FROM

NORTH POLE TO EQUATOR

STUDIES OF WILD LIFE AND SCENES
IN MANY LANDS

BY THE NATURALIST-TRAVELLER

ALFRED EDMUND BREHM

AUTHOR OF "BIRD-LIFE", "TIERLEBEN", ETC. ETC.

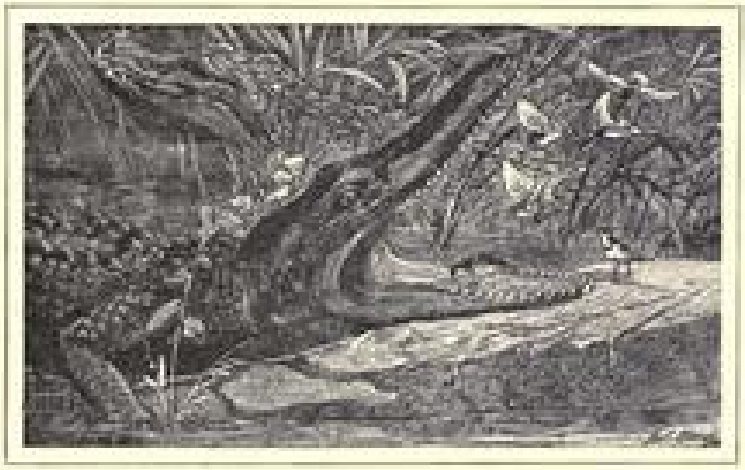
TRANSLATED FROM THE GERMAN BY

MARGARET R. THOMSON

EDITED BY

J. ARTHUR THOMSON, M.A., F.R.S.E.

WITH EIGHTY-THREE ILLUSTRATIONS FROM ORIGINAL DRAWINGS



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GLASGOW AND DUBLIN

1896

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Author of introduction, etc.: Horst Brehm

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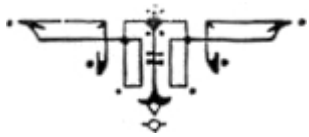


A E Brehm

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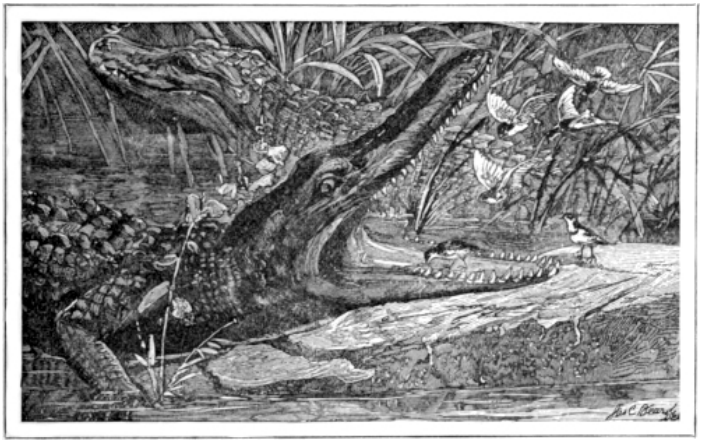
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PREFACE

TO THE GERMAN EDITION.

Six years have passed since the grave at Renthendorf closed over the remains of my esteemed father, whose death—all too early—was as great a loss to Science as to those who loved and honoured him. It was strange that his eventful and adventurