the sorts. Sow dandelion for next

spring's salads, and endive for autumn and winter use. Keep on sowing and planting out lettuce, not neglecting water and shade. Sow melons in frames, which need a high temperature; never shade after first planting. Sow and plant out New Zealand spinach on poor but sunny ground. Sow pickling onions in poor soil and allow to grow as thickly as possible. Renew sowings of peas, if needed. Sow Savoy cabbages for small hearts for early winter consumption. Plant out tomatoes in warm weather, choosing sunny spots. Sow turnips for succession. Plant out vegetable marrows and their allies (gourds, pumpkins, &c.) in warm weather, and cultivate like common "ridge" cucumbers, covering during cold nights.

Attend to lawn and footpaths, and plentifully water flowering shrubs in dry weather. Apply liquid manure to roses, search for insects and syringe often; disbud, and remove the weakest shoots and all suckers from the stocks. Lift plants which have done flowering; divide and replant them for autumn use. Propagate cuttings from them under glass. Lift bulbs, and spread them in a warm place to mature, storing as soon as the tops are dead. Dig and dress the borders ready for summer bedding-plants, which must now be hardened. Use soft tepid water only. Bed out the hardiest plants in good weather at the close of the month, beginning with calceolarias, verbenas, &c. Plant hollyhocks and pentstemons around shrubberies and in mixed borders, securing them to stakes. Thin hardy annuals and perennials, and sow again for the later season. Stake and tie out plants needing it. Plant out tender annuals when forward enough.

June.—Pay attention to weeding and watering, and

remember with reference to the latter that it is better to water less often and copiously than frequently and in driblets. When the supply is short, reserve it for newly planted stuff. Dress asparagus with salt and liquid manure; cease cutting about mid-June. A few beans may still be sown for late crop. Plant out broccoli, and sow a little seed for the next April cutting. Sow plenty of cabbage and greens to put out as the ground becomes empty. Plant out, water, and shade cauliflowers, and sow for the autumn crop. Plant out celery, and give plenty of water and shade. Sow pickling cucumbers (gherkins) in the open. Repeat sowing and planting lettuce. Sow mushroom spawn in cucumber frames or in heaps of horse-dung. Sow salad onions and thin out keeping sorts. A few peas (earliest kinds) may still be sown. Sow turnips abundantly in the last week, hastening the early growth, then thinning well.

Keep shrubberies well hoed, remove or shorten sprawling branches, and gather seed vessels. Trim box edging. Thin and tie shoots of climbing shrubs. Mulch rose bushes, and never cease hunting for grubs. Hasten the filling of borders with bedding plants, avoiding too fine a surface to the soil. Plant strong-growing things deep, and press the soil well about them, not omitting stakes and pegs when wind may do damage. Let subtropical plants have good deep soil and shelter from shrubberies. Plant chrysanthemums and dahlias in mixed borders and around shrubberies. Keep the hoe going everywhere, and remove all dead flower-stalks except such as are needed for seed. Propagate cuttings of pansies and wallflowers; sow mignonette and sweet peas for late returns; sow and prick out stocks, and do not cease planting tender annuals, such as asters.

July.—Watering is the most important item in this month, even though occasionally showery. Avoid nuisance from rotting refuse by digging it into trenches. Sow a few early dwarf beans. Broccoli for succession may still be planted out, not forgetting the water; also sow walcheren. Sow several kinds of cabbage in some quantity. Thin out cardoons. Water and fork among cauliflower, and shade young heads from too much sun. Plant out celery, and sow a little seed for a supply for soups if liked. Water ridge and frame cucumbers with soft sunned water abundantly at intervals of some days. Sow endive early and late in the month, and plant out in frames or sheltered beds when ready. Take up garlic, onions and shallots when fully ripe, and plant out leeks in trenches as celery. Sow parsley. A few early peas may be sown still. Lift potatoes as soon as mature, leaving the foliage to finish withering afterwards; plant a few of a quick growing sort for digging as "new" in the autumn. Sow black Spanish radishes for winter crop. Make an early and plentiful sowing of turnips, and keep them thinned and weeded. Plant out abundance of winter green-stuff, in well-dug land, and water if needful.

Do not neglect the lawn; daisy-heads are best removed by a scythe. Cut back expanding shrubs, and trim box-edging and hedges, using the knife for large-leaved growths. Supply rose bushes with liquid manure, and begin budding when the sap flows freely and the bark commences to peel; take cuttings late in the month. Weed and fork round bedding plants and regulate edging plants, leading out and pegging down specimens required to fill a certain vacancy. Freely administer liquid manure to strong subtropical plants in dry weather. Lay carnations, cloves, and picotees, and prick out stocks and other

seedlings. Get a shady bed ready for cuttings of pinks, taken at the third or fourth joint on bottom shoots from old plants. Take cuttings of wallflowers and pansies, potting or planting out the former, and transplanting the latter when rooted. Hoe round, trim, water, and thoroughly syringe violets. Stake and thin out chrysanthemums, freely dosing with liquid manure.

August.—Autumn seed-sowing demands the greatest care, to ensure the ground being previously sufficiently moist, and to avoid having the plants too forward when frosts commence. Cut down artichokes as soon as the heads are taken. Plant out broccoli where they will have a low screen against the north wind. Sow Brussels sprouts for spring planting out. Renew sowings and plantings of cabbages. Sow cauliflower in shelter or frames for spring growth, and water standing heads in driest weather. Earth-up celery when well grown. Sow corn salad for spring use. Plant out endive in shelter, and sow a little more. Sow hardy lettuce in a dry poor plot for winter and spring supplies. Make a couple of sowings (early and late) of several kinds of onion to stand the winter; take up and sun-dry the ripe crop. Sow prickly spinach at both ends of the month. Cut tomatoes and hang indoors in the sun to mature. Make a final sowing of turnips for spring crop.

Continue industrious in weeding, cleaning, trimming, pegging, and staking the flower beds, and begin to propagate cuttings. With the latter, commence with those which straggle and weak-growing kinds of plant first in order. Strike flowers of the heliotrope and verbena class in pots, put in a cold frame, shaded and watered. Look after dahlias, staking, thinning, and applying liquid manure.

Propagate pansies and phloxes, and stake chrysanthemums and gladioli. Bud, thin, and well water roses.

September.—Weeding now demands more energy than is often devoted to it, and the remains of gathered crops must be cleared off. Keep on planting all available ground with cabbage while plants last. Plant out winter cauliflower, and re-sow a little under cover. Earth-up celery. Plant out and blanche endive; ditto lettuce, and make occasional fresh sowings where dry and open. Thin parsley by pulling out whole plants as wanted; cut down the strongest plants to induce fresh growth. Take up potatoes before wet weather sets in. Thin spinach when well up.

Harden all rooted cuttings of flowers by thorough ventilation of the frames. Keep up watering and vermin-hunting. Remove dead leaves and blooms from pelargoniums, and pinch out the points of heliotropes, verbenas, &c. Well weed and water the reserve of daisies, forget-me-nots, &c. Stake all plants needing it. Select firm and well-matured bulbs for flowering in beds, embracing crocus, hyacinth, narcissus, ranunculus, snowdrop, tulip, &c. At the end of the month sow hardy annuals for next spring flowers. Plant out seedling perennials where they are to remain, so that they may get well rooted before frosts come. Sever layers of carnations, clove-pinks, and picotees when rooted, and pot them in cold frames, protected from sun and rain. Plant out pinks that have been rooted under frames. Continue budding roses, and loosen tiers which are injuring the bark. Trim and secure all climbers. Prepare for planting pansies.

October.—Keep every part of the garden freed from

fallen leaves and decaying rubbish, which should be dug into trenches as manure. Let the hoe be kept going where it cannot injure roots or stems. Dig all vacant ground and throw it up in the rough, so that the frost may penetrate. When digging, manure if the land is cold and heavy. Clear off asparagus beds and cover them with a good coat of half-rotten stable dung. Take up beet. Finish up cabbage planting at once. Earth-up and tie round cardoons. Take up carrots for storing; weed and thin the young crop. Plant out cauliflower. Earth-up celery, and prepare to cover it during frost. Blanche full-grown endive as required. Plant garlic in warm dry ground. Keep on planting lettuce. Take up parsnips for storing or as needed. Take up and store potatoes. Plant potato-onions in dry warm ground. Take up rhubarb for forcing and lay it by in a dry but cold place. Take up salsify for store. Plant winter greens on the chance of a mild winter.

This is the time for planting trees and shrubs. In advance of the frost, lift all flowers intended for keeping through the winter, not neglecting a good supply of pelargoniums. Propagate sturdy cuttings of calceolarias. Clean, dig, and manure all emptied flower-beds, and plant them with bulbs and hardy annuals for the spring show of flowers. Divide and transplant herbaceous plants.

November.—Maintain the activity in cleaning, trenching, and manuring; take in new ground where wanted; repair paths and fences; and be prepared with means of protecting things from frost. Scatter some litter among but not upon globe artichokes; lift and store Jerusalem artichokes. Complete unfinished asparagus beds. Sow beans in really warm dry land for the first crop. Cover remaining cauliflowers, or

cut and store them in a dry shed. If much wet threatens, take up celery and store like cauliflower heads. Plant garlic. Take up and store horseradish, and re-plant. Plant potato-onions. Sow several sorts of early peas in a very warm, dry, sunny spot. Plant potatoes where the soil is light. Lift seakale for forcing in cellars or pits.

Lift all flowering plants which will suffer from frost. Finish planting beds of bulbs and other spring flowers. Complete the planting of trees and shrubs. Pay special attention to the watering, protection and ventilation of bedding plants, taking care to exclude frost and damp, and remove insects and decaying matter. Collect and dig in falling leaves and other garden refuse. Mulch between standing plants, especially around the stems, and secure a quantity of dry bracken or similar material for general covering and protecting purposes.

December.—Continue the efforts of last month in making preparations for the ensuing spring—clearing, digging, repairing, &c. Earth-up beans and celery, and provide a little covering for the latter. Give endive every protection. Put a hand frame over outdoor parsley or have some in a frame. Earth-up peas, and hand pick them free from drifted dead leaves. Prepare a warm border for early spring work, making it as light and rich as possible.

Carry on trenching and leaf-gathering, and roll lawns and paths. The draining of lawns and flower-beds can now be executed. Let spring flowering plants have the same attention as in January, and bedding plants the same as in November. Do not omit to help the branches of delicate trees to withstand the effects of snow and wind by tying them up with rope yarn (tarred twine).

SUPPLEMENTARY LITERATURE.

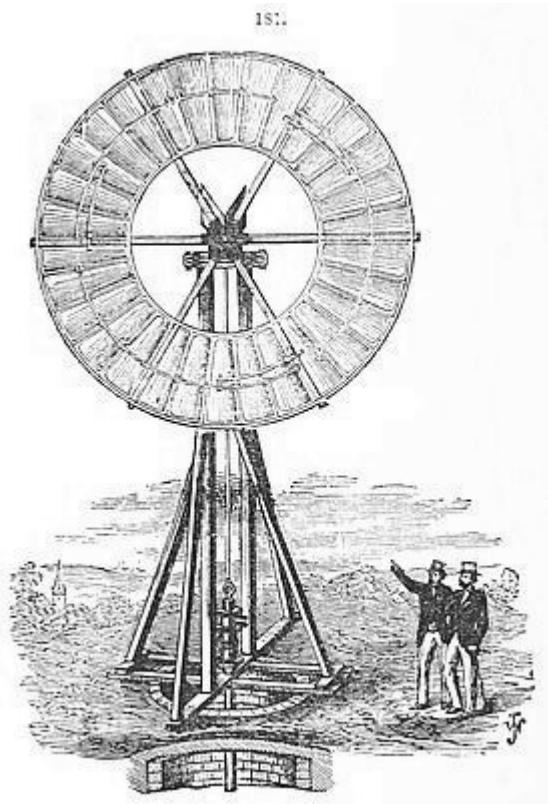
Robert Thompson: 'The Gardener's Assistant; Practical and Scientific.' London. Latest edition. 35*s.*

See also p. 1012.

DOMESTIC MOTORS.

It is an acknowledged fact that when an establishment has developed sufficiently to necessitate the employment of a considerable amount of manual labour to meet its various requirements, it is more economical and satisfactory in results to introduce mechanical labour in one or more of its many forms; this especially applies to country residences, where wood cutting, chaff and root cutting, pumping, &c., has to be done, and the machines of the dairy, laundry, &c., need propelling, and the same engine can be also utilised for electric lighting, as the light is only needed when the other machines are at rest. The superiority of mechanical over manual labour is obvious and the economy is now fully acknowledged. An engine has the advantage of executing the work with perfect regularity, the last hour's work being executed as well and as rapidly as the first, and it works all day, and every day and, if desired, all night; and the one motor, if of sufficient power, is capable of being

adapted to so many different purposes, together or independently.



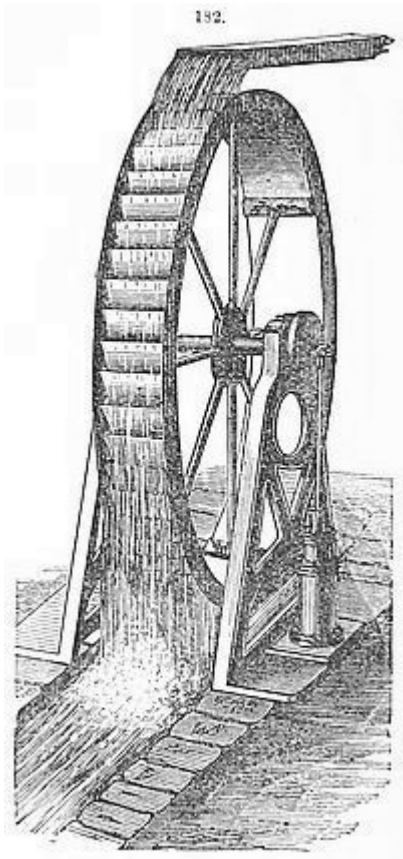
181. Windmill.

Wind.—Wind engines or mills have the decided advantage of being very economical, but are necessarily irregular in action and are only suited for high or open situations. They are rarely of practical use in towns, or where buildings, trees, &c., exist in any size or number, but where the situation is favourable they are to be highly commended for several purposes, pumping especially. They invariably take the form of a strong vertical structure or framework, surmounted with the mechanism to

which the sails are attached, and from which is carried a shaft to the base (somewhat similar to Miller's wind mills). Warner & Co., of Cripplegate, London, make a specialty of these motors, adapted for numberless purposes, and in which high powers are attainable. Fig. 181 shows an annular sailed wind engine, as applied for pumping; it will be understood that the engine can be stood immediately over the well, or it can be fixed in some more convenient and suitable position and connected with the well by shaft or by pipe.

The illustration will acquaint the reader with details more fully, and it will be noticed that these engines are self-regulating, i.e. means are provided to shift the position of the sail automatically as the wind varies; in the larger sizes "striking" gear is fitted for setting the blades of the sail out of the wind when needed. The illustration represents a No. 2 Warner's wind engine, with 10 ft. sail, price 25*l.*, including pump and timber supports; this size is capable of raising 240 gal. of water per hour 50 ft. high, but the sizes may be smaller or larger as the requirements demand; after the first cost the expense is comparatively ended, as only lubrication is needed.

Water.—Water wheels also have the advantage of being economical, and greater reliance can be placed on the regularity of water than in wind power; but it is only for those that have rivers, streams, &c., at disposal. Those that are favourably situated cannot too highly prize the power they possess, as very regular and very high powers can be obtained *at will* and at a moment's notice, free of cost (excepting first outlay), and requiring scarcely any attention.



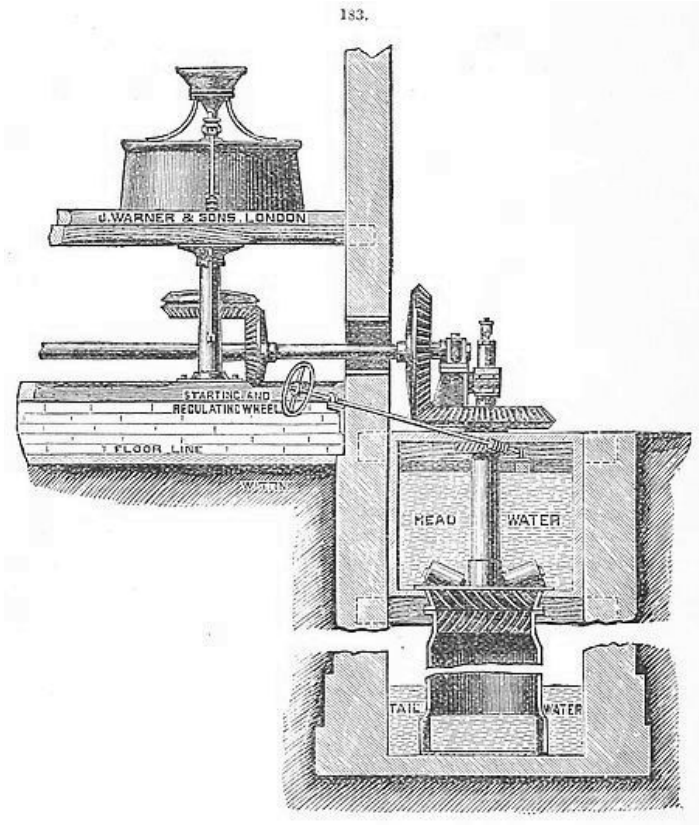
182. Water wheel.

Water wheels are of three kinds, viz. overshot, breast, and undershot; as the names signify, the water flows over, or to the breast, or under the wheel, the difference in construction consisting in the shape of the blades on the wheel's circumference. The first of the three is undoubtedly the most powerful, as not only is the impulse of the flowing water imparted to the blades, but the blades themselves are so constructed that they retain a portion of the water for about a third of a revolution

and thus very materially assist by gravitation; the breast wheel is driven by the weight of the water retained by the blades only, and the undershot wheel is driven by the impulse of the water flowing beneath.

Warner & Co., of Cripplegate, London, make a specialty of these machines. Fig. 182 shows an overshot wheel adapted for pumping pure water from a well, and delivering it at any high elevation while being worked by a stream of impure water.

There is practically no limit to the size and power of these wheels, a 50 ft. wheel giving as high as 54 horse-power. The illustration is a No. 1 Warner's galvanised iron overshot wheel, price 25*l.*, including framework and double action pump, with air vessel complete, capable of lifting ½ gal. of water per minute 60 ft. high through 400 ft. of delivery pipe. The power of these wheels is not only increased as the diameter increases, but also by increasing the width of the blades; for instance, a Warner's wrought iron overshot or high breast wheel of 20 ft. diameter with blades 3 ft. wide, develops 11 horse-power, and the same diameter with 6 ft. blades very naturally gives double (22 horse-power), but with only about 30 per cent. increased cost.



183. Improved Turbine.

Turbines are a form of water motor which require a head of water, i.e. the water for propelling them must be supplied by means of pipes from a height; for a moderate power, with the majority of turbines, it should be not less than 12 ft.; the higher the head of water the greater the pressure, and the smaller the turbine requires to be for a given amount of work or power (this applies to all water motors), consequently the cost of the motor is less, the pipes smaller, and there is decided economy in the

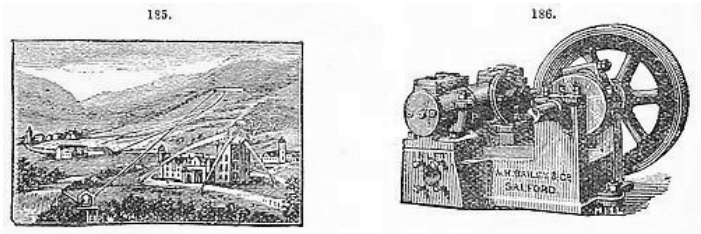
quantity of water used as the height increases. The pressure of water in pipes is 1 lb. to the square inch for every 2 ft. 4 in. in height (not allowing for friction); thus it will be seen that the surface in a turbine upon which the pressure of water is exerted, requires to be double the area with a 20 ft. fall than with a 40 ft. fall for given power. A Warner's 5 horse-power turbine for 16 ft. fall uses 220 ft. of water per minute with a wheel of 13 in. diameter, giving 377 revolutions a minute, and costing 60*l.*, whereas a 5 horse-power turbine for 30 ft. fall uses 118 ft. of water with an 8 in. wheel giving 853 revolutions a minute and costs 45*l.* Fig. 183 shows a Warner's (Redtenbacher Jouval) improved turbine fitted and connected to a driving shaft. This turbine is made to work with as low a fall as 2 ft., giving 1 horse-power, but the cost is necessarily high. It will be seen from the illustration (which is in section), that the water is made to pass between fixed oblique blades or palettes, and strikes on the oblique blades of the wheel beneath, these latter blades being at an opposite angle to the fixed blades above; thus a pressure, varying with the height of head of water, is directly exerted on every square inch of the blades of the wheel and great power is obtained.



184. Blake's Ram.

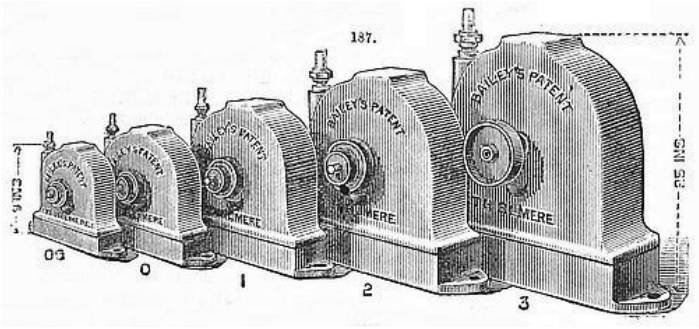
Hydraulic Rams are self-acting water motors, for

the supply of water to great heights and distances; they require a fall of water of 12 in. upwards, and are made to supply either the water that works them, or to supply well water while being worked by a stream of impure water; one of the best makers and authorities upon these motors is John Blake, of Oxford Street Works, Accrington, Lancashire. Fig. 184 shows a Blake's ram of ordinary construction, for raising a portion of the water that works it; a No. 2 (smallest size), price 12*l.*, will raise 300 gal. per day, to say 800 ft. high; a No. 16 will raise 100,000 gal. per day. Fig. 185 shows a ram raising water to a reservoir for general purposes.

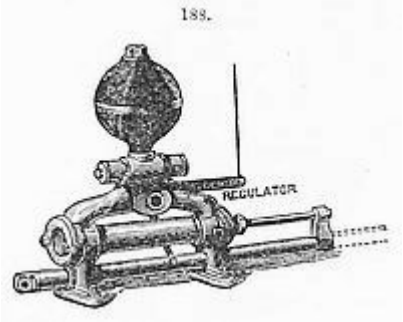


185. Blake's Ram in use. 186. Haag's Motor.

A hydraulic ram is undoubtedly the most economical means of raising a supply of water, either for a single residence or for a small town, as they work day and night without attention (or intermittently if desired), and work as well submerged as above water; but they, of course, depend entirely upon a fall of water being obtainable, and this fall or supply must be constant.



187. Thirlmere Motor.

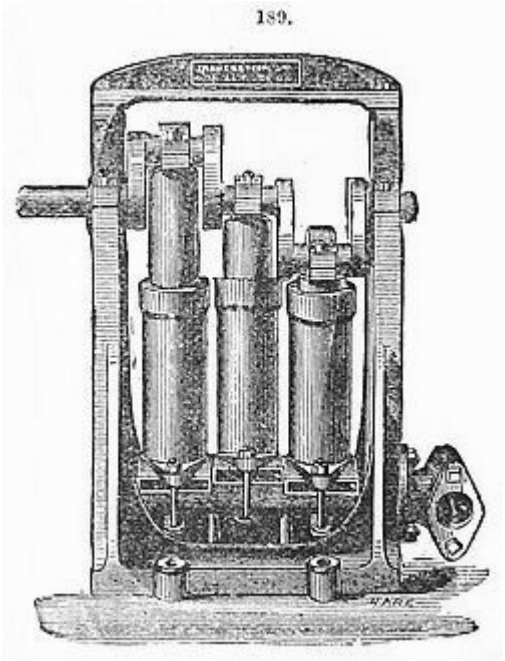


188. Hydraulic Blower.

Hydraulic Engines are made in various forms, being commonly worked in a similar manner to a steam engine, water under pressure acting upon the piston in place of steam. Fig. 186 represents a "Haag's" patent water motor adapted for a chaff-cutting machine; Fig. 187 a series of "Thirlmere" water motors, showing the capacities; Fig. 188 a Bailey's patent hydraulic blower, for chamber or church organs, smiths' bellows, &c. All these motors are manufactured by W. H. Bailey & Co., of Albion Works, Salford, Manchester, and being small and inexpensive, they are very suitable and convenient for working sewing machines, knife cleaners, washers and manglers, and any domestic machine

that entails considerable labour. The power of these motors varies with the pressure of water, if connected with the town's main (by arrangement with the water company), a very high pressure is generally obtained.

A "Haag's" motor, No. 2 (smallest size), gives from ¼ to ½ horse-power, 220 revolutions (of the flywheel) a minute, and costs 10*l.* A "Thirlmere" motor, No. 00 (smallest size) gives from $^{1}/_{70}$th to $^{1}/_{30}$th of a horse-power, and costs 2*l.* 2*s.* A Bailey's blower No. 1 (smallest size), at 50 lb. pressure, gives a boy power with a 10 in. stroke, and costs 6*l.* 6*s.*, and is suitable for a chamber organ; these latter are made to work either vertically or horizontally.



189. Ramsbottom Engine.

Fig. 189 is a "Ramsbottom" 3 cylinder hydraulic

engine (Jno. Ramsbottom, Saynor Road, Hunslet, *Leeds*). This is considered one of the most efficient hydraulic motors yet made, and it possesses an advantage in having no dead points (see Flywheel of Steam Engine), and its action is exceedingly steady and uniform. The illustration will acquaint the reader with its constructive details, which are simple and few in number.

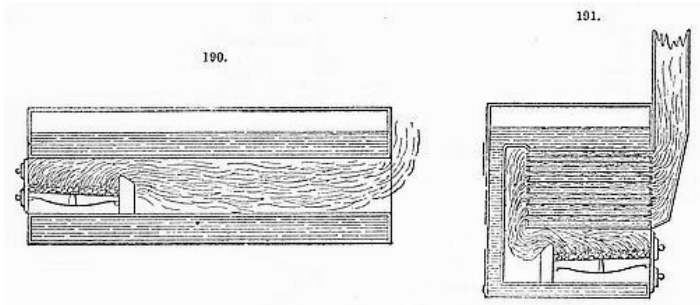
No correct idea can be given as to the cost of working these motors, for as before explained, it depends entirely upon the pressure of water obtainable.

Steam.—Steam engines are made in very many forms, and it would be impossible for us to describe even a small proportion of those made; for small purposes they are most generally made having engine and boiler combined, but where moderately high powers are needed, and space has to be considered, it is found more economical and convenient to keep them separate; the supply of steam from boiler to engine being conveyed by a pipe. It might be here mentioned that it is necessary that all steam chambers and pipes be coated or covered with some non-conducting material, to prevent loss of heat and consequent condensation of steam, and it is found advantageous to keep the steam at as high a temperature as possible, to increase its efficiency; with most large engines the steam is superheated (i.e. heated to higher than its ordinary temperature) as it passes from boiler to engine.

It is not our intention, neither would it be possible in our limited space, to give a practical treatise upon the steam engine, but it will doubtless be interesting and instructive to many if a general description of

the chief features be given. They practically consist of the “boiler,” to which is attached the “feed pump,” “water gauge,” “steam gauge,” and “safety valve.” The “engine,” which consists of the cylinder and piston, “governor,” “cranks,” “eccentrics,” and flywheel.

Boilers take many forms, but in actual principle consist of two sorts, both being cylindrical, one being clear inside, and the other nearly filled with flue tubes, which very greatly increase the heating surface. The first mentioned, which is generally used for large works, and is known as a Cornish boiler, Fig. 190, has a cylindrical outer shell, within which is a smaller cylinder, the space between the two, which is closed at both ends, containing the water as shown. This boiler is fixed in brick-work, and the furnace is situated within the inner cylinder. To increase the power of these boilers, large water tubes are carried across the inside of the inner cylinder (opening into the water chamber at each end) where the flame and heat pass after leaving the furnace.

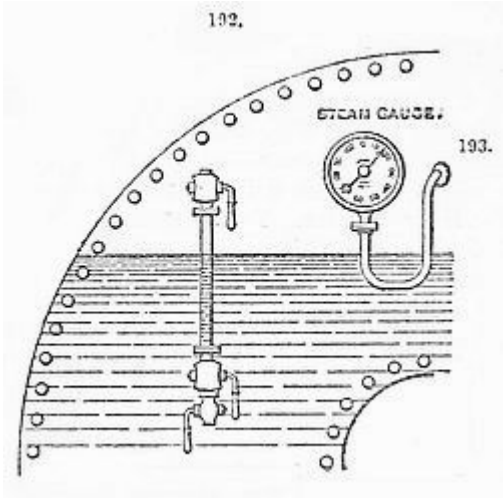


190. Cornish Boiler. 191. MULTITUBULAR BOILER. (SECTION)

Multitubular Boilers are generally those that are attached to or combined with the engine, where space is a primary object (locomotive engines have

multitubular boilers). Fig. 191 shows the arrangement of this boiler in a vertical position with horizontal tubes (shown without the engine); they are also very commonly made with vertical tubes. All boilers are, or should be, provided with ample accommodation for removing the incrustated deposit, which forms with moderate rapidity, as the water is continually boiling, and as evaporation in a steam boiler is very rapid, the supply of water is constantly being renewed, and each successive charge of water brings its proportion of lime to be deposited. (For fuller details upon incrustation and causes, see Bathroom.)

The Feed Pump is a small pump of ordinary shape and construction, situated near and worked by the engine, its purpose being to supply water to the boiler when needed. Mechanism is provided for throwing it in and out of gear as the water gauge indicates; it will be readily understood that no means can be provided for filling a steam boiler by hand, that is to say, it must be done mechanically, as no loose cover can be provided.

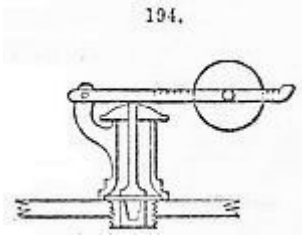


192. WATER GAUGE.
193. STEAM GAUGE.

The Water Gauge (Fig. 192) consists of two suitably constructed cocks, both being screwed into the boiler one above and one below the correct or average water level, a strong glass tube extending between them as shown; the water level is necessarily the same in the glass tube as in the boiler and consequently the attendant can see at a glance when water is needed; the object of having cocks at each end of the tube is to prevent the escape of water and steam by closing the cocks should the tube be broken.

The Steam or Pressure Gauge (Fig. 193) is a circular brass case with a dial in front, somewhat similar to a clock; within the case is a small curved tube made so as to be somewhat elastic, this tube is in direct communication with the steam in the boiler. A somewhat peculiar action is relied upon, which is, that as the pressure of steam is exerted within this curved tube, it tends to straighten it, and this, by a

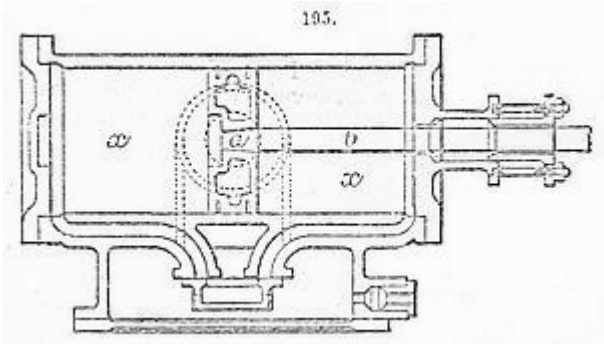
simple arrangement of wheels, causes the pointer to move round the dial, which is provided with figures round its edge showing the pressure in pounds (to the square inch) that is exerted in the boiler as the indicator points to them.



194. SAFETY VALVE. (SECTION)

The utility of the safety valve (Fig. 194) is obvious. They are invariably made so that by means of a weight or other device they can be regulated to blow off at whatever pressure the engineer dictates, the pressure being indicated by the pressure gauge.

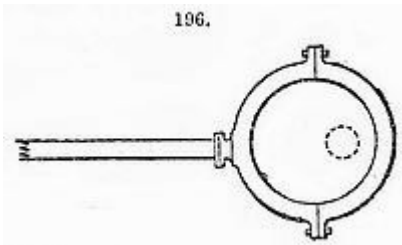
Fig. 195 represents a cylinder with piston inside; the cylinder should be encased with wood or some non-conducting material, or be provided with an outer iron casing or “jacket,” the space between the casing and the cylinder being converted into a steam chamber. Whatever method is adopted, the object is to keep the cylinder from losing its heat and to prevent condensation. The “ports” are openings through which the steam passes; by means of “slide valves” the steam is alternately admitted and expelled from each of these, so that the opening which serves to admit steam on the instroke serves as an exit for the steam on the outstroke, and the slide valves are worked from the main crank shaft by valve gear and eccentrics.



195. Cylinder, with piston inside.

The Valve Gear is the arrangement of rods that connect the eccentrics with the slide valves.

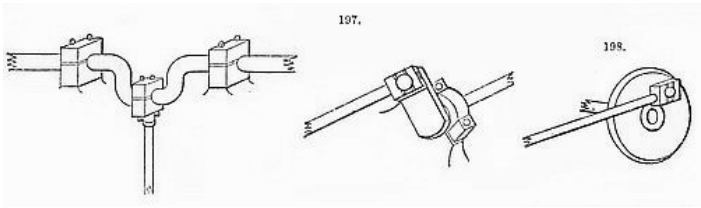
The Piston consists of a circular disc of metal made to most accurately fit the interior of the cylinder; to this is connected a rod as shown, called the piston rod, which is in direct communication with the crank. It will be seen that when the steam is admitted into one end of the cylinder the pressure causes the piston to travel towards the other end; when the piston reaches a certain point (called the dead point) the slide valve shifts and the inflow of steam is changed to the other end, and this causes the piston to travel back again, and so it continues; an instroke and outstroke give one revolution to the crank and flywheel.



196. ECCENTRIC.

An Eccentric (Fig. 196) is an ingenious piece of

mechanism that answers exactly the opposite purpose of a crank, viz. to convert a rotary motion into a backward and forward movement. An eccentric is a circular iron disc, with the main crank shaft passing tightly through it, but the shaft does not pass through the centre; hence the term “eccentric.” This disc is encircled and revolves within an iron strap, which is attached to the valve rod or gear. It will be readily seen that as the disc revolves it gives a reciprocating movement to the rod, causing the slide valve to which it is connected to open and close the ports in the cylinder, and the object in attaching the eccentrics to the crank shaft is that the piston rod and valve rods may have an equal and corresponding action, which it will be understood is absolutely necessary.



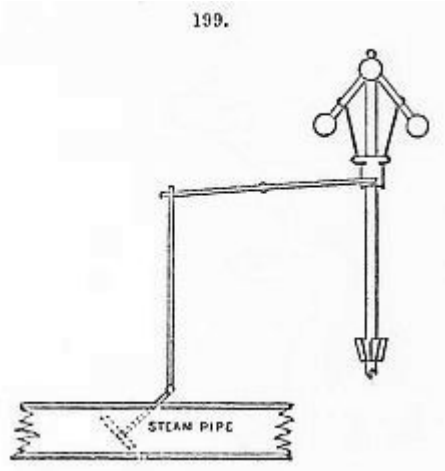
197. CRANK. CRANK. 198. DISC CRANK.

The Crank (Fig. 197), which on small engines is generally attached to one end of the crank shaft, is one of Watts' most famous inventions (but which, however, was pirated from him), and its object is to convert the backward and forward movement of the piston rod into a rotary motion at the shaft. Disc crank plates (Fig. 198) are now getting into favour as having a steadier action, and it is to all intents and purposes a crank, but of improved form.

The Flywheel is a heavy cast-iron wheel attached to the crank shaft on the opposite end to the crank itself; it serves more than one useful purpose, viz. giving great steadiness to the motion, assisting propulsion to some extent by its momentum and carrying the piston over the dead points (a dead point is the position which the piston is in when it has finished one stroke and about to return just at the time it becomes quite still for an instant, and this is called the dead point, and it happens at the end of each stroke).

The Pulleys are of two kinds, fast and loose; they are light wheels about one-sixth the diameter of the flywheel, at whose side they are attached to the extreme end of the shaft. They have broad flat faces or rims, and their object is to carry the strap or belting which transmits the power from the engine to

the work. The fast or driving pulley is the one that is secured to the shaft and revolves with the flywheel; the loose pulley is the one that is not secured to the shaft, and rotates loosely upon it when occasion demands; a forked arrangement transfers the belting from the fast to the loose pulley when it is necessary to stop the machinery, or vice versâ.



199. Governor.

The Governor (Fig. 199) is another ingenious and important invention of Watts, and serves a most useful purpose; it will be understood that if when an engine was working with the full strain of the machinery upon it, the belting was to break, the engine would immediately begin working at an alarming speed, most destructive to itself (this does not apply to engines, such as locomotives, that have constant attention); the governor, as the name implies, controls this. By referring to the illustration, it will be seen that as the speed of the engine increases, the faster the governor rotates (it being connected with the crank shaft); this, by centrifugal action, makes the two balls fly out, and this causes a

valve in the steam inlet to partially close and so check the supply of steam from boiler to engine, thus very naturally reducing the speed.

Lubricators (self-acting) are provided wherever necessary, and it is important that a motor of any description be well lubricated at its wearing parts or wherever friction takes place; this reduces the wear and tear to a minimum, and very greatly adds to the motor's efficiency.

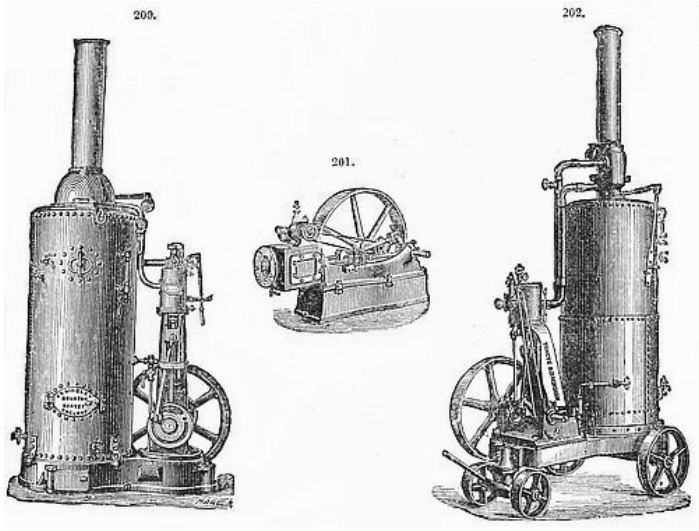
Steam is produced by subjecting water to heat, and so causing it to evaporate; steam is commonly understood to be (by those that have not studied the subject) a white watery vapour, whereas it is exactly the reverse, it is practically as dry and colourless as the atmosphere, and possesses similar characteristics in its unlimited expansibility and compressibility; it only assumes the white vapoury appearance when it escapes in the air which is at a lower temperature than itself, as it then condenses into its original form, water; if steam was ejected into a compartment that was heated to say 220° the steam would retain its own form and be quite colourless and invisible. The expansive power of steam is put to good purpose in what is known as the "cut-off" and also in compound engines; the cut-off is an arrangement whereby the steam is cut off from the cylinder, when the piston has been impelled ½ or ⅝ of a stroke, and the expansion of the steam completes the stroke. In compound engines (which are large and have 2 cylinders) the steam, after doing service in the first cylinder, is conducted to a second of greater diameter, where by expansion it exerts a lower pressure, but on 2 or 3 times the piston area, so giving units of work equal to the first cylinder. Engines are now made with 3 cylinders, thus fully

utilising this economical plan.

Horse-power.—When steam engines first came into use they were applied to work previously done by horses which worked the mills; it was, therefore, convenient and desirable to say what number of horses an engine would supersede, hence the term horse-power, which means a capacity to produce a mechanical effect equivalent to raising 33,000 lb. one foot per minute. The indicated horse-power of an engine is the pressure exerted by the steam on the piston without allowing for friction, the indicated horse-power is therefore higher than the power that will be realised; the nominal horse-power is that which is obtained by measurement of the cylinder and piston area, and is a commercial standard, but a deficient one, and most makers' lists now show engines which by improvements will give 1 and 2 actual horse-power higher than the nominal.

The makers of steam engines might be named "legion," but the two following are firms of repute, making somewhat a specialty of small motors. Fig. 200 shows a combined vertical engine and boiler complete with feed pump and water tank base, and requiring no fixing (makers Hindley & Co., 11 Queen Victoria Street, London, E.C.); the boiler is multitubular (vertical tubes) and the sizes vary from 2 to 6 horse-power, costing from 62*l.*, to 122*l.*; if coal fuel is not available, and it is desired to burn wood, peat or inferior fuel, it is usual to have the boiler a size larger costing from 3*l.* to 10*l.* extra. It will be noticed that the water tank forming the base, causes the feed water to become heated. The plan of heating the feed water is now universally followed, as it will be understood how disadvantageous it is to pump cold water into the boiler when it is in full work.

Feed pumps are now made to pump boiling water if required. Fig. 201 shows a Hindley's horizontal steam engine complete with pump, but without boiler, made in sizes from 2 to 15 horse-power, costing from 24*l.* to 100*l.*



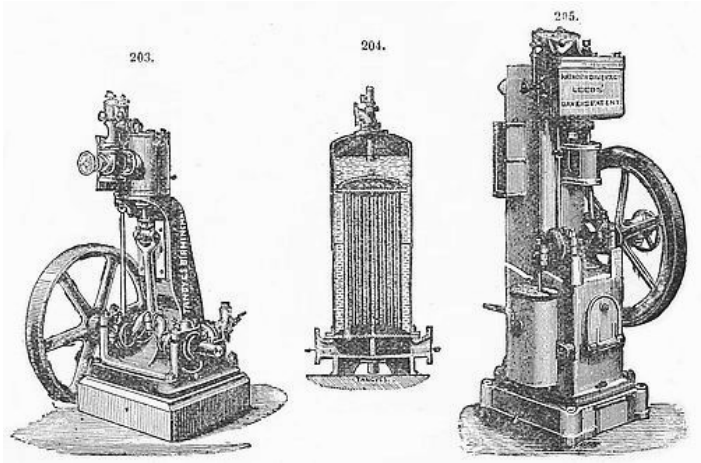
200. Hindley's Vertical Engine. 202. Tangyes' Vertical Engine.
201. Hindley's Engine.

Fig. 202 is a Tangyes' (Tangyes, Limited, 35 Queen Victoria Street, London) vertical steam engine and boiler complete, and mounted on a wheeled bed for portability, the cost being 2 horse-power 63*l.*, 3 horse-power 79*l.* Fig. 203 is a Tangyes' vertical engine without boiler, and on firm base, price, 2 horse-power 22*l.*, 3 horse-power 29*l.*, including feed pumps.

We have purposely omitted the use and description of condensers, as they are only of real use with very large engines (except with marine engines to which condensers are always fitted as the cold water for

condensing is at hand in unlimited quantities); a good use to which the exhaust steam can be put is to heat the feed water; Fig. 204 is a Tangyes' feed-water heater; it will be seen that the heating medium is the exhaust steam from the engine. These are made with brass tubes, which on account of great expansion and contraction will not permit the incrustation to adhere to their surface, and it falls in a scaley and sandy mass to the bottom where a mudhole and handhole are provided for periodical cleaning; the cost of these varies with the size of the steam exhaust pipe, for a 2 in. pipe the price is 13*l.*

If the exhaust pipe is carried any distance, it must be thoroughly well insulated, or the steam will condense, and the water will run back into the cylinder; this really occurs to a small extent with the best management, consequently a "steam trap" is used, the object of which is to discharge water resulting from condensation. The management of a small steam motor is practically simple, but moderately constant attention is needed; it must be seen that the supply of water is kept up in the boiler, the water and pressure gauges must be occasionally looked to, and the lubricators must be replenished regularly. The want of skilled attention is felt when a small accident or breakdown occurs, but this of course applies to all motors.



203. Tangyes' Vertical Engine without Boiler. 205. Davey's Safety Motor.
204. Tangyes' Feed-water Heater.

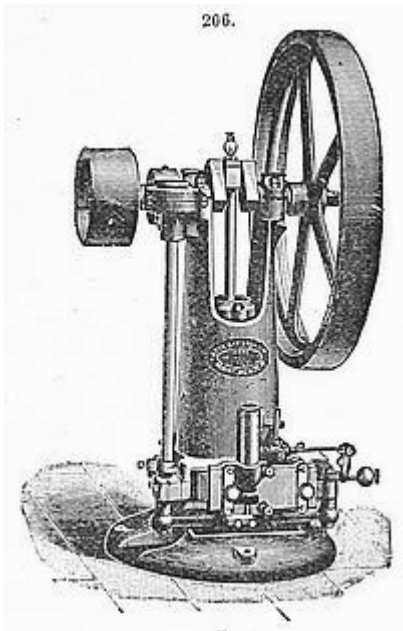
Davey's Safety Motor (Fig. 205) is a revival of the atmospheric engine of 1705 in general principle, but with various decided improvements. The word "safety" is used advisedly, as there is no pressure exerted by the steam higher than atmospheric pressure (15 lb. to the square inch), consequently it is as non-explosive as a teakettle, and no steam gauge or safety valve is required and the motor can be placed in charge of the most unskilled attendant. The power is obtained by the condensation of steam producing a vacuum and thereby making available the pressure of the atmosphere. This motor has a cylinder and piston; as the piston is proceeding on the outstroke the cylinder is charged with steam at low pressure; at the proper moment a jet of cold water is admitted which instantly condenses the steam, producing a vacuum, the pressure of the atmosphere immediately asserts itself outside of the piston pressing it back on the instroke, after which

the action is repeated; so it will be seen that the piston relies upon the momentum of the flywheel for the outstroke and the pressure of the atmosphere (15 lb. to sq. in.) for the instroke. This is an economical motor, the consumption of fuel (gas coke) averaging 6 lb. per horse-power per hour, and the makers claim that the cost of fuel and water (if the latter has to be paid for) combined is less than the cost of gas for working a gas engine for a given amount of work.

These motors are also made to work with a pressure of steam about 2 lb. above atmospheric pressure, and this can then be utilised for steaming purposes, such as for cattle foods, &c.; this also applies to any steam motor. The cost of these motors is for ¾ indicated horse-power 45*l.*, with a 2 ft. flywheel 160 revolutions a minute, or a larger size, 4½ indicated horse-power, 100*l.*, with a 4 ft. flywheel.

Gas.—Gas engines are now occupying considerable attention and receiving general favour; the attention needed in working these motors is comparatively nil, and they admit of such exact regulation that there is practically no loss of power and fuel, for in reducing speed or work the supply of fuel (gas) must first be reduced. A noticeable feature is the extreme cleanliness, as there is no furnace and stoking, no boiler safety-valve nor pressure gauge, &c.; and it is a common thing to find these motors left for hours without attention, as the supply of fuel is unvarying and self-acting lubricators of good make only require attention about once a day. A still further and important advantage possessed by these motors is the almost instantaneous starting and stopping, making them particularly well adapted for electric lighting apparatus in event of a sudden darkness

arising. The majority of these remarks, it will be noticed, apply to many motors. All gas engines are practically worked upon the same principle, but differing in detail; there is, however, a practical difference in one respect, and that is, that some consume the gas in its ordinary state as supplied from the gas mains, whilst others consume it after the piston has first compressed it; the latter is undoubtedly the most effective in results, as the difference may be compared to igniting gunpowder in the barrel of a gun in a loose state, or after it has been rammed close.



206. Otto Gas Engine.

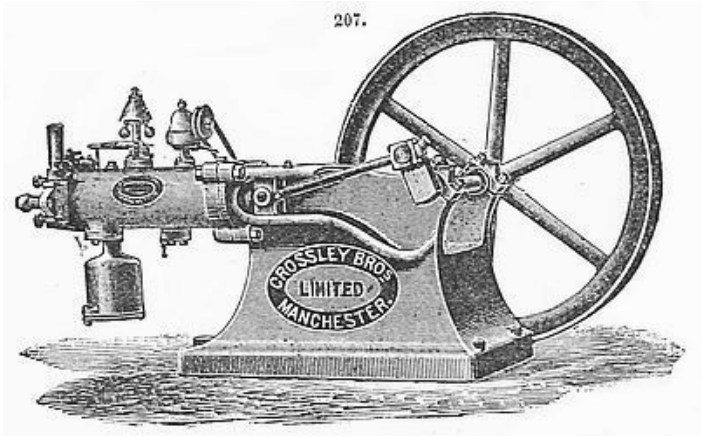
These motors are in construction somewhat similar to steam engines, having a cylinder and piston, crank, flywheel, governor, &c.; the gas is utilised by leading it to a combustion chamber (one end of the cylinder) and at a proper moment igniting it, the

expansion (or explosion) impelling the piston forward; the piston is brought back by the momentum of the flywheel, and on its return journey passes off the products of combustion; most gas engines are worked with one ignition or impulse to every 2 or 3 strokes, or they can be regulated to an impulse for every stroke for high speeds; the cylinders of these motors usually have water jackets, as the temperature naturally becomes very high, a small pump circulating the water which is supplied from a small water tank at the side, or the engine may have a water tank base, the same water being used over and over again.

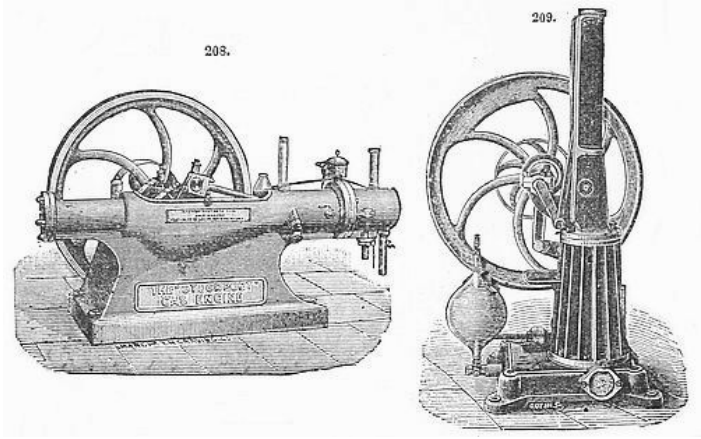
A desirable feature in a gas engine is that it be "noiseless," they are now made that even the exhaust pipe is noiseless. Speaking of the exhaust pipe, this should be carried into the open air, as if carried into a flue or chamber, a leakage of gas up this pipe would be a source of danger, and this pipe must be kept clear of woodwork some 6 or 10 in., according to size.

Large motors are provided with a self-starting apparatus, but small motors require a turn or two given to the flywheel by hand at starting.

The consumption of gas with these motors costs from 1*d.* to 2*d.* per horse-power per hour, varying with the size; a 1 horse-power costs about 1¾*d.* The following are a few gas engines by reliable makers. Fig. 206 shows an "Otto" vertical gas engine (Crossley Bros., Limited, 24 Poultry, London), made in sizes from 5 man to 5 horse-power (nominal), giving from 1 to 9 indicated horse-power; a medium size, 1½ nominal horse-power (3 indicated horse-power), costs 10*l.*, with water vessel, 4 ft flywheel, 180 revolutions a minute.



207. Horizontal Otto.



208. Stockport Gas Engine. 209. Bisschop Gas Engine.

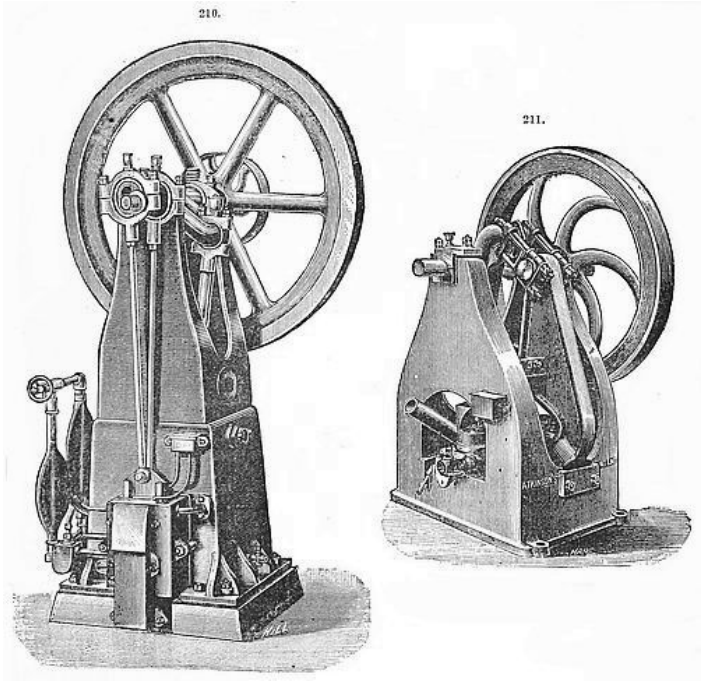
Fig. 207 shows an “Otto” horizontal, made in sizes from ½ to 16 nominal horse-power, giving 2 to 40 indicated horse-power (the larger sizes have 2 flywheels); the cost of a 2 nominal horse-power (4 indicated horse-power) is 138*l.*, with water vessel, 4 ft. 6 in. flywheel, 160 revolutions a minute. The Otto

is at present receiving the greatest share of favour, and it certainly is a good one.

Fig. 208 shows a “Stockport” horizontal gas engine (J. E. Andrew & Co., Limited, 80 Queen Victoria Street, London), made in sizes from 6 man to 8 nominal horse-power, giving from 1½ to 15½ indicated horse-power; a medium size, 2 nominal horse-power (4 indicated horse-power), costs 128*l.*, with water tank complete.

Fig. 209 shows a “Bisschop” vertical gas engine (J. E. Andrew & Co., as above), made in sizes from 1 man to 4 man power, costing from 28*l.* to 40*l.* This small engine requires no water tank.

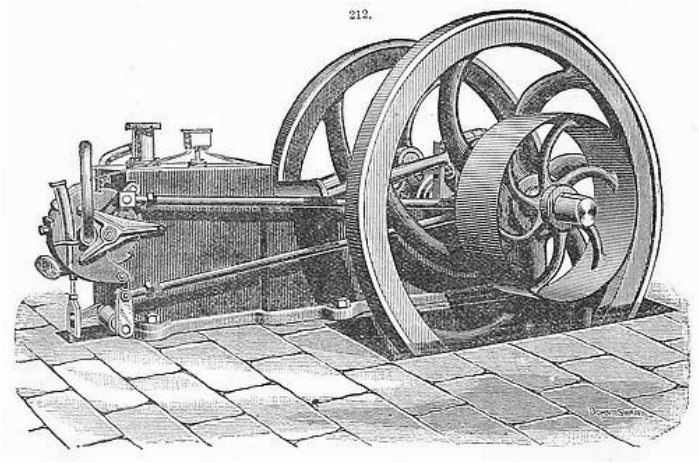
Fig. 210 is the “Hercules” vertical gas engine (Turner Bros., St. Albans), sizes 1 man to 3 horse-power, costing from 18*l.* 15*s.* to 105*l.*, with water tank complete. This is about the cheapest engine in the market.



210. Hercules Gas Engine. 211. Atkinson's Gas Engine.

Fig. 211 is an Atkinson's differential compression gas engine (British Gas Engine Co., 11 Queen Victoria Street, London), made in sizes from ¾ to 8 nominal horse-power, costing from 62*l.*, to 210*l.*, with water tank complete. The chief feature and novelty in this engine is its having a piston at each end of the cylinder, as will be seen by the illustration. This engine is somewhat new, but the principle is good, and it has, no doubt, a good future.



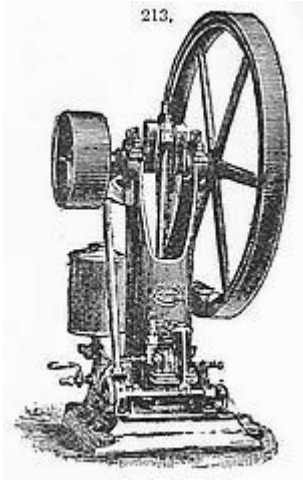


212. Atkinson's Horizontal Gas Engine.

Fig. 212 is a 6 horse-power Atkinson's horizontal gas engine. This engine is made in sizes from 3½ to 16 nominal horse-power, costing from 153*l.* upwards, with water tank complete.

A disadvantage which all gas engines very naturally have is the inability to use them in rural districts, where no gas supply exists.

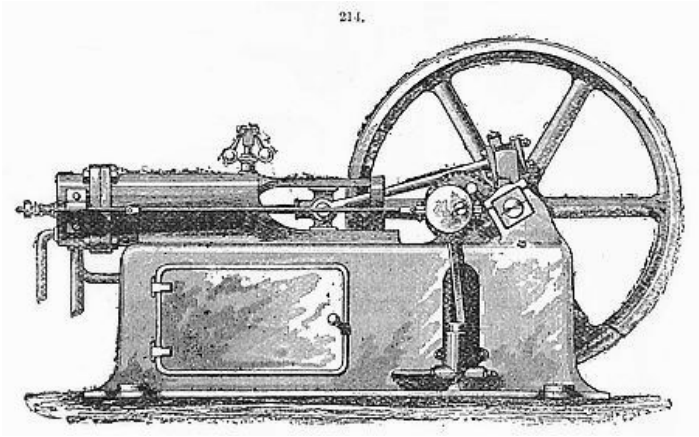
Petroleum engines are now gaining favour, as they are equal to gas engines in cleanliness and results, and need as little attention, and they can be used anywhere, as a supply of fuel is so easily attainable. The ordinary and common petroleum of commerce is the fuel used, and the various makers contend that these motors are more economical than gas engines, the cost of fuel varying from ¾*d.* to 1¼*d.* per horse-power per hour, according to size. The construction of this motor is very similar to a gas engine, ignition and expansion (explosion) of petroleum taking the place of gas.



213. Spiel's Petroleum Engine.

Fig. 213 is a "Spiel's" vertical petroleum engine (Shawlaw & Co., Suffolk Works, Birmingham), made in one size only, 3 man nominal power (1 horse-power indicated), price 46*l.* 8*s.*, with water tank.

"Spiel's" horizontal petroleum engine, made in sizes from ½ to 8 nominal horse-power (1½ to 17 indicated horse-power), with 3 ft. 9 in. to 5 ft. 9 in. flywheels, and costing from 59*l.* to 246*l.*, with water tank complete. The extra cost of a centrifugal oil pump attached is from 50*s.* to 70*s.*



214. Etéve Petroleum Engine.

Fig. 214 is the "Etéve" horizontal petroleum engine (Priestmann Bros., 52 Queen Victoria Street, London), made in sizes from ½ to 10 nominal horse-power (1¼ to 20 indicated horse-power), with from 3 ft. 4 in. to 5 ft. 6 in. flywheels, and costing from 60*l.* to 275*l.*, with water tank complete. This motor is also made mounted on a truck for agricultural purposes.

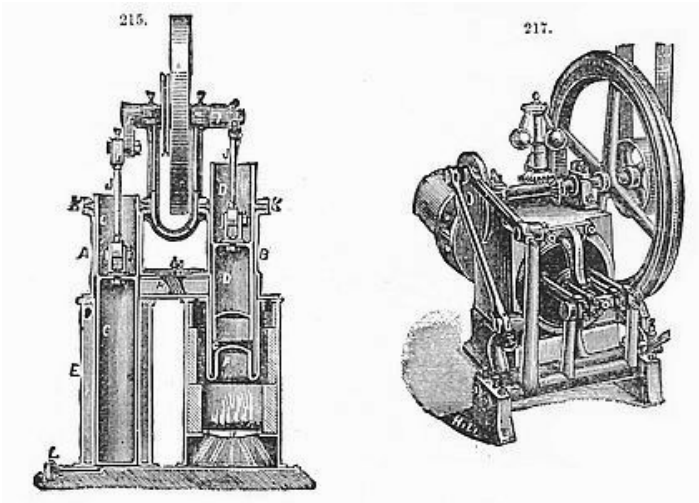
A petroleum motor is especially suited for launches and small yachts, on account of its cleanliness, and dispensing with the roomy and dirty coal bunker, the store of oil being in tanks under the seats, &c.; what is most important is that there is no smoke, and the engine requires but a few minutes to start and attain full speed.

A high authority gave his opinion to the writer that the small motor of the future will be undoubtedly the petroleum engine.

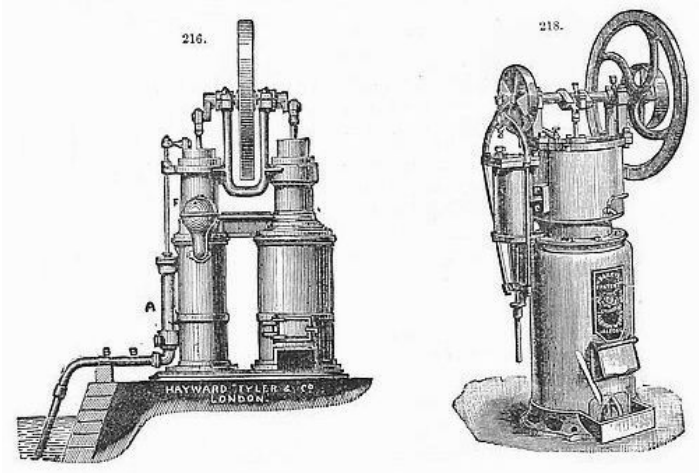
Hot-air or Caloric Engine.—This motor is worked by the expansion of atmospheric air when subjected to

heat. Fig. 215 is a sectional drawing of the “Rider” hot-air pumping engine (Hayward, Tyler & Co., 39 Queen Victoria Street, London), and we cannot do better than copy the makers’ description of its working parts. “The compression piston **C** first compresses the cold air in the lower part of the compression cylinder **A**, into about one-third its normal volume, when by the advancing of the power piston **D** and the completion of the down stroke of piston **C**, the air is transferred from the cylinder **A** through the regenerator **H** and into the heater **F**, without appreciable change of volume. The result is a further increase of pressure, and this impels the power piston up to the end of its stroke. The pressure still remaining in the power cylinder and reacting on the piston **C**, forces the latter upwards till it reaches nearly the top of its stroke, when, by the cooling of the charge of air, the pressure falls to its minimum, the power piston descends, and the compression again begins, the same air being used continuously. **E** is a water jacket for cooling the air more effectually, **K K** are leather packings, **L** is a check valve which remedies any leakage of air.” This engine is made in three sizes, ¼, ½, and 1 horse-power, costing 40*l.* to 100*l.* including lift and force pump, as at Fig. 216, the higher prices being fitted with driving pulley for power. These engines are especially well adapted for pumping, a ¼ horse-power with 2 in. pump delivering 500 gal. per hour 40 ft. high, the engine costing 42*l.* complete. There is no skill required in working them, the only labour needed being to start and stop the engine, to replenish the fire (coke fuel), and the necessary attention to lubricators. The consumption of coke is 2½ lb., 4 lb. and 9 lb. per hour for the three sizes respectively; this represents a cost of about one halfpenny per 1000 gal. of water

raised 30 ft. high; it will be understood that all pumping engines can be fitted with gear for deep-well work when necessary.



215. Rider Hot-air Engine. 217. Horizontal Hot-air Engine.



216. Engine with Lift and Force Pump. 218. Vertical Hot-air Engine.

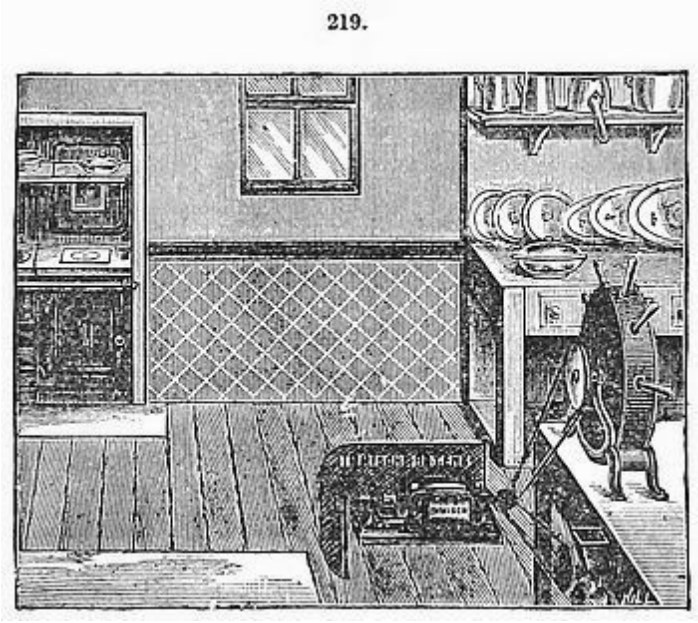
Fig. 217 is “Bailey’s” horizontal hot-air engine (W. H. Bailey & Co., Albion Works, Salford, Manchester) with pulley for driving, made in sizes from ¼ to 3½ horse-power, costing from 35*l.* to 150*l.* complete, but requiring a brick stove to be built in connection with it.

Fig. 218 is a “Bailey’s” vertical hot-air driving engine, made in sizes from ⅛ to ½ horse-power, costing from 80*l.* to 42*l.* This engine, it will be noticed, has the stove or furnace complete. These engines are also made with pump attached for domestic and other water supply, similar to the “Rider.” Coke fuel is the best, but any combustible can be used, such as wood, peat, cinders, or common coal. The cost of working the “Bailey” engines is about the same as the “Rider.”

Electricity.—Electric motors are not of practical use except in residences, &c., where an electrical installation (worked by an engine) already exists or is going to be fitted; as, to attempt to propel an electric motor by a battery would, though possible, be very expensive, and the battery would have to be of enormous size to obtain any power of importance, —to work a sewing machine, for instance.

In buildings that are lighted by electricity or have an electric apparatus of any description that is worked by an engine and dynamo, an electric motor can be used with success and good results. This form of motor has several advantages, foremost amongst which is its portability and the absence of shaft and belting to transmit the power, and the power can be transmitted long distances, the connection between the dynamo (which is always near the engine) and the motor being by two wires only; thus the power generated by the engine can be carried throughout a

building into the most obscure nooks or attics if desired, or one engine of good size will provide power for a neighbourhood, or in other words, the electric power for motive purposes can be transmitted anywhere and everywhere, the same as for lighting.

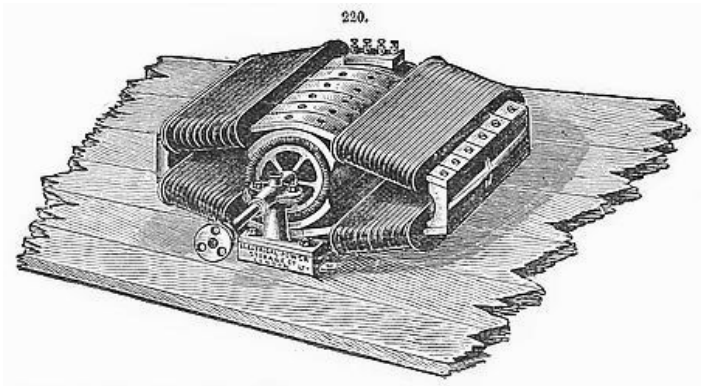


219. Immisch's Electric Motor.

Fig. 219 is an Immisch electric motor (Mr. M. Immisch, Malden Crescent, Kentish Town), made in sizes up to 30 and 40 horse-power. The price of 1 horse-power is 24*l.* Fig. 219 shows the motor as applied to domestic purposes, driving a knife-cleaner and coffee-grinding machine: the same motor can of course be applied to other purposes where rotary motion is applicable.

The Electrical Power Storage Company, Limited, 4

Great Winchester Street, London, E.C., also make electric motors in various powers; Fig. 220 is their smallest pattern, made in sizes from ⅓ to 7 horse-power (effective), costing from 10*l.* to 90*l.* The cost of working with power transmitted from the engine (gas or steam, &c.) by means of dynamo and electric motor can be computed as being but little in excess of working direct from the engine itself, but with the advantages already stated; this especially applies where the engine and dynamo are already in existence, as before stated.



220. Electric Motor.

Clockwork.—Motors with the mechanism propelled by a spring have not yet been brought to any degree of perfection or efficiency. A self-acting motor of this description was being manufactured and attached to sewing machines by a company formed in London, but it is to be regretted that for some reason the company has now ceased to exist: their motor could be adapted to any make of sewing machine, and their efforts were worthy of success, for they were applied to the domestic machine, which, although a grand institution, entails labour both trying and

harmful.

See also p. 1012.

HOUSEHOLD LAW.

The wants of modern society are so various, and the relations consequently created are so far-reaching, that it is absolutely impossible, within the space that can be spared to the subject in this manual, to fully explain the position in law of a householder or head of a family. The reader of the following remarks must never forget that they attempt to state a few general rules merely, and that there are few, if any, households which are not in some respects under the sway of some special Act of Parliament or some special agreement with somebody. The chapter will, it is hoped, keep its reader, with these limitations, clear of *some* litigation, and show him *some* of his rights; but it has been written on the principle that silence is far better than a misleading statement.

The House. *Renting and Letting.—Agreement.*—In all cases have a memorandum of agreement written in duplicate, stamped, and signed by both parties, each keeping a copy. This should state clearly the commencement of the tenancy and its duration (quarterly, yearly, or for a term of years), the rental,

the share of repairs to be borne by the landlord and the share to be done by the tenant, and attached to it should be a schedule detailing the dilapidations (if any) on entering on the tenancy, and any fixtures, such as gaseliers, blinds, &c., which may be intended to be included in the letting, and to remain the property of the landlord. An agreement for a tenancy for three years or less, which, of course, includes a yearly or monthly tenancy, may be made verbally if the rent is two-thirds or more of the full yearly value, which may be assumed to be the rateable value as appearing in the parish books.

Insanitary Houses.—The mere letting of a furnished house implies a contract on the part of the landlord that the house is "fit for human habitation." What constitutes "fitness" is a matter of degree. The presence of bugs, infection from measles, or defective drains, has each in turn been held to justify the tenant in declaring his tenancy at an end. But with regard to an unfurnished house the law has been in the habit of taking a different view. In such a case the old maxim of "caveat emptor" applies, and the tenant is presumed, in the absence of evidence to the contrary, to have taken the house as he found it. More especially when there is a lease or a written agreement, such a document is presumed to embody all the covenants, on either side, which are required for the protection of the interests of either landlord or tenant; and in such a case no tacit or implied covenant of a conflicting nature can be inferred. The house may be defective in sundry details, but the tenant is presumed to have informed himself beforehand on these points, and to have taken them into consideration when he agreed to the rent. Therefore, every one who is about to take a house should have it properly surveyed before committing

himself by signing an agreement even for a yearly tenancy, or should have inserted in the lease an undertaking by the landlord that the drainage of the premises is in perfect order, which possibly would be the better way, as defects in drains are not found out at once. It is possible that the landlord would object to putting a clause of this kind in. It is unusual, but that is no reason why it should not be made usual and universal.

In the case of a house or lodgings in which there has been any dangerous infectious disorder, any person letting the same without a medical man's certificate as to the satisfactory disinfection thereof is liable to a penalty of 20*l.*; and any person who lets or shows a house or lodgings, and on being asked whether there has been there any dangerous infectious disorder knowingly makes a false answer, is liable to the same penalty or to a month's hard labour.

Repairs.—Apart from express agreement, there is no obligation on the landlord to do any repairs whatever, but the tenant is liable to make good any damage done to the premises by his own wilful or negligent conduct, or by his having suffered the house to become ruinous or in decay for want of necessary repairs. If the house is accidentally burnt down, however, the tenant cannot be made to rebuild unless he has agreed to repair and leave in repair, but he will not be relieved from payment of rent.

Possession.—The landlord must give possession at the time mentioned for the commencement of the tenancy, and the tenant's failure to enter will make no difference as to rent, which commences to accrue due at the time specified.

Rent.—Rent accrues due throughout the whole of the specified term, and is payable on the appointed days, even though the premises may have been burnt down without any fault of the tenant, unless there is provision in the lease for such an event. The tenant cannot be required to pay rent, or a portion of it, before the appointed day, and he has the whole of that day in which to make the payment, and until it has expired no distress can be put in.

Distress.—If the rent is not duly paid as above mentioned the landlord may himself, or by an agent or bailiff, seize all the goods on the premises, with certain exceptions stated below, and may hold them until the rent is paid, or sell them as hereinafter mentioned. The landlord will be liable to an action if goods are seized beyond such a quantity as may be reasonably expected by him to satisfy the rent and expenses, or if the seizure is proceeded with after such a sum has been tendered to him; and if he distrains where no rent is due, and sells the goods, he is liable for double their value. A distress cannot be made between sunset and sunrise, nor can the person distraining break into the house or get in through a chimney, but he may enter through an open window or door, or through a door which he can open from the outside by turning the handle or raising the latch in the ordinary way, and once he has lawfully entered he may break open inner doors. He may not distrain fixtures, gas or water fittings let by the companies to the tenant, goods of strangers which have been delivered to the tenant to be worked upon or taken care of in the way of the tenant's business, perishable commodities, such as butcher's meat, or things in actual use at the time of the distress, or perhaps dogs; nor, if there be other things liable and of sufficient value, may he seize the instruments of

the trade or profession carried on by any member of the household. Property of the tenant removed fraudulently to avoid distress after sunrise of the rent-day may be followed by the bailiff, and seized at any time within 30 days after removal.

The tenant is entitled to 5 days of grace after seizure in which to pay the rent and expenses, thereby dismissing the bailiff, and recovering all his property. Failing this, the bailiff will call in two appraisers to value the goods, putting a memorandum of the value upon the inventory; the goods may then be sold for the best price that can be got.

When the distraint is for an amount not exceeding 20*l.*, the costs are thus limited—levying distress, 3*s.*; man in possession, 2*s.* 6*d.* a day; advertisements, if any, 10*s.*; appraisement, 6*d.* in the £, and for the stamp, 1*s.*, expenses of sale, 1*s.* in the £ on the net proceeds. In case of excess charges, apply to a justice of the peace. When the rent due is more than 20*l.* there are no defined rules as to costs, which must, however, be reasonable in amount, being usually one or two guineas for the levy, and 3*s.* 6*d.* a day for the man in possession.

It will be seen that the goods of undertenants are liable to distress for rent due by the middleman to the head landlord. Lodgers, however, are specially favoured by Act of Parliament in such a case, but the proceedings necessary to protect their goods are very troublesome. The lodger must deliver to the bailiff a written and signed inventory of his property, with a declaration that he is in lawful possession of it, and that the tenant has no right or interest in any of it; also stating what amount of rent is due from the lodger to the tenant. If the lodger owes any rent he

must pay it to the bailiff or landlord instead of to the tenant. If the bailiff or landlord still proceeds with the seizure, the lodger should at once apply to a magistrate for an order for restoration of the property. If the lodger is absent, and leaves no person authorised to act for him during the seizure and succeeding 5 days, his goods are liable to be seized and sold.

Lodgers are liable to distress by their own landlord like other tenants; but in furnished lodgings with attendance, the distress must be limited to the rent of the rooms, and not include the charges for attendance or "extras," or for food supplied.

Rates and Taxes.—These are almost invariably, if not always, payable in the first instance by the tenant, but he may always deduct any property-tax which he has paid from the next payment of rent, and he may also, unless he has agreed to the contrary, deduct any payment for land-tax or sewers rate, or for tithe rent-charge. If payment is not made on demand, the ratepayer must take or send the amount to the collector. In case of non-payment, the ratepayer is liable without notice to be summoned before the magistrates. If the rates are then paid before the time appointed to hear the case, the expense is trifling, but otherwise it is considerable. Magistrates have power to authorise an immediate distraint on goods to the amount of rates and costs; and if sufficient goods cannot be found on the premises of the ratepayer, he is liable to imprisonment.

Determination of Tenancy.—All tenancies may of course be put an end to at any time by mutual consent, though the consent should be declared in a deed if the tenancy was by deed. But without such

consent a tenancy for a fixed period must continue according and subject to the special terms, if any, of the lease until the period expire when the tenancy comes to an end, and the tenant must give up possession, and may leave without any notice. Subject to any special agreement, a tenancy from year to year can be determined by one party only at the day of the year corresponding to that from which it was agreed that the tenancy should run by giving to the other a half year's previous notice of his intention. If the tenancy runs from one of the usual quarter-days, then the necessary and sufficient notice is that which is given on or before the quarter-day next but one preceding that from which the tenancy runs. A quarter's notice in a quarterly tenancy, a month's notice in a monthly tenancy, and a week's notice in a weekly tenancy are undoubtedly sufficient, and should be given so as to expire at the end of the current quarter, month, or week respectively of the tenancy. In the metropolis there seems to be a general custom as to weekly tenancies which renders a week's notice necessary, and County Court judges usually so hold.

Fixtures.—A tenant may during his occupation remove fixtures which he has put up at his own expense for ornament or domestic convenience, in such a way that they have not become a permanent part of the house. But if, on giving up possession of the house, he leaves any behind by mistake, he cannot re-enter to recover them; and if the incoming tenant once obtains possession, including the fixtures, he is entitled to detain and use them, unless he has expressly agreed to pay for them or deliver them up. Tenants may not pull down buildings or permanent structures which they have erected on their own responsibility, and must make good any

damage done to the house by the removal of such fixtures as they are entitled to remove.

Dilapidations.—Under the ordinary covenants by the tenant to keep and deliver up the premises in repair, it seems that the view generally taken by surveyors of his liability—which will extend to permanent erections made by the tenant himself—is as follows:—If the parts can be repaired they may be so treated; but if the decay or injury has gone so far as to render repairs insufficient to restore the usefulness of the part, it must be made good. Thus, among the items the tenant is called upon to make good is that of roofing; such as to replace all loose and broken tiles, to strip and retile where the laths are broken, or where the rafters, feet or purlins are decayed; to restore all defective filleting and pointing. Defective brickwork in walls, chimneys, shafts, parapets, and gables; portions out of the perpendicular, or bulged, or cracked, have to be made good, besides repointing where necessary, and refixing broken chimney pots. Slated roofs also come under the same general clauses. Repairs to woodwork include such items as the following: Making good all loose or decayed timbers, whether injured by wet or dry-rot; to fix timbers where not straight, through neglect or decay; to secure and make good all loose, broken, or decayed weather boarding, frames, skylights, wooden gutters, dormer boarding, and other external work; also to make good broken or decayed wooden fences, door frames, &c.; to secure and make good all loose, broken, or rotten floors; to fix up and relay where not level, if by reason of neglect, and to rehang where required all doors and shutters; replace broken lines, repair sashes, nosings to stairs where defective, and treads. Questions are continually arising regarding the

liability of tenants to repair joiners' work, but it appears clear that the burden of repairs falls upon the tenant. With respect to masons' work, all defective stonework of whatever description falls upon him. Thus, broken cornices, lintels, and sills have to be made good by filling-in pieces; also broken steps and landings, both inside and out. In case of broken nosings, or of treads worn down as to become dangerous, the piecing is to extend to cutting out the upper surface and filling in the depth of nosing with a slab of sufficient thickness to form a new nosing. Broken chimney pieces, slabs, and inner hearths are to be made good or relaid; and loose and sunken pavings to be taken up and relaid. All panes of glass having two cracks in them are to be reinstated, besides making good all putty work. With respect to painting, it is usual for the tenant to repaint all wood and ironwork for their preservation, and where defaced, also on stone, stucco, or other external work. Inside painting is exempted, except in cases of misuse. To other trades the same rules apply; all broken fittings, fixtures, and parts of buildings to be repaired or made good by the tenant. The term "to make good" implies a renewal of the part, and ought not to be confused with the general words "to repair."

Water.—Subject to anything in their special Act, a waterworks company having pipes in the street where the house is situate may be required by the occupier, with the consent in writing of the owner, and upon payment or tender of the water rate in advance, to make the needful communications, and are liable to forfeit 5*l.* for non-compliance within seven days. Due care must be exercised by the company to render the supply regular, but they are not responsible for discontinuance caused by frost,

drought, or other unavoidable circumstance. The water must always be pure and wholesome, and in this connection it may be mentioned that water is nearly always purer as delivered by the company than as drawn from the householder's cistern, owing to gross neglect to keep the latter clean. The company's inspector may enter any day between 9 A.M. and 4 P.M. to examine the fittings, and the householder is liable to heavy fines for allowing water to be wasted or misused, or contaminated, besides having his supply cut off till the evil is remedied, and incurring all the cost incidental thereto. An incoming tenant should ascertain by application at the offices of the company whether the previous tenant is in arrears with his water rates, as it is said that in some districts the newcomer may be compelled to pay the deficit before getting a supply. This is certainly not the law in the metropolis, at all events, where the incoming tenant is expressly declared to be free from this liability, unless he has undertaken with his predecessor to pay the arrears. The company are bound under heavy penalties to keep a copy of their special act for inspection on payment of a fee of 1*s.* per hour. This will show the charges they are authorised to make, and the amount of the rate which is payable in advance and usually based on the annual value, i.e. the *net* annual value, or about the same as the net rateable value appearing in the parochial rate-book.

Gas.—Subject to anything in the special Act, the owner or occupier of a house within twenty-five yards of a gas main, may, by notice in writing, require the company to supply gas; they are bound by penalties to comply within a reasonable time, provided the occupier will agree to take gas for two years, and is ready to give security for payment of

his rates. The companies must supply gas of a certain standard as regards purity and lighting power, but are not governed as to pressure, hence the householder's only means of preventing the waste due to constantly changing pressure is to have a "regulator," as described in another section (p. 88). Gas is supplied at a price per 1000 cubic feet used, the consumption being measured by a meter. This meter may be supplied by the gas company and a rental charged on it, the company keeping it in repair; or it may be supplied by the householder at his own cost for purchase and maintenance; but the householder must not alter the fixing or provide his own meter without 24 hours' notice to the company. The company, in either case, have right of entry to examine the fittings at reasonable times. The householder is liable to heavy penalties in respect of waste or misuse of the gas or injury to the pipes, &c. Gas rates are usually delivered quarterly and are payable at once, failing which the company may proceed to recover and cut off supply, and may demand security for the future before renewing supply, cost of which will fall upon the householder. No incoming tenant is liable for rates unpaid by his predecessor unless he has undertaken to pay them. The company are bound under heavy penalties to keep a copy of their special Act for inspection on payment of a fee of 1*s.* per hour.

Servants.—A general or indefinite hiring of domestic or menial servants is said to be in law a hiring for a year, and the contract therefore, unless the service is to begin on the same day or the day following, ought, strictly to be in writing and signed; but it may be made out by the letters of the parties, and does not require any stamp. Wages, though

reckoned by the year, are usually payable in monthly instalments, but sometimes quarterly or yearly.

The service may, however, be freely terminated at any time by either party giving to the other a month's notice, or in lieu thereof paying a month's wages; and it has been ruled that payment of board wages is *not* necessary in the latter case. But the law is that where a servant is guilty of conduct which is inconsistent with the true and faithful discharge of his or her service, the master has a right of instant dismissal. Immorality, drunkenness, gross impertinence, disobedience, dishonesty of course, or incompetence to do the work contracted to be done, are all facts which may justify the master. Disobedience means a refusal to comply with a reasonable order within the scope of the servant's duties—a housemaid cannot be required to groom a horse; nor is a servant bound to perform any service in which he reasonably apprehends injury to himself, and which he has not clearly agreed to perform. If your servant, when summarily dismissed, refuses to leave the house, you may turn him or her out of doors, if you feel yourself strong enough to do so; but, to avoid the risk of an unseemly scuffle, your best plan is to send for the police.

Wages.—As to the wages of a servant who has been summarily dismissed upon legally sufficient ground, considerable misapprehension seems to prevail. Strictly speaking she is not only not entitled to a month's wages in lieu of a month's warning, but not to anything at all for the intervening period from the last regular pay day. Thus, if your cook, whose wages fell due and were paid on the 5th of March, so misconducts herself on the 1st of April as to justify her immediate discharge, she has no claim upon you

for any wages between the 5th of March and the 1st of April. But if there is doubt as to your being able to prove the misconduct in court, it may often be better to pay a month's wages and the accruing wages than to expose yourself to the risk of an action and the certainty of costs. Of course if the wages due on the 5th of March had not been paid on the 1st of April, your cook, badly as she might have since behaved, would not lose her right to them. If, on the other hand, you have discharged your servant for your own pleasure, so to speak, although you are not bound to keep her in your house a moment longer than suits you, she is entitled to the accruing wages up to the time when she was discharged, and to a calendar month's wages in addition, but not to board wages for that period, as has been seen. In the absence of any agreement, the master is not liable to pay a discharged servant the expenses of her journey home.

Breakages.—Servants have no right to break or damage their master's property, and if it is proved that damage has been caused by any particular servant's failure to use such care as it was reasonable, under all the circumstances, to require *from him*, being such as he is, he is liable in law to pay for the same. Formerly, no deductions from the servant's wages could be made on this account, but recent reforms in legal procedure in effect permit them; but the master when sued for the balance of the full wages must counterclaim in respect of the damage, and had better consult a solicitor. The best plan is to have an express agreement on the subject that deductions may be made.

Character.—A lady, when asked about the character of a servant in whose favour she cannot

say much, would do well in the first place to ascertain that the request is made at the suggestion of the person whose character is in question. If it is, and if the lady takes care to speak only of what she knows, she will be safe enough; she will be acting fairly by both the persons interested. Of course, if she has only pleasant things to say, there is no difficulty in answering such inquiries; but if she cannot give a favourable answer, a stranger could not complain if she replied that she did not feel at liberty to discuss a person's character without that person's knowledge. Some people never give a character. This is most unfair, and indeed cruel, in the case of a servant whose reputation and competency are above reproach, for silence always implies that there is something which one would rather not mention. Silence is the appropriate refuge in the case of one who has given a reference which he was not justified in using. It is easy to say, in such a case, that the writer is afraid she cannot write such a testimonial as would prove of service to the applicant; but in all other cases it is always, practically as well as theoretically, safe to give a character, if it is given fairly and honestly. A character when given is a privileged communication; and, even if it be incorrect, unless the servant who thinks herself aggrieved can show that it was given with actual malice—as with knowledge of its falsity —she cannot succeed in an action for defamation. To sustain such an action and deprive the communication of its ordinary privilege, a strong case of malicious and officious interference to the detriment of the servant would require to be made out. But there is no privilege attaching to information given to a neighbour of what is going on in her household, if it was given in an idle, gossiping

and malicious spirit, rather than with the honest intention of giving important information.

It is best always to interview the late mistress rather than apply by letter, and a little shrewdness in studying the character of the mistress is very desirable, for personal feeling takes the place of impartial judgment in most, if not all, women.

Illness.—A master is not bound to provide medical attendance and medicine for even his menial servants; but if a servant falls ill, and the master voluntarily calls in his own medical man, he will not be allowed to deduct the charges for such attendance out of the servant's wages unless the servant specially agrees that he may do so.

The Householder. *Parochial matters.*—Parochial business is managed by a "vestry," at which the parish clergyman has a right to preside. Public notice of vestry meetings must be given 3 days beforehand, and copies of the notice fixed to the principal doors of churches and chapels, signed by rector, vicar, churchwarden, or overseer. Every parishioner paying rates is entitled to votes. If assessed at or above 50*l.*, he may give one vote for every 25*l.*, but no individual can have more than 6 votes; no person can vote by proxy. The chairman has a casting vote. Churchwardens are chosen, in the first week after Easter, by joint consent of minister and parishioners, or one by the minister and another by the parishioners. Peers, members of Parliament, clergymen, dissenting ministers, medical men, and attorneys, are exempt from serving as churchwarden. Churchwardens are trustees of money given for the benefit of the church, and must attend to repairs of the church and fences of the churchyard. The pews

in a parish church are the property of the parish; distribution rests with the bishop or the churchwardens. The churchwardens of a parish in which a dead body is cast ashore from the sea, must have it interred in the parish burial ground.

The local management of this country is far too elaborate to be even sketched here; for instance, the Public Health Act 1875 contains 343 sections, most of them of great length, and a variety of subsequent amendments further complicate things, while the metropolis has its own long series of enactments on the same part of the subject. The whole matter is one which requires special study of countless Acts of Parliament, based upon no theory in particular, and which will no doubt shortly be thoroughly revised and reformed. The householder desirous of information should have recourse to the officers of the local authority or some member of that body, and if he cannot thus get the satisfaction he wants he must recognise the inevitable result of the activity of his own representatives and consult his solicitor.

Juries.—All "good and lawful men" are eligible and liable to be called on to serve on a coroner's jury at an inquest held in the neighbourhood, and non-attendance of a duly-summoned person is punished with a fine which may amount to 5*l.*

On juries at the assizes or sessions, or for the trial of causes in Middlesex, any person who holds a freehold or copyhold of an annual value of 10*l.*, or a lease of 21 years or upwards at an annual rent of 20*l.*, or who pays rates of 20*l.* per annum (30*l.* in Middlesex) is eligible and liable to serve, provided his age is between 21 and 60; when over 60, he remains liable till he has notified his age to the authorities. Peers, members of Parliament, judges,

clergymen of every sect or faith, barristers, solicitors, notaries, officers of legal courts, coroners, gaolers, physicians, surgeons, dentists, apothecaries, chemists, officers of the army, navy, militia, and yeomanry on full pay, officers of the post-office, customs, inland revenue, or police, metropolitan police-court officials, and officers of the Houses of Lords and Commons, are exempted from serving; and members of the council of a municipal borough cannot be called on to serve in the county where the borough is situate, nor can burgesses of a borough having separate sessions be summoned to the county sessions. The churchwardens and overseers must make a list of the persons so liable to serve, and on the three first Sundays in September fix a copy on the door of every place of worship in the district, with a proper notification of the special sessions for hearing objections, at which sessions the justices may revise the list either by striking out the names of persons who are exempt or not qualified, or under permanent physical disability, or by adding other persons after due notice given to them. Jurors who are esquires by law, bankers, or merchants, or who occupy a farm rated at 300*l.*, or other premises at 100*l.*, or a private dwelling-house rated at 50*l.* elsewhere than in a town of 20,000 inhabitants and upwards, are to be distinguished, and are qualified and liable to serve on special juries, but they remain as liable as before to be summoned for a common jury. A juror must attend according to the tenor of his summons, which may be served either by being shown to him or by being left at his usual place of abode with some person there inhabiting, or by being sent by post to him; and if, the summons having been so served six days previously, he fails to attend, he is liable to such a fine as the court thinks

fit to impose. The liability to serve on a grand jury is unlimited, but apart from this a juror cannot be summoned more than once a year for the assizes and sessions unless the list is exhausted.

A juror may also be compelled under a five pounds penalty to serve in the County Court of his district twice in the year, but is exempt if he has served at the assizes or at the Royal Courts or Central Criminal Court within six months previously. There is still a further liability in various districts in respect of the local courts, such as the Mayor's Court, London, and the Salford Hundred Court; and the sheriff requires the attendance of a jury in cases of assessment of damages or compensation, or an inquiry as to the sanity of an alleged lunatic, or as to claims made by virtue of the prerogative of the Crown.

Aliens otherwise qualified, who have been domiciled in England or Wales for ten years or upwards, but no others, are qualified and liable to serve—since 1870, in which year was abolished the right of an alien prisoner to have half the jury aliens.

The Franchise.—Every man of full age who on the 31st July and for the twelve months preceding is an inhabitant occupier, as owner or tenant, whether in a county or a borough, of any dwelling-house, or any part of a house separately occupied as a dwelling, the poor rates in respect of which have been duly paid, is entitled to be placed on the register of Parliamentary voters. There are various other qualifications which confer the franchise, but full information and assistance in obtaining registration are so readily given by the political associations everywhere, that it seems unnecessary to state them here. But the lodger franchise deserves some notice. For alike in counties and boroughs any man who,

being of full age, occupies on the 31st July, and for the twelve months preceding, in the same dwelling-house, separate lodgings, at a rent which would be not lower than 4*s.* a week if the rooms were unfurnished, and who has resided there for the twelve months, and who makes claim in the prescribed form between the 1st and 25th of August, is entitled to be registered as a voter.

Fire Insurance.—The premiums payable in common insurances of houses used for residence and the ordinary furniture therein are so moderate that every householder ought to insure. China, glass, watches, jewels, musical instruments, and pictures have to be paid for at an average rate of from 4*s.* to 5*s.* per 100*l.*, but otherwise the rate for house and furniture may be taken to be from 1*s.* to 2*s.* 6*d.* per 100*l.* Circumstances alter cases, however, and the rates of course vary with the risk in each instance, and those given here are only mentioned as an index of their moderation. It is essential that a full disclosure of the circumstances be made to the office, for the contract of insurance is one requiring the most complete candour and good faith on the part of the insured. There should be a survey by the office, and every information given to the inspector. Of course no office is bound to accept an insurance, and while considering the proposal they will usually, on payment of a deposit, effect a temporary insurance for two or three weeks. A policy usually contains and is subject to many express conditions which speak, more or less distinctly, for themselves in each case, and need not be here discussed. But the contract contained in the policy is one of indemnity against loss, and therefore a person cannot validly insure property in which he has no interest at all, nor can he in any case recover beyond the amount of the

interest which he has in the property insured. And as a policy cannot be assigned without the consent of the assurers, a change of ownership may render the policy useless *pro tanto*. It is obvious that where the wife owns all or part of the furniture, the better plan is to take out the policy in her husband's and her names jointly, for even if she owns it all, her husband while living with her has an insurable interest in it. It is usually provided that the company may reinstate the things destroyed or damaged, instead of paying for the loss, while as regards insurances on buildings there is an Act of Parliament which provides that any person interested may require the insurance money to be laid out in repairs or rebuilding. It is important to notice that a change in the state of the premises may invalidate the policy, for the company contract to insure against the risk described in the policy, and cannot be held liable in respect of one which is materially different, or one which is greater. The sanction of the company should therefore be asked for, and the conditions usually contain express stipulations on the subject. Lastly, it may be added that even if the fire has been caused by the negligence of the insured person, the company are still liable on the policy.

Nuisance.—The law upon this point is to be referred to a principle very simple in itself, though its limitations are sometimes difficult to observe. The principle is that one must not use one's own property so as to injure one's neighbour. So one must keep one's beasts, filth, stenches, &c., within the boundaries of one's own property; and if they transgress, the transgression imposes liability for the damage caused thereby. But in questions of this nature the law does not regard trifling and small inconveniences or allow persons to stand on extreme

rights, for things could not go on if it did, and everything must be looked at from a reasonable point of view. The noise resulting from the ordinary use of the dwelling-house next door may penetrate the intervening wall, but it must be put up with. On the other hand, the noise may be so great as to amount to a nuisance, and the constant ringing of bells and other noises have been stopped by the Court for this reason, and howling dogs or crowing cocks may give the neighbours good grounds for complaint. In the case of any premises, gutter, privy, drain, ashpit, or any deposit which are or is in such a state as to be injurious to health, or any animal which is so kept, information should be given to the local sanitary authority, who have special powers given them. Overcrowded houses, and factory or workshop chimneys sending out black smoke so as to cause a nuisance, are within the same category. As to these matters, the metropolis is not governed by the same enactment as the rest of England, but it will always be a safe plan to apply to the vestry or the local board of the district with a proper description of the matter complained of, when the applicant will at any rate receive attention in exchange for courtesy. It will often be more convenient to make inquiry at the nearest police station, and the police will put the inquirer in the right course.

Any person suffering from a dangerous infectious disease, who wilfully makes use without proper precautions of any street or any public conveyance, is liable to a penalty of 5*l.*, and so is the person in charge of him.

Keep out of law. If you are involved in it, remember that what costs little is usually worth less; take good advice and act thereon.

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For Index to Supplement, see p. 1010.

SUPPLEMENT.

THE DWELLING: Water Closets. Continued from p. 48.

Messrs. Reid & Co., 69, St. Mary Axe, London, are well known as makers of Pearson's "Twin Basin" Water Closets. These closets hardly need recommendation, they have stood the test of many years' use in Hospitals, Schools, Railway Stations, Mansions, Warehouses, &c., with the best results. The "Portable" Water Closets made by this firm are indispensable for invalids' apartments, and are also of great service where there is no proper system of drainage.

VENTILATION. Continued from p. 60.

Automatic ventilation connected with the "Acme" system of heating (The Acme Ventilating and Heating Co., 35, Tarleton Street, Liverpool) and the Company's patented system of graduated extraction flues, can be arranged in the following manner. A foul air chamber is formed of wood-work, and if desired lined with zinc, and fixed under the roof, into which channels of suitable dimensions are led from the perforated ceiling ornaments in the

different apartments. The channels enter near the floor, so that impure air issuing and coming in contact with the highly heated surfaces of the hot water coil in the chamber, the foul air immediately rises to the roof, and is being constantly carried away through louvres into the open air. These louvres can be made to close in frosty or stormy weather, or when the apparatus is not in use. This coil (for ventilation purposes), together with that which heats the water for the bath and lavatories, can be connected to a separate furnace, so that either one or both can be in operation in the summer if required.

Another arrangement of ventilation (where hot water coils are not in use) is as follows: powerful rings of gas burners—each ring being placed inside a sheet-iron tube—are fixed in flue near the roof, or in the apex of roof in churches, &c. Into this the foul air is drawn by a powerful induced current, created by the novel manner in which the heat in the tubes is arranged, the foul air being finally carried away in a similar manner to that described in the foregoing paragraph. For dwelling houses the said rings of gas jets may be governed by a small master light which cannot be blown out, and which may be regulated by two small cords attached to a lever leading from landing, or other convenient position. The one small master light is constantly kept burning when others are turned off. Such master light costs but 2*d.* per annum at the most for gas; no matches are necessary, and there is perfect safety from fire. This is a most efficient and satisfactory means of ventilation, and far preferable to any of the revolving cowls, air pumps, and other unsightly and perishable systems.

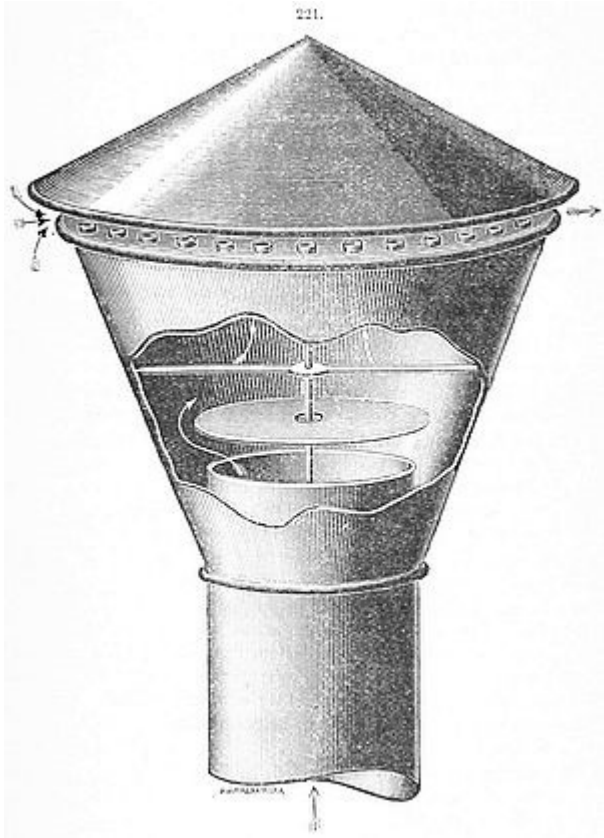
The “Acme” patent system of mechanical ventilation, connected with hot water heating, is

unequalled for public institutions, asylums, prisons, police courts, infirmaries, or other public buildings where many people are assembled; or where—as in hospitals—from the nature of the complaints, the air requires to be changed very often, and that without draughts.

By placing coils of pipe in the wards to be warmed, and passing fresh air, also previously heated, through them in such a manner that no draught whatever is caused, or by placing all the pipes in the basement, into and through which the fresh air is drawn by an “Acme” patent ventilating machine. Such warmed air is thence passed through properly regulated channels into the different rooms, each channel being provided with a valve worked from any convenient or central position, so as to regulate the supply of fresh air as circumstances may require.

Ventilating and heating as carried out by the “Acme” system, co-operate in establishing the most permanent and satisfactory results.

Blackman Ventilating Co. See page 2 of Advertisements.



221. Sugg's Continuous Up-Draught Ventilator.

Sugg's Continuous Up-Draught Ventilator.—This new ventilator is submitted to the consideration of architects as embodying a novel system. It has been the custom hitherto to guard against down-draughts by fixing talc flapper arrangements at the lower ends of ventilating shafts (in the case of the lower floors of buildings), and to adopt either a sliding door or revolving shutter worked by cords from the floor to ventilators fixed at the roof ridge. It is clear that, with these arrangements, the outer cold air has free access through the cowl to the ventilating shaft, and,

in fact, right down to the back-draught preventers, or shutters, at the lower end of the shaft. With this continuous up-draught ventilator the valve is in the cowl, and is opened by the up draught. Thus the whole of the shaft, right from the room to the cowl, is filled always by the warm air of the room, and is never allowed to become cold and damp by the ingress of the outer air. The valve impedes the outward passage of the foul air as little as (or less than) the old-fashioned talc flappers. It is noiseless, cannot get out of order, and its combination with the cowl renders the entire apparatus the cheapest and most effective extracting cowl and down-draught preventer in the market.

The reliance placed upon the strength of the up-draught to open the valve is based:—First—On the extraordinary aspirating power of this form of cowl. Most ventilators only expose one side at a time to the wind's action, but this one allows its entire area (more than equal to the area of the tube) to be acted upon at the same moment. Secondly—Upon the fact that beneath the valve is a column of warmed air. The loss in ascending energy caused by cold flues may be put down, as an average, at 40 per cent., but the adoption of this new "exit valve" system conserves the power of the current to almost its fullest extent. With the continuous up-draught ventilator the great ventilating agents—the aspiration of the wind and the movements of air at different tensions—are utilised in a very great degree, and experiments prove the justification in claiming for it results never before attained.

Some of its advantages are as follows:—(1) It is noiseless in its action and is weatherproof. No water can by any means get down the ventilating tube. (2)

It extracts powerfully when the least current of air impinges upon it. The whole surface of the ventilator comes into action immediately, and a continuous up-draught is produced at all times. (3) It is fitted with a new patent automatic float valve, which is exceedingly simple in action, and cannot get out of order. It opens with an up-current and shuts when this current ceases. Thus, down-draught is impossible. Not only those down-draughts caused by wind movements, but also those induced by the specific gravity of the cold air in the ventilating tubes, hitherto incurable, are completely prevented. (4) It is well and strongly made, is complete in itself, cannot get out of order, and will last for years. It is made in sizes from 2 to 18 in., and is made in zinc, galvanized iron or polished copper. It is also made in special ornamental forms for large buildings, prices of which will be given on receiving size of air shaft and pitch of roof. (5) It is specially adapted for use with sun burners, gas fires, &c. The heat of horizontal tubes, particularly when lined with asbestos according to Sugg's plan, contributes to its extracting energy, while the valve effectually prevents any of those down-draughts so often associated with this mode of ventilation. (6) This system of ventilation and lighting works without attention. It can be put in operation at a moment's notice. By its use can be guaranteed not only the most effective lighting, but also a controllable and absolutely reliable induction and eduction of air from any building. It is shown in Fig. 221, and is made by William Sugg & Co., Ld., Grand Hotel Buildings, Charing Cross, London, under Sugg and Simmance's patents.

WARMING: by Open Fire. Continued from p. 69.

"The Eagle Convertible Open and Close Fire-grate," Fig. 37 (makers, Eagle Range and Foundry Co., 176, Regent Street, London), is one of the latest improvements, and is to be commended as possessing all the details advocated by Dr. Teale and others, viz. the grated bottom and economiser, to which in this case is attached an ashes pan for convenience and cleanliness, and the fire-brick sides and back, the latter projecting to deflect the heat, &c.; the front bars are somewhat flat in section, and incline up outwards at an angle of about 20 degrees, which effectually prevents cinders and fuel falling from the fire, and having the further advantage of making the front of the fire visible to any one standing near. The chief novelty of this grate is its possessing 3 pairs of doors, which when open fold back out of sight behind the tiled side panels, and can be closed, to partly or wholly cover any portion of the fireplace. Fig. 37 shows the stove with the two upper pairs of doors closed. When first lighting the fire, or when the fire has become very low, and is heavily fed, with the doors closed thus, a rapid draught is carried through the fire, which burns very rapidly, and is established in a few minutes, after which the upper doors are opened. By closing the two lower doors only, it can be left quite safe at night, and as there is no means of the air passing through the fire, the combustion is very slow, in fact it only smoulders, yet keeps up a warmth in the apartment, and it can be relied upon that it will not be out in the morning; this is of especial convenience in invalids' rooms. This stove is, in the majority of cases, a sure cure for smoky chimneys, and has several other advantages that would occupy too much space here.

"The Parson's Grate," Fig. 38 (Barnards, Bishop

and Barnards, Queen Victoria Street, London), is a very well-known and good form of slow-combustion grate, and has the advantage of being changed to a fast-combustion grate at will, by means of a sliding blower, when first igniting the fire or at any time that it is desired to make it burn briskly; the bottom, back and sides of the fire-basket are of solid fire-brick, and it will be seen from the illustration that the blower can be drawn down to any point and so regulate the draught and speed of combustion to a nicety; this is of especial convenience when the chimney has a tendency to smoke.

WARMING: by Gas. Continued from p. 79.

Sugg's Gas Fires.—During a greater part of the year in this country, the variations in the temperature are so great and sudden, that those persons who have weak throats, or are subject to bronchitis—especially children who have a tendency to croup—find the cold, air of the early mornings a source of great discomfort and even danger. Although by the use of coal fires, with constant attention, the temperature of a bedroom or sick room can be maintained as required during the day, yet at night it is next to impossible to do so. The fire, if properly made up, gets too hot in the first part of the night, and goes out in the early morning, so that the room gets cold. If it has to be made up, the noise of putting on coals, or poking the fire, is most disturbing in all cases, and positively unbearable to a sick person. The object of the gas fire is to obviate these inconveniences, and to maintain an equal temperature throughout the entire day and night if required. The construction of this stove differs from every other stove hitherto introduced. The burners act independently, each being regulated by its own governor, and each is

provided with a separate tap. The arrangement of the fire by which the flames from the burners play freely into a space left between the solid bottom of the grate and the asbestos lumps, permits of the perfect combustion of the gas, and the attainment of the highest point of incandescence. The consumption of London gas is 7 cub. ft. per hour for each burner. The quantity of gas being regulated to its proper rate by the governors (the taps always being turned full on), it necessarily follows that the admixture of gas and air is always in the right proportion to develop the greatest radiant heat. This gas fire is always ready, and can easily be lighted without explosion by the most timid person, and in a few minutes it will be glowing. After the room is warmed to the required degree, one or more of the burners can be turned off, and the consumption reduced by 7 ft. for each burner so turned off, without affecting these left on, which still continue to develop their full heating power.

This latter is a great advantage, because in ordinary stoves, where the burners are all controlled by one tap, the reduction of gas at once produces more or less imperfect mixture of gas and air, with an imperfect combustion, accompanied with a disagreeable odour, and a very imperfect development of heat. From this cause, together with ungoverned burners, the consumer is frequently disappointed in the working of gas fires, and lays the blame on the principle of heating by gas, when the discomfort and waste of gas arise solely from the imperfect construction of the stove he is using. The cost of gas for Sugg's Patent Charing Cross Bedroom Stove at full power is less than 1*d.* per hour. But as on a very cold night, a bedroom 20 ft. by 15 ft. by 10 ft. high, after being once warmed to 60° F., can be kept at a temperature of 58°-60° F. through the night

by two of these burners left burning, the cost per hour for maintaining this temperature will be actually less than ½*d.* It will be readily seen that to keep a room warm by gas, at the price above mentioned, is cheaper than by using coal; and that if the readiness, saving in trouble, and the absence of all noise and dirt are taken into consideration, the advantages of gas over coal are simply incalculable. This stove is constructed with a chamber around the sides and back, which keeps up a circulation of warm air in the room; and if desired a fresh air flue may be connected to this chamber, thus supplying the room with warm fresh air. The asbestos material is carefully made at Sugg's own factory; it is very durable, and gives out a good heat. The stove, when fixed in front of an ordinary chimney, is provided with a flue pipe, which is made to go up through the register to carry off the products of combustion. In most cases of smoky chimneys, where it is found impossible to use a coal fire, a small wind guard can be fitted to the chimney, which will prevent down-draught, and make the use of the gas fire successful. The fire is very bright and cheerful, and having been carefully tried for upwards of 3 years in all kinds of weather, its successful working can be guaranteed. Directions for measuring grates, to enable a "Charing Cross" gas fire to be sent complete, and ready for fixing by an intelligent gasfitter, in any part of the kingdom, are furnished by the makers, William Sugg & Co., Limited, Grand Hotel Buildings, Charing Cross, London, whose illustrated catalogues show innumerable patterns of stove, adapted for halls, bedrooms, libraries, nurseries, &c., at various prices.

Cadogan Gas Fires.—A specially prepared indestructible fire clay lump is fitted into the grate and covered with small pieces of asbestos fuel, which

should be carefully packed, so as to allow the gas flames a free action without any loss. The fire clay lump has apertures through which the gas flames pass from a swing bar, fitted in front of and underneath the grate, the gas supply being connected up with the bar either at the back or front of the hearth. The bar has an air-chamber fitted to it, so that the gas is consumed on the atmospheric principle, being, for heating purposes, the most economical, and one preventing the formation of soot, thus keeping the fire always clear and the grate clean.

A regulating valve can be fitted in a convenient position, either in front or at side of hearth, so that the gas may be controlled as easily as an ordinary gas burner.

To burn the gas economically, the flames should not be allowed to show much above the top of the fuel.

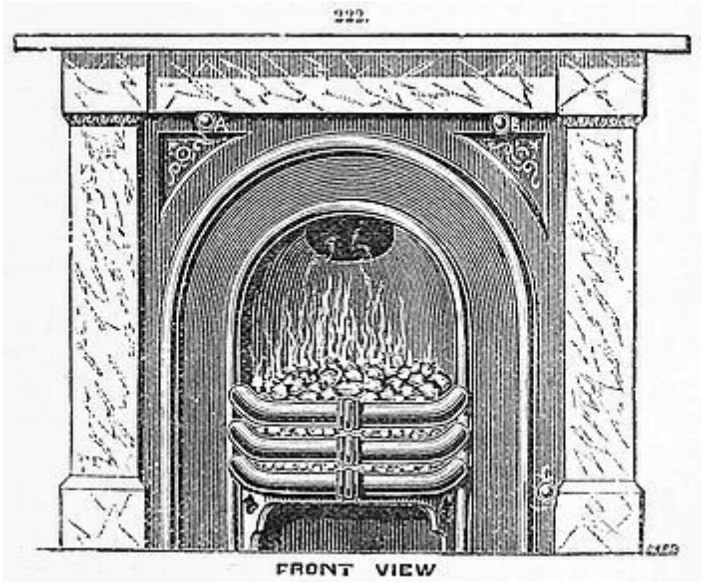
These fires are eminently suitable for all modern grates, but they can be fitted into most grates of old-fashioned pattern. Messrs. Strode & Co., 48, Osnaburgh Street, London, N.W., will advise as to their applicability on receipt of templet of grate, which can be made by cutting a piece of paper to the size of bottom of grate, and pencilling the openings.

WARMING: by Hot-water. Continued from p. 82.

S. Deards's coil adapted to open grates ensures healthy heating and perfect ventilation. The coil pipes are so adapted as to form the bars of an ordinary grate, and yet so arranged as to contain water, which, as soon as the fire is lighted, will put into circulation the water contained therein, and the coil grate being attached to other similar pipes, so

arranged in any convenient position around the walls of the room or any adjacent room, hall, landing, or passage, will at once transmit that heat to those rooms, &c., without extra cost or expense of fuel. It is apparent and well known to all practical persons that the heat given out from the sides and back of an ordinary fire grate is actually lost in the brickwork surrounding it, yet by the application of S. Deards's coil grates, that otherwise lost heat is retained and made use of, and it is by this heat that the other rooms are warmed for nothing.

The heating of schoolrooms by means of hot-water is often objected to by scientific men, doctors, and architects, as by doing away with the open cheerful fire, and the chimney shaft, the cheerfulness of the room is destroyed; and the "lungs of the schoolroom" being the ventilation by the chimney shaft is also absolutely lost. But by the adoption of the above-named coil grate the cheerful open fire is retained, the chimney still acts as the ventilator to carry off all foul air, and the furthermost parts of the schoolroom are as equally warmed by the circulation of hot-water as in the immediate vicinity of the fire.



222. The Princess Louise Coil Grate.

The Princess Louise coil grate was awarded the First Prize at the Smoke Abatement Exhibition, in 1882, for giving the greatest amount of heat per lb. of coal consumed. It is now improved so as to burn 18 to 20 hours without attention; hence it is possible to heat a greenhouse or conservatory from one's own fireside, and in fact to obtain all the hot-water for the baths, &c., of a household for no extra expense. It is shown in front view in Fig. 222, and can be seen in action at S. Deards's show rooms, 11, North Buildings, Eldon Street, Liverpool Street, London, and at Harlow, Essex.

The "Acme" small bore pipe apparatus (The Acme Ventilating and Heating Co., 35, Tarleton Street, Liverpool) is one of the most economical, rapid, and perfect systems of heating. This system consists of strong wrought-iron tubes of best quality procurable,

of $1^{5}/_{16}$ in. external diameter and ⅞ in. bore, the ends of which are provided with right and left hand threaded screws. They are connected together right and left hand, which, when screwed up, brings the coned end of one tube into the flattened end of the other, thus making a perfectly sound hydraulic joint —in fact, such joint is actually stronger than the tube itself, the threaded screws are not intended to make any joint excepting by the power applied in forcing the conical end to the opposite flat end of tube, which generally makes an indentation of about $^{1}/_{16}$ in.: this forms the joint, the cone making its own seat, and when once fitted, water has no access to the screw in the socket, which, therefore, cannot rust, and may be unscrewed at any time without trouble. This joint is not affected by expansion and contraction, which is a constant source of annoyance and expense where the ordinary form of joint is used, as with the large cast-iron hot water pipes used in the low pressure systems. The “Acme” system offers the further advantage of readily allowing any tube to be disconnected and removed without disturbing the rest.

A large portion of the said tubes form the boiler or furnace, which, being fixed at the lowest level, forms one of the most rapid and economical furnaces known. Smaller furnaces, with wrought or cast-iron casings, with coils of pipes built in fire-bricks, are used for small buildings, halls, corridors, or offices.

An ordinary fire-grate may be utilised by a few feet of piping being coiled and placed in same, forming the fire-bars and back of grate, which constitutes a boiler in itself, and is connected with other piping connecting with adjacent apartments. As many as three or four bedrooms, or a suite of

offices, may be comfortably heated from the one fire.

The apparatus consists of an endless circuit of strong wrought-iron tubes (all of the same diameter), filled with water. It is thoroughly tested under a hydraulic pressure of about 3000 lb. per sq. in., so as to ensure that the joints, and all parts of the apparatus, are perfectly safe and sound. The fire being lighted, the water circulation commences, as the water in the furnace-coil becomes heated, it ascends to the top of the apparatus, whilst the cold water, being heavier, descends, to supply the place of the ascending heated water, and thus a continuous circulation of hot water is kept up, which rapidly increases in velocity, through the pipes, as the heat in the furnace becomes greater. The tubes are kept absolutely full without the possibility of a higher pressure than that at which the expansion valve is set, and this setting corresponds with the temperature the pipes are intended to give off. As will be seen, a very large margin of safety is provided for in every case, much beyond the maximum pressure by heat that can possibly be obtained. Formation of steam is impossible, as is also the stoppage of the circulation through air locking.

The superior quality and small diameter of the tubes, and the ready manner in which they can be bent, makes it the most complete system extant. The “Acme” apparatus is equally well adapted to old or new buildings, as it may be introduced without disturbance of existing arrangements, and does not necessarily require the construction of trenches or channels, an inconvenience in other systems which often prevents their adoption. The preliminary expenses in introducing the “Acme” system are very trifling, and as the circulation does not depend upon

the tubes being laid at an incline, the apparatus is not unsightly or in the way.

All the difficulties arising from condensation, air stoppage, and the consequent necessity for attention to valves and air-cocks (as in other systems) are avoided—so simple, indeed, is the apparatus that it may safely be left to the care of any ordinary house-servant. Fixed close to the expansion (or safety) tube is another tube for supplying the apparatus with water. Beyond the necessity of attending to the furnace, it is only requisite to see that the tube is supplied with a proper quantity of water about once a week (when in constant operation), this, in an ordinary sized apparatus, is about ½ pint. If this arrangement is not convenient, a small cistern of sufficient capacity to hold the expanded water can be fixed, inside of which is placed an expansion and intake valve. The expansion tube and the water supply pipe are so arranged that when the water is level with the top of the filling pipe it is only up to the bottom of the expansion tube, leaving the whole of the tube empty. It is, therefore, impossible to fill the tube by pouring water into it, the expansion tube being always empty when the apparatus is cold. Before the fire is lit, the apparatus is filled with water, and the two screw-plugs seal them; as the water rises in the tube, when the furnace becomes heated, it compresses the air that is left in it, and so automatically regulates the pressure that no undue strain is put upon the apparatus.

Instances are known where Acme apparatus have been in use for over 20 years without entailing the least expense for repairs. When erected, they are tested by hydraulic means to a pressure of 150 atmospheres, and the valve is regulated to blow off

at six atmospheres—it is manifest that, with proper care, leaks or accidents are of very rare occurrence. The material throughout being of best wrought iron, breakage is impossible, even with the roughest usage; hence the cost of maintenance, often such a heavy item incidental to other systems, is avoided. With the “Acme” system repairs are practically nil; further there is no trouble and no sulphurous smells. Where trouble and expense have been experienced with small pipes, they have invariably been the result of bad workmanship, or of neglect by the attendant of the simple instructions given.

The heating surfaces can be regulated to the utmost nicety, and may be raised to very high temperatures without the formation of steam. The system is, therefore, specially applicable for drying-closets and stoves for manufacturing purposes, where great heat is required, and where systems of hot-air flues are not expedient on account of danger from fire or damage by noxious vapours. Any degree of temperature up to 500° F. may be obtained.

In the “Acme” system the ordinary boiler is replaced by a series of specially constructed tubes, bent in tiers one over the other. The fire and heat are induced to travel over the whole surface of the tubes. The temperature of the tubes steadily increases throughout their entire length; hence great economy of fuel is secured. It is manifest that the temperature of the smoke, as it passes into the flue, need only be slightly in excess of the temperature of the return pipes, say about 190° F., whereas in the ordinary boiler, where perfectly free circulation is possible, and the temperature of the water is practically the same throughout, the heat of the flow-pipes governs that of the chimney. As the practical result, it may be

said that about 90 per cent. of the calorific power of the fuel consumed is actually taken up and distributed by the heating surfaces of the “Acme” apparatus. This, as against 40 to 70 per cent. in the case of hot water, and steam boilers, or of cast-iron hot water apparatus (low pressure large bore-pipes), is a source of economy. Another notable source of economy is the remarkably small amount of fuel necessary to the effective working of the “Acme” system. The comparison between the two stands as 8 to 1, in consequence of the difference in the weight of the materials used in each system to obtain like results.

Buildings warmed by the “Acme” system are more thoroughly under control than where large pipes are used; the tubes being so small, contain but little water, consequently are more quickly heated, causing much greater rapidity of circulation. The temperature can be easily raised or lowered—automatically if desired—and the heat maintained for any length of time at pleasure. This is an obvious advantage in warming conservatories, as the temperature can be quickly raised when frost suddenly sets in, or lowered without opening the windows when a thaw commences. The heat of the house may be maintained at the requisite temperature without attention during the night, it simply being necessary to make the fire-place large enough to contain sufficient quantity of fuel, as the damper regulates the combustion. Where a moist heat is desired, such can readily be obtained at any given point by placing trays of water upon the pipes, or on a coil of pipes, thus giving the moisture so essential to the health of plants.

It has been supposed that the sediment from the

water would soon choke the tubes, but as they are hermetically sealed there is no evaporation, and the same water being heated over and over again there is no deposit, and the remote possibility of incrustation is entirely overcome by using a small quantity of the patent anti-corrosion and non-freezing liquid.

There are no red lead or luting or perishable rubber joints used in connecting the pipes, but a perfectly solid metallic contact is made.

In applying the "Acme" apparatus to dwellings the warming pipes can be placed in any desired position along the skirting, under windows, coiled and covered by ornamental coil cases of various sizes and patterns, or pipes sunk beneath the floor in a channel. In the best rooms the pipes may be covered by iron gratings, of any design, to suit the other decorations of the building, while in servants' rooms they may be placed in front of the skirting boards on suitable iron stands or brackets.

Fresh air is admitted into each compartment by an opening in the external wall through an iron box fitted with a valve to regulate the supply, and warmed by a surrounding coil of pipe. This can be placed beneath the windows, or when that is not convenient, in any other desired position, and if desired, may be covered with an ornamental iron coil case.

Warm water for bath and bedrooms may be drawn as required by having a cistern attached to the apparatus.

LIGHTING: Gas. Continued from p. 93.

An exceptionally good governor is that introduced by Joseph Shaw, of Albert Brass Works, Lockwood, Huddersfield, and 41, Hart Street, New Oxford

Street, London, W.C. This is illustrated in Fig. 223. A searching trial of this governor was made a few months since, by Thos. Newbigging, Esq., M. Inst. C.E., who reports on it as follows:—

"I have tested the 'Shaw' gas governor which you forwarded out of stock, in the various circumstances under which gas is ordinarily consumed, and I pronounce it to be a satisfactory and trustworthy instrument in every respect.

"The pressure of gas in the mains is usually in excess of the average requirements of consumers, owing to circumstances over which the gas authorities have no control.

"The lower the pressure at which gas is consumed, the smaller the consumption and the better the light, provided the pipes and the pressure are sufficient to admit of the required volume of gas passing to the burners.

"Regulation by means of a stop tap at the meter, or near to the burner, is impossible owing to the varying pressures during the hours of consumption, and hence the need of a regulator or governor which will adapt itself automatically to the changing conditions.

"Shaw's governor performs that function with certainty and constancy.

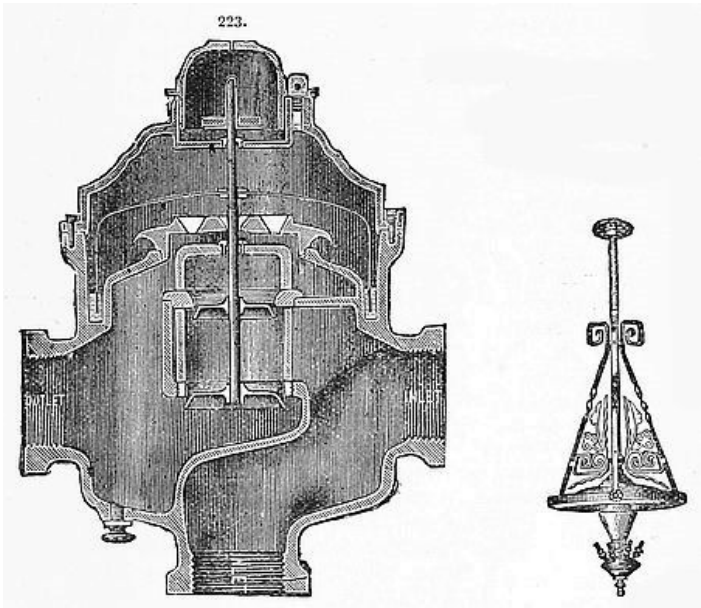
"With a series of ordinary burners, regulated by the 'Shaw' governor the consumption of gas per hour was 28 cubic feet, and each one gave an illuminating power equal to 15·25 standard sperm candles; whereas with the same burners, consuming the same gas, but ungoverned, the consumption was 33·8 cubic feet per hour, and each gave an illuminating power

of 13·7 standard candles.

"The governed burners were then extinguished one by one, and the consumption and illuminating power remained constant.

"The saving in gas by the application of the 'Shaw' governor was therefore 17·16 per cent., whilst the illuminating power of the gas was increased 11·31 per cent.

"These results need no comment, as they speak for themselves.



223. Shaw Governor.

"The governor may be said to be practically indestructible under ordinary good usage, and the ease with which the working parts can be reached for cleaning when required, without detaching the

instrument from its position, is an important recommendation, and adds to its value."

Subjoined is a copy of the gas account of the Salford Union Workhouse:—

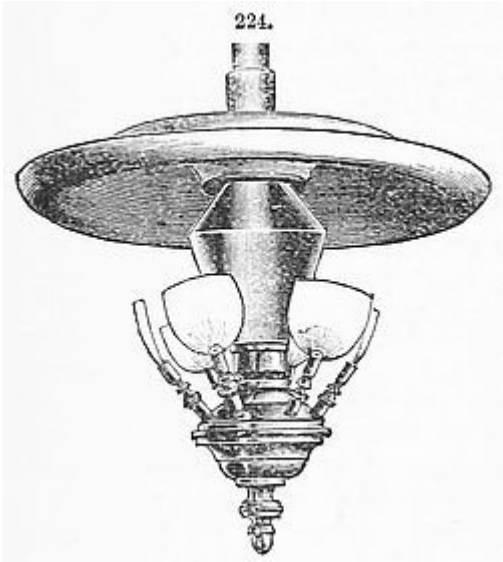
	£	*s.*	*d.*
March quarter, 1889	127	8	11
"	75	2	1
" 1890			
	£52	6	10

This saving in three months was effected by the use of Shaw's governors, which cost 33*l.*, and will continue to produce a similar economy indefinitely.

PRICE LIST, INCLUDING LOCK AND KEY.

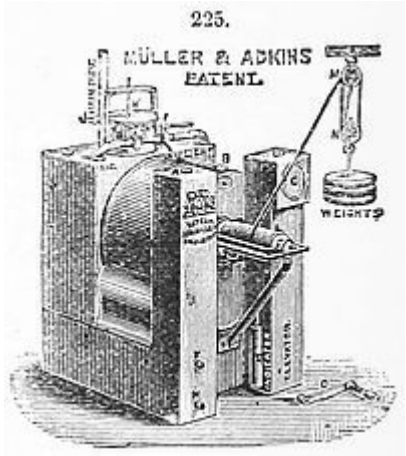
			Brass Union Connections, per pair.		
	£	*s.*	*d.*	£	*s.*	*d.*
No. 1.—For ½ inch ce pipe	1	15	0	0	2	0
" 2.— ¾ " " "	2	15	0	0	3	0
" 3.— 1 " " "	3	15	0	0	4	0
" 4.— 1¼ " " "	5	0	0	0	7	6
" 5.— 1½ " " "	6	0	0	0	9	0

” 7.—	2	”	”	8	0	0		0	17	0
” 8.—	2½	”	”	11	0	0	}	These sizes		
” 9.—	3	”	”	13	10	0	}	are cast		
” 10.—	4	”	”	17	10	0	}	with flanges.		



224. Shaw’s Reflector.

Another economizer of light is the Shaw self-cleaning reflector, made by the same firm. It consumes its own smoke, is easily fixed to present gas fittings, and is simple, efficient, durable, and cheap. It is shown in Fig. 224 in its plainest, simplest form. Many other more elaborate designs are made in ornamental wrought ironwork and enamelled ware.



225. Müller's "Alpha" Gas-maker.

Fig. 225 illustrates the most convenient and useful plant adapted to the home manufacture of illuminating gas, known as the "Alpha." It is constructed by the patentee, H. L. Müller, of Mary Ann St., St. Paul's Square, Birmingham, and has recently had some improvements added. The process of gas making by this plant consists simply in combining atmospheric air with a light hydro-carbon in a state of vapour. There are many available forms of such light hydro-carbon derived from mineral oils, shales, and coal tar. When air is charged with such vapours it forms a mixture that can be ignited and burned. But the most successful results cannot be attained without certain important conditions are fulfilled, which are carefully provided for in Müller's apparatus. In many respects the illuminating agent thus produced is superior to coal gas. Its cost is certainly no greater, and in some instances considerably less; the supply can be placed under control, instead of being liable to interruption through strikes and other causes; the light is bright and pleasant; and the vapour being pure is much less

unwholesome to breathe, less unpleasant to smell, and less injurious to furniture, pictures, &c. The object of Müller and Adkin's recent improvements is to completely control the flame, preventing any sudden increase above the normal, when fresh supplies of hydro-carbon are furnished to the apparatus. This is accomplished by a self-acting feed-box, which enables the reservoir to be replenished whilst the apparatus is in use, without in any way interfering with the lights which are burning. The system is being largely adopted in mansions and rural districts, where coal gas is not obtainable or is very dear, and can successfully compete with coal gas, even in localities where it is cheap. An additional advantage it possesses is that it furnishes a most convenient motive power for pumping, chaff-cutting, and the numerous other operations conducted in a country house.

Sugg's Specialities.—In all matters relating to the use of coal gas in the house, whether for lighting, warming, or cooking purposes, the name of Sugg stands pre-eminent. To attempt to illustrate or describe all the appliances introduced by him, and sold by William Sugg & Co., Limited, Grand Hotel Buildings, Charing Cross, London, would require the space of a good-sized volume; even then it would not do justice to the inventor, because it could not include new things which are continually being perfected under his direction. This is especially the case with regard to gas burners, globes, and governors, of which hundreds of forms and designs can be seen at the show-rooms, all possessing some special quality of usefulness or ornament. Instead, therefore, of selecting a few examples for illustration, which would very inadequately represent the subject, it will be more just to recommend every user

of gas to procure Sugg's catalogue, and observe for himself those articles which best furnish his needs, not forgetting that the advice to be obtained from the maker is the result of a unique experience and long study, and therefore well worth taking to heart.

LIGHTING: Electric. Continued from p. 95.

During the past few years the manufacture of incandescent lamps has been developing rapidly, numerous improvements having been introduced, and by the use of high class of photometrical instruments in the examining rooms, the exact light-giving power of each lamp in standard candles is registered, the ordinary sizes being 5, 8, 12, 16, 25, 30, and 50, those of higher power being only suitable for halls, ball-rooms, &c. The manufacture in this country is, owing to patent monopolies, confined to two types, the Edison-Swan and the Woodhouse and Rawson, the difference between which is chiefly in the shape of the carbon. In the former, the carbon has a loop in it; in the latter, it is like a plain horse-shoe. In both cases the price is 3*s.* 6*d.* each for all sizes up to and including 30 candle power, but the Woodhouse and Rawson lamps consume less current for an equal amount of light, while the length of life is phenomenal, in one instance being close on 11,000 hours.

It is a very good plan to use the Trotter dioptric shades, in which the light is subdivided by numerous prisms, without any appreciable loss.

Formerly switches, to turn the lamps on and off, were a great source of trouble, being as a rule cheap and nasty. They are now, however, made of superior quality, being thoroughly mounted on either porcelain or slate, with ornamental covers harmonising with the wall of the room, fitted with

spring arrangements preventing any sparking from taking place when turning the switch off, the brake being practically instantaneous. Those called the “W. & R. Diamond,” can be safely recommended as fulfilling all the requirements of the Fire Insurance Office rules. Various sizes are of course made, from a small switch to turn on one light to others to turn on say all the lights in a room, and large main switches which are used below in the engine-room for turning on as many as 500 lights. One great advantage is that the switch can if necessary be fixed outside the door of the room, so that the light can be turned on before entering.

Small switches are also made somewhat similar in design to a gas tap, for fixing just above the lamp and shade, and these are very convenient as supplementary switches to the main switch outside the door of the room; they cannot, however, be used for more than one light at a time.

Small independent cut-outs should be used in connection with each individual lamp or group of lamps, in order to add as much as possible to the security of the house. In addition to this, a magnetic cut-out should be fixed in the main circuit, by means of which the whole of the light would be automatically switched off, in the event of any dangerous excess of current passing through the wires. The cut-outs are as a rule so cheap and effective, that there is no real excuse for neglecting to use them, and under the rules of the Phœnix Fire Office, which are those chiefly worked to by the installation contractors, they have to be fixed in every circuit.

In confirmation of the above, we cannot do better than quote the following extract from the rules of the

Phœnix Fire Office:—

"Any firm, by arranging to place inferior quality of work in your premises, can easily underprice firms that are more conscientious; and experience proves that inferior work is nearly certain to result in a fire breaking out sooner or later."

THIEVES AND FIRE. Continued from p. 110.

Shut all doors and windows immediately; every effort must be made to exclude air. By this means fire may be confined to a single room for a sufficient period to enable all the inmates to be aroused and escape; but if the doors and windows are thrown open, the draught will instantly cause the flames to increase. Moments are precious at the commencement of a fire, and not a second should be lost in tackling it. In a room a table-cloth can be so used as to smother a large sheet of flame, and a cushion, coat, or anything similar may be successfully used to beat it out. The great point is presence of mind—calmness in danger—action guided by reason and thought. In large houses buckets of water should be placed on each landing, a little salt or ammonia being mixed with the water. Always endeavour to attack the seat of a fire; if you cannot extinguish a fire, be sure to shut the door when making good your retreat. Make your way through smoke on hands and knees, keeping your face down as much as possible. A wet silk handkerchief tied over the eyes and nose will make breathing possible even in the midst of much smoke, and a blanket wetted and wrapped around the body will enable a person to pass through a sheet of flames in comparative safety.

For a chimney on fire.—Burn a handful of sulphur in the grate.

Burns.—In a serious burn, the clothes must be removed as soon as possible. If not already thoroughly wet, the injured part should be drenched with water, and the clothes cut away. Everything must be sacrificed to getting them off without pulling, as the slightest dragging will lacerate the skin. If patches of the clothing adhere and will not drop off they must be allowed to remain. Dip cloths in a thick paste of common baking soda and water, and lay them over the burnt surface, bandaging lightly to exclude the air. As soon as a dry spot appears on this dressing, wet it with the soda and water by squeezing some on it. There will be no smarting while it is saturated and the air excluded. If the feet are cold, heat should be applied. If the pulse is weak, give a little stimulant, and send for a doctor. Pain is a good sign in severe burns; it shows that there is still vitality. For slight burns, any oil is good (salad oil for preference); apply plentifully, and bandage to keep the cold out.

THE DAIRY. Continued from p. 167.

Bradford's (Bradford & Co., 140, 141, 142, and 143, High Holborn, London; Salford, Manchester, and Liverpool) revolving-disc milk-pan stands are simple, substantial, portable, and utilise space, as they can be placed in line or in square—the revolving discs or tables allow of skimming each pan without moving from one position—being portable, they can be placed in the most desirable position for ventilation, and for thorough cleansing of the milkhouse walls, which fixed shelves do not admit of. Made to hold six pans. Larger sizes to order. Price (in iron) 2*l.* 2*s.*; (in wood) 3*l.* 3*s.*

The most satisfactory milk cooler is the capillary pattern, which is made in all sizes by Laurence,

Bradford & Co.

Bradford's "post-diaphragm" churn, and the same maker's "Charlemont diaphragm" churn, have gained many first prizes, and are to be recommended.

The "Arch-Albany" butter worker, with helical roller, is also made by Bradford's in all sizes to suit large or small dairies. It gained a silver medal at the R.A.S. Show at Plymouth, 1890.

The following additional books of reference deserve notice:—

J. Long: 'British Dairy Farming.' London. 1885.

H. M. Upton: 'Profitable Dairy Farming.' London. 1888. 2*s.*

C. R. Valentine: 'Butter-making.' London. 1889. 1*s.*

J. P. Sheldon: 'The Farm and the Dairy.' London. 1889. 2*s.* 6*d.*

J. Long: 'The Dairy Farm.' London. 1889.

THE PANTRY: Ovens and Bakings. Continued from p. 208.

There are several different systems of baking bread in the market, mostly with steam ovens, which are generally acknowledged to be superior to the ordinary bakers' bread. It, however, will be found, by the examination of a loaf made and baked by the aid of gas, that this system is a great improvement over the best hitherto introduced. Moreover, the method is so simple that success is brought within reach of all who use a well-constructed gas kitchener.

In the preparation of bread by the usually adopted methods, the dough is allowed to rise in a warm place, and after being cut into loaves, is at once

placed in an oven and heated up to its highest point, viz., 500°-600° F. In the case of bread made by the new method, the dough, which is leavened as usual with brewers' or German dried yeast, is allowed to stand in a warm place and rise in the ordinary way. But after it is cut into loaves, it is treated in a manner diametrically opposite to that described above, for it is at once put into a cold gas oven, and the gas jets are lighted only sufficiently to produce a gradually increasing heat, not greater than 80° F. at the end of one hour, during which the loaves are left in the oven to rise.

The scientific explanation of the operation which is going on during this period is this. The yeast plant which grows and ramifies all through the bread has full time to do its work and make it light and open, and the plant is not killed until it has fully done its work. A smaller quantity of yeast will do the work of a larger quantity usually required because the comparatively low and regular temperature of the gas stove is favourable to its proper development throughout the bread. When the loaves have well-risen, the heat of the oven is gradually increased by turning on the gas. The yeast plant dies after about 90° F. is reached. The cooking then goes on, the heat steadily increasing until it reaches in about ¾ hour a temperature of 480°-500° F. The bread is by this time thoroughly cooked and beautifully browned, with a nice equal thickness of crust. During all this process no steam accumulates in the oven, which is Sugg's "Westminster" (see p. 1004), as the luminous flames supply a sharp dry heat and the ventilation is thorough. After the loaves are done they are taken out of the tins, and after the gas is turned out they are restored to the oven for 10 minutes to dry. They are then ready for use, and can be eaten as soon as

they are cold. They will be found to be easily digestible even by invalids or persons of weak digestion.

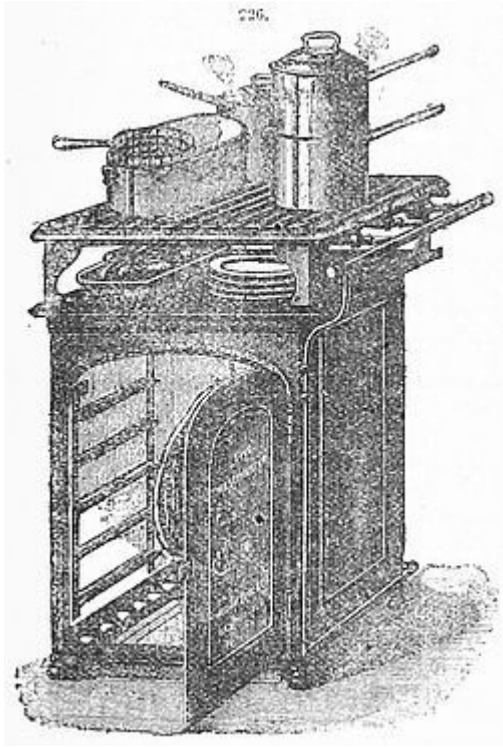
The process has been seen and approved of by Dr. Charles, lecturer at St. Thomas's Hospital, who moreover stated at his lectures on Food and Digestion, recently delivered at Westminster Town Hall, that it was a process which would produce good and thoroughly digestible bread. It is only by the use of gas that such a process of gradually heating the oven can be carried out, but the simple method here described enables every housekeeper, by the aid of gas, to produce bread and pastry which will be light and thoroughly digestible. The cost of gas to bake eight 1¼ lb. loaves is under ¾*d.*

For some time past, the baking of bread by this process has been carried on in the window of Sugg's show-room, Grand Hotel Buildings, Charing Cross. The dough is prepared by young girls at the Works in Regency Street, and then baked in a "Westminster" oven, fitted with a glass door, so that the bread is visible during the whole time of baking. The loaves weigh 1¼ lb. each when put into the oven, and only slightly less when taken out perfectly cooked.

THE KITCHEN: Ranges. Continued from p. 235.

Even in the best appointed kitchen the problem will often arise, how to obtain on the instant a small quantity of fresh boiling water. Many inventions have been devised to meet this constantly recurring want, such as quick-boiling kettles with ingeniously constructed bottoms, and powerful gas burners arranged to concentrate a large amount of flame upon the ingenious kettle-bottoms. But usually it is found in practice, that, no matter with what waste of

gas, it is several minutes before even so small a quantity of water as is needed to make a cup of tea can be raised from cold to boiling. Hence it happens that tea and other things are frequently spoiled from being made either with water which has not boiled at all, or with water which boiled long before it was wanted. Many will therefore be glad to hear of a little instrument sold by Ewart and Son, of Euston Road, which they call the “Kitchen Geyser.” The water does not remain in the geyser, but merely flows through it and *is boiled as it flows*. At first lighting, a few seconds are lost in warming the copper of which the geyser is made. And so a single minute (not longer) has to be allowed before the stream of water actually reaches boiling point. It then flows at the rate of a pint per minute, so that it takes in all just two minutes to produce the first pint of boiling water. After this, however, the metal is kept hot by the minute flame which is left burning when the water is stopped. A second pint of boiling water can thus be had in a *single minute* whenever afterwards required, until the gas is finally turned off. The saving of time, fuel, and temper effected by this little instrument will be found to make it quite indispensable where it has once been tried.



226. Sugg's "Westminster" Gas Kitchener.

Sugg's "Westminster" gas kitcheners (Fig. 226) possess the following advantages:—(1) Thoroughly ventilated cooking chamber, lined with enamelled iron, suitable for roasting joints and poultry, and baking bread and light pastry. (2) The luminous flames used in this chamber give off no offensive odour. The products of combustion are as harmless as those from an ordinary gas burner. (3) The flavour of meat, game, &c., is preserved, as they are roasted by radiant heat in a well-ventilated chamber as perfectly as they would be before a good bright fire. (4) The juices of the meat are retained in the joint, making it more nourishing than when roasted in any other way. (5) The waste of meat by cooking is much

less than that incurred by roasting in coal kitcheners and imperfectly ventilated ovens. The saving in weight of meat thus secured will more than pay for the gas. (6) For baking bread and pastry it is unrivalled. Many persons are unable to eat bread and pastry baked in coal and other imperfectly ventilated ovens because it is indigestible. The bread baked in this kitchener is equal to the best Parisian bread, light and easily digestible, and can be eaten on the same day as baked without danger of indigestion. Pastry, when properly made, and baked in this kitchener, is wholesome and very digestible. (7) The hot plate is fitted with three burners—one of which is both a grilling and boiling burner. Toast, chops, steaks, or any kind of grilled food can be prepared in a very perfect manner by this grilling burner. (8) Properly made toast and grilled meat is so important to invalids and persons of delicate appetite, and even for more robust constitutions, that the advantages of a kitchener on which can be prepared successfully such kinds of food, cannot be over-estimated. (9) The "Westminster" kitchener is simple and easy to use. It is substantially made and durable. Every part being marked, it can be taken to pieces and put together easily. Any part being broken can be replaced with greatest facility. The outside of the oven under the boiling burners is now also enamelled, greatly adding to its durability, appearance, and cleanliness.

The "Eagle range" (Eagle Range and Foundry Co., 176, Regent Street, London), Fig. 70, is made in all sizes from 2 ft. to 10 ft., either portable or for fixing (to meet all requirements), with 1 to 4 ovens, with or without hot closets (for keeping joints, &c., hot for serving or cutting), or with grill attached for business houses. This range has the following advantages, viz. an adjustable bottom grating to the fire-box, by

means of which the fire can be brought up close to the hot plate for oven work, &c., or the bottom grating can be lowered to give a large surface for roasting in front; a convertible closed or open fire (the conversion needing 2 movements only); a reversing damper fitted to one (or both) of the ovens, by means of which the flame can be directed to give an excess heat at the bottom or at the top of the oven as desired; iron flues, requiring no brick setting, automatic cinder sifter, &c.

These and all ranges that have iron coving plates at sides and back above the hot plate, can be covered with glazed tiles (either plain white or pattern), which is of great convenience in dark kitchens, and to be recommended for cleanliness and good appearance. It will be well understood that any of the ranges mentioned can be fitted with any description of boiler required, but the power of the boilers differs considerably in the different makes. The above-mentioned firm make a speciality of hot water supply.

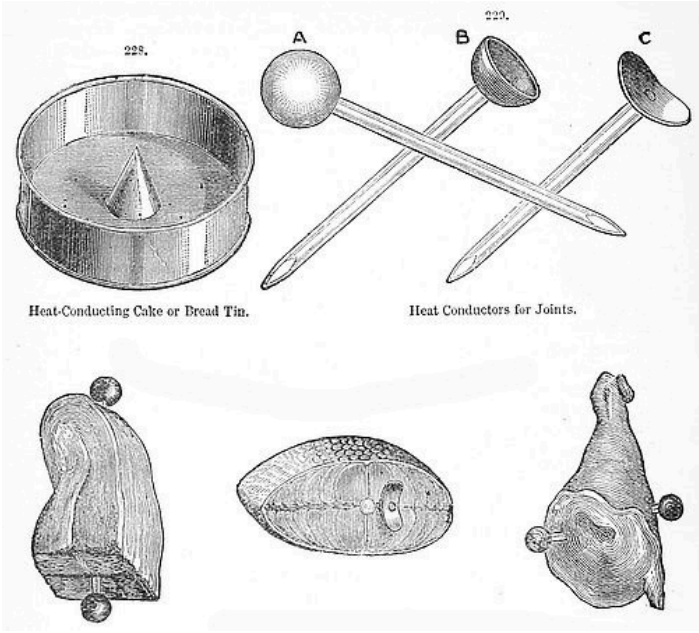
THE KITCHEN: Pots and Pans. Continued from p. 240.

Stanley's Heat Conductors.—Flesh is known to be a very bad conductor of heat; therefore the perfect cooking of the inside of joints by the ordinary culinary methods involves the excessive cooking of the outside, with corresponding loss of the nutritious juices of the meat.

The object of this invention is to provide means by which the interior parts may be cooking simultaneously with the outer parts. This is effected by plated conductors which conduct the exterior surrounding heat to the interior parts. The advantage in this cannot be over-estimated, as the quicker the

heat can be conveyed to the middle of the joint, so much more can its gravy and nutriment be preserved, thereby rendering the food much more palatable and wholesome, besides saving time, fuel, and food to a great extent.

The scientific principle of these conductors depends upon the fact that a piece of metal, such as copper, which is a good conductor of heat, will conduct heat nearly equally throughout its mass, whatever part is heated. Thus, if a properly constructed conductor so exposed to a source of heat, as that of an open fire, or in an oven, or in boiling water, the other part which is placed within the joint of meat to be cooked, will become heated nearly equally to the exposed part, so that, in cooking, these conductors, when placed in a joint of meat, cook the interior as quickly as the exterior parts. The only other important scientific condition observed is that the exposed part or collector of the conductor has to be a dark colour, so as to absorb and not reflect the surrounding heat. In all cases the copper is thickly plated to render it quite unobjectionable when in contact with the flesh.



228. Heat-Conducting Cake or Bread Tin. 229. Heat Conductors for Joints.
Stanley's Heat Conductors.

Fig. 229 represents the simple forms of conductors. The form A is for roasting or baking, for which purpose one or two, or even three or more if the joint is very large, are inserted into the thickest parts of any joint, the heads standing out an inch or so.

For roasting before a brisk fire, or baking in an oven, thick joints of over 6 lb., 10 minutes per lb. is amply sufficient time, instead of the usual time (15 minutes per lb.) The meat will be thoroughly cooked in this time, and the gravy and nourishment maintained. The joint will weigh, after cooking, 10 per cent. more than it would if cooked in the ordinary manner without conductors. This fact has been proved by the highest authorities.

Fig. 228 shows a heat-conducting cake or bread baking tin. They can be had of H. T. Tallack, 28, Hatton Garden, E.C.

THE SICKROOM: Accessories. Continued from p. 765.

W. H. Harling's (47, Finsbury Pavement, London, E.C.) Portable Electric Combination Bell is a unique invention combining a table call bell, invalids' bell set, burglar alarm and fire alarm, and for usefulness, compactness, and finish, far surpasses anything of the sort hitherto introduced. The distinct advantage of the portable combination bell will at once be seen when it is stated that the whole apparatus, including battery, and all other parts complete, occupies no greater space than 3½ in., and as the battery contains no fluid, the bell can be safely packed in portmanteau or travelling bag. It is both useful and ornamental, and will be found a great convenience on any dining table. For use in hotels and restaurants it may combine a bell with menu and wine list holder. As an invalids' bell set, the bell may be placed outside the room, so as not to annoy the patient, and the contact press remaining inside, the attendant may be summoned by slightly pressing it with the fingers. As a burglar alarm and thief detector, on fixing the contact press to door or window, box or portmanteau lids, drawers, cabinets, &c., these on being opened will immediately start the alarm, which will continue to ring until the press is re-set. This feature of the bell is invaluable to tourists and travellers, and affords ample protection against surprise or robbery. As a fire alarm it can be adjusted to ring at any degree above the normal temperature, and will at once give the alarm should a fire break out in any room in which it is placed. The price

complete is 21s.

Harling's Patent Double Contact Press, for attachment to Electric Bell Fittings, can be fixed in a few seconds to any ordinary push, and be used as an Invalid's Press enabling the patient to call attention without rising from bed or chair; or be applied to door, window, box-lid, cabinet, &c., for the detection of Thieves and Burglars. Its price, with 15 ft. double silk cord, is 3*s.* 9*d.*

THE SICKROOM: Common Complaints. Continued from p. 809.

Defective Sight.—The human eye is generally compared physically with a photographic camera, in which a convex lens throws the image of objects in front of it upon a screen at the position at which the photograph is taken. The front of the eye possesses a lens of similar qualities, and the back of the eye forms a screen upon which a fine net-work of nerves (*retina*) is spread out, which conveys by its sensitiveness to light, shade, and colour, the image of objects to the brain. Defective sight in most instances is caused by the imperfect form of the lens of the eye, or the want of its perfect adjustment to distance from the retina, thus failing to throw a distinct image upon it.

The most common defects of the eye are termed *Myopia* or *near-sightedness*, in which the image of objects is thrown in front of the retina, and *Presbyopia*, literally *old-sightedness* or *far-sightedness*, in which the image is thrown behind the retina. The former is a structural defect of the eye, the latter more generally proceeds from want of elasticity in the lens, making it incapable of giving adjustment to the eye for near objects. Another very common defect of the eye is want of roundness of the front of

the eye, or *Astigmatism*, in which the images are distorted in various ways. This defect is generally easily discovered by vertical objects appearing to be curved or leaning one way or the other. Very commonly sight is defective from difference of structure in the two eyes. These defects are very common to children, and interfere seriously with their learning, and often produce squint, as an effort of nature to avoid the painful confusion of images that are produced. When discovered it is well to consult a skilled optician as early as possible, who will, if necessary, recommend an oculist if the case requires one. All the defects mentioned above are remediable by use of spectacles if the constitution of the individual is healthy.

Spectacles.—To preserve the sight where it is found to be defective, it is not only necessary that the lenses should be exactly adapted to the defects of each eye taken separately, but that the distance of the centres of spectacle eyes should be exactly the same as that of the wearer's eyes, and that they should be held at the right height to centre the eyes. Further, that they should fit the nose and face so as to keep them in a level position. Of course for this result the spectacles must be made to measurement by the skilled optician to fit the face. The optical defects are discovered for perfect correction for myopia and presbyopia by means of an instrument termed an *optometer*, which every professional optician possesses. There can scarcely be a greater mistake than picking up a pair of spectacles of a friend, or of an ordinary shopkeeper, who has no skill or appliances to properly test the sight. This is very often done, and spectacles are taken in use which appear to improve the sight slightly, but which ultimately increase optical defects.

Folding Glasses are often used in place of spectacles for elegance of appearance. No oculist recommends them, as from their weak structure it is impossible for them to be kept to correct form in wear. Mr. Stanley, whose advertisement appears in these pages, has invented a form of hand-glass, which is quite as light and elegant as the folding glass, which has the merit of keeping in a rigid form as certainly as ordinary spectacles. These for the best results have to be made to measure with all the care of a good pair of spectacles.

Protectors.—These protect weak eyes from excess of light, which is often very irritating, and from dust, which is injurious where there is any soreness. There are a great number of forms. Blue or smoky-grey is generally found to be most pleasant. In all cases these protectors should be well ventilated by wire gauze round the glass. They take many forms, to the fancy of the wearer. Their use should never be neglected by persons with weak eyes in sunny or dusty weather. The cheapest form have rubber bands attached to them so as to go round the head; these cannot be recommended, the rubber becomes permanently soft from the heat of the head. Steel frames are recommended.

DOMESTIC MOTORS. Continued from p. 954.

Rider's Household Pumping Engine.—Since our last edition was published a great improvement in these engines has been introduced by the makers. It consists in forming the furnace or fire-box in two parts, in such a manner that it can be swung apart, as shown in Fig. 218. The fire-pot or heater, which, being exposed to the fire, is naturally the most vulnerable part, can be replaced in a couple of hours, and the whole closed up ready for use as in Fig. 217.

This improvement is the subject of a patent by J. C. R. Okes, 39, Queen Victoria Street.

The “Rider” Hot Air Engine has been before the public for many years, and is a thoroughly reliable machine, increasing in favour. It has been adopted by the Government for barrack water supply; by the Sultan of Turkey for his palaces, and is largely used in Australia, India, and other countries, besides in our own, where hundreds are in constant use.

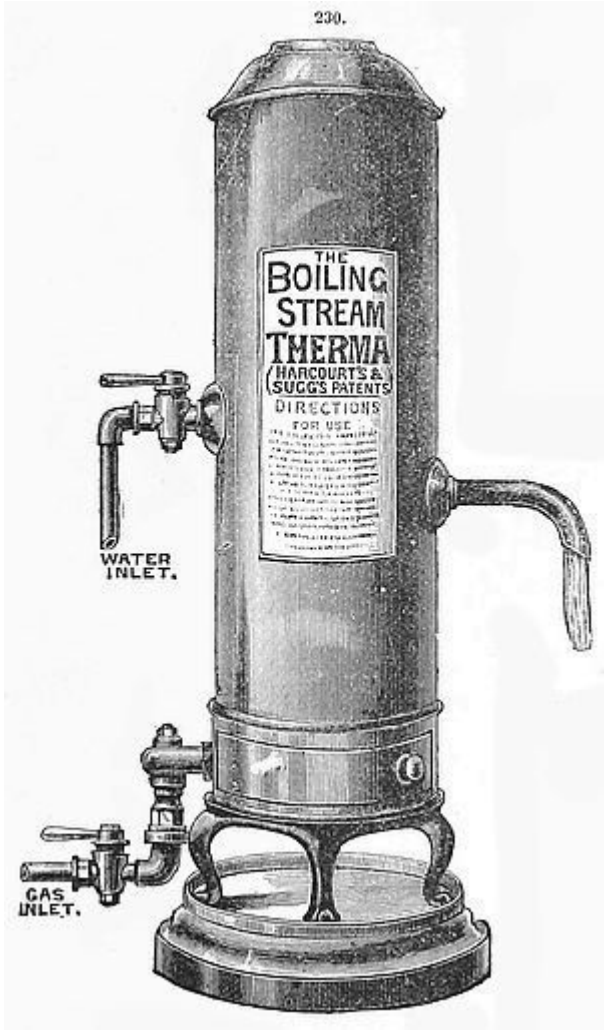
THE BATHROOM. Continued from p. 847.

A well-made geyser is a great comfort. In that named the “Lightning” Geyser, made by Messrs. Ewart and Son, of Euston Road, London, not only is hot water obtained instantly at any time, but by reducing the quantity the temperature can be raised to boiling in a single minute. The taps are so arranged that whenever the flow of water ceases from any cause, the gas is instantly reduced, so that the geyser cannot be burnt, and the gas cannot be wasted. The advantages over the circulating system are that the installation is less costly, that a fire in the kitchen is not needed in order to have a hot bath, that boiling water for hot drinks can be had in a single minute, and hot water for bathing instantly at any hour of the night as well as during the day.

Messrs. Reid’s (69, St. Mary Axe, London) combined baths and fittings deserve special mention. By recent improvements these baths are practically self fixing; there is no cutting away of woodwork, the bath having only to be placed in position and the supply and waste pipes connected to the unions sent with same. These baths can be supplied for fixing with the usual casing, or decorated in any style to stand entirely without enclosure of any kind. Particulars of some of the above firm’s manufactures

may be found on p. 989.

Now that the Great Eastern Railway Co. are delivering Lowestoft Sea Water in kegs at any address in London at the rate of 6*d.* per 3 gal. it becomes possible to have a genuine salt water bath at a reasonable cost. Even greater facilities than these will be obtained should the proposed aqueduct from Brighton ever become an accomplished fact. Sugg's "Sabrina" Bath has been designed to enable the salt water to be heated to any temperature. The bottom of the bath consists of circulating tubes sufficiently large to be cleaned out from time to time by means of a wire brush, and thus prevent them from becoming choked by a deposit of salt. The bath should be connected to a flue or a ventilating tube carried through to the outside of bath-room. A burner consisting of a number of luminous flames fixed on a swivel joint swings into its place under the bath. When the salt water has been poured into the bath, the burner is lighted, and the water in the tubes becoming hot rises to the top and is continually displaced by the colder water in the tubes. The circulation thus set up continues freely until the water is heated to the required temperature. Before getting into the bath, care should be taken to see that the temperature of the water is suitable, and the burners turned out. Salt water treated in this way may be used several times.



230. Boiling Stream Therma.

The “Boiling Stream Therma” is an improvement on the Therma patented by Vernon Harcourt in 1882; and by its means a constant supply of water, heated by gas to any degree up to boiling point, may be obtained economically and in the shortest possible

time. It can be fixed in a bath-room, kitchen, housemaid's closet, or any part of a house where hot water may be required at any moment of the day or night. It entirely supersedes the expensive and troublesome hot-water apparatus usually laid on through pipes from the kitchen boiler; and also obviates the necessity of lighting the kitchen fire expressly to prepare hot water. It will furnish 30 gals. of hot water at 105° F. in 15 minutes. It is made by Sugg, Charing Cross.

Sugg's "Sultan" is a modification of one of Ellis's bath chambers, fitted with luminous gas flames, governed by a proper regulator, so that no excessive consumption beyond what is required can be produced by any sudden increase of pressure during the time a bath is being taken. The regulating tap enables the bather to reduce the temperature to any degree; the governor maintains the consumption, and consequently the temperature, at the point fixed upon, and ensures that no greater temperature than 200° F. can be produced, even though the regulating tap is turned full on. The foot-warmer is arranged to be heated by gas instead of being filled with hot water, so that a bath can be taken in the early morning, when there is generally no hot water ready. By placing a small vessel of water over the burner, a sufficient quantity of steam can be produced to make a very effective Russian vapour bath. No disagreeable odour comes from this bath, and there are no hurtful products other than carbonic acid in too small a quantity to be injurious. It can, therefore, be used in any bath-room or even in a bedroom without the slightest interference with comfort or health.

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FOOTNOTES:

[1] W. K. Burton, 'Sanitary Inspection of Houses.'

[2] Cantor Lectures on Food.

[3] Look it out in the dictionary.

TRANSCRIBER'S NOTE

Some Illustrations have been moved up or down a paragraph. A few were printed sideways and have been rotated to be horizontal.

There are several references to 'advertisements' at the front of the book. These are missing in this edition of the book.

Obvious typographical errors and punctuation errors have been corrected after careful comparison with other occurrences within the text and consultation of external

sources.

Except for those changes noted below, all misspellings in the text, and inconsistent or archaic usage, have been retained: for example, breadcrumbs, bread crumbs; carcase, carcass; macaroni, maccaroni; cornflour, corn-flour, corn flour; imbedded; intrusted; smoulder.

Pg 28: missing number '13' added to the Illustration caption.
Pg 80: 'below the evel' replaced by 'below the level'.
Pg 81: 'When the hea tis' replaced by 'When the heat is'.
Pg 115: missing label '(*b*)' inserted before the heading 'Storing Foods without Change'.
Pg 124: 'smoking goes no' replaced by 'smoking goes on'.
Pg 124: 'valve iu it' replaced by 'valve in it'.
Pg 126: 'family receipe:' replaced by 'family recipe:'.
Pg 135: 'will no spoil' replaced by 'will not spoil'.
Pg 150: 'the garted rind' replaced by 'the grated rind'.
Pg 159: 'lbs. of fresh butter' replaced by 'lb. of fresh butter'.
Pg 201: 'than take 3' replaced by 'then take 3'.
Pg 207: 'it looks spongey' replaced by 'it looks spongy'.
Pg 217: the paragraph beginning '(*c*) Take shape ...' seems to be in the wrong place. The right place is unclear so it has not been moved or changed.
Pg 238: 'chance may befal' replaced by 'chance may befall'.
Pg 238: 'slides sloping iu' replaced by 'sides sloping in'.
Pg 265: 'Add enough soap' replaced by 'Add enough soup'.
Pg 272: 'oil, vingar' replaced by 'oil, vinegar'.
Pg 279: 'some large ells' replaced by 'some large eels'.
Pg 294: 'an earthern strainer' replaced by 'an earthen strainer'.
Pg 297: 'then scape away' replaced by 'then scrape away'.
Pg 306: 'importance is raised here' replaced by 'importance raised here'.
Pg 310: 'slices fat bacon' replaced by 'slices of fat bacon'.
Pg 315: three instances of 'gridion' replaced by

‘gridiron’.
Pg 319: ‘with any purree’ replaced by ‘with any purée’.
Pg 319: ‘in the cleanisng’ replaced by ‘in the cleansing’.
Pg 326: ‘vension fashion’ replaced by ‘venison fashion’.
Pg 327: ‘lay then in cold’ replaced by ‘lay them in cold’.
Pg 328: ‘red current jelly’ replaced by ‘red currant jelly’.
Pg 332: ‘if nearly cut’ replaced by ‘if neatly cut’.
Pg 332: ‘pair off all’ replaced by ‘pare off all’.
Pg 345: ‘game *pourée*’ replaced by ‘game *purée*’.
Pg 351: ‘a litle grated lemon’ replaced by ‘a little grated lemon’.
Pg 351: ‘with 3 teaspoonsfuls’ replaced by ‘with 3 teaspoonfuls’.
Pg 357: ‘Joint the hair’ replaced by ‘Joint the hare’.
Pg 358: ‘red current jelly’ replaced by ‘red currant jelly’.
Pg 359: ‘they then got more thoroughly basted then when’ replaced by ‘they then get more thoroughly basted than when’.
Pg 368: ‘powered sweet herbs’ replaced by ‘powdered sweet herbs’.
Pg 369: ‘buying vension’ replaced by ‘buying venison’.
Pg 376: ‘it is a yulp’ replaced by ‘it is a pulp’.
Pg 400: ‘begins to thickens’ replaced by ‘begins to thicken’.
Pg 402: ‘4 oz. spong cake’ replaced by ‘4 oz. sponge cake’.
Pg 402: ‘The weight when baked ...’ These two sentences have been muddled by the printer and do not make sense as printed. No change has been made.
Pg 418: ‘noyeau or curacoa’ replaced by ‘noyeau or curaçao’.
Pg 424: ‘all these togther’ replaced by ‘all these together’.
Pg 431: ‘soaked in little’ replaced by ‘soaked in a little’.
Pg 448: ‘slices or Gruyère’ replaced by ‘slices of Gruyère’.
Pg 453: ‘be cut a littlo’ replaced by ‘be cut a little’.
Pg 460: ‘and a spoonfull’ replaced by ‘and a spoonful’.
Pg 464: ‘cardomom seeds’ replaced by ‘cardamom seeds’.
Pg 480: ‘alcohol or 20’ replaced by ‘alcohol for 20’.

Pg 494: ‘and and a good’ replaced by ‘and a good’.
Pg 507: ‘any superflous fat’ replaced by ‘any superfluous fat’.
Pg 562: ‘grisons, weasles, genets’ replaced by ‘grisons, weasels, genets’.
Pg 564: ‘course or tough’ replaced by ‘coarse or tough’.
Pg 572: ‘Johannisberg’ replaced by ‘Johannesberg’.
Pg 602: ‘If therebe not’ replaced by ‘If there be not’.
Pg 630: ‘upon his aquaintance’ replaced by ‘upon his acquaintance’.
Pg 640: ‘Pinapple toast’ replaced by ‘Pineapple toast’.
Pg 641: ‘Pinapple jelly’ replaced by ‘Pineapple jelly’.
Pg 675: ‘the allusion was’ replaced by ‘the illusion was’.
Pg 686: ‘In pantomine and’ replaced by ‘In pantomime and’.
Pg 698: the total ‘380’ which perhaps should be ‘470’ has been left unchanged.
Pg 704: ‘and not dose’ replaced by ‘and not doze’.
Pg 704: ‘sleep in a state’ replaced by ‘sleep is a state’.
Pg 707: ‘nox vomica’ replaced by ‘nux vomica’.
Pg 713: ‘and gives soles’ replaced by ‘and give soles’.
Pg 719: ‘may be subsituted’ replaced by ‘may be substituted’.
Pg 723: ‘salings are irregular’ replaced by ‘sailings are irregular’.
Pg 723: ‘specially tiny’ replaced by ‘specially tidy’.
Pg 727: ‘young man require’ replaced by ‘young man requires’.
Pg 745: ‘the same pnrpose’ replaced by ‘the same purpose’.
Pg 747: ‘knitted wollen’ replaced by ‘knitted woollen’.
Pg 778: ‘as in eyewash’ replaced by ‘as an eyewash’.
Pg 784: ‘with a few stiches’ replaced by ‘with a few stitches’.
Pg 800: ‘or the aliment’ replaced by ‘or the ailment’.
Pg 810: ‘as scalding is’ replaced by ‘as scaling is’.
Pg 824: ‘Valesine often gives’ replaced by ‘Vaseline often gives’.
Pg 824: ‘In the Michigan’ replaced by ‘*(a)* In the Michigan’.

Pg 838: ‘to effects its’ replaced by ‘to effect its’.
Pg 883: ‘not count of’ replaced by ‘not count or’.
Pg 888: ‘If the band brake’ replaced by ‘If the hand brake’.
Pg 898: ‘dropped stiches in’ replaced by ‘dropped stitches in’.
Pg 902: ‘Boook of Needlework’ replaced by ‘Book of Needlework’.
Pg 916: ‘caseine and sugar’ replaced by ‘casein and sugar’.
Pg 935: ‘See also p. 1012.’ This page does not exist in this edition. Pg 954: ‘See also p. 1012.’ This page does not exist in this edition. Pg 962: the heading style for ‘Nuisance’ changed from SmallCap to italic.
Pg 1006: there is no Illustration numbered ‘227’.

*** END OF THE PROJECT GUTENBERG EBOOK SPONS' HOUSEHOLD MANUAL ***

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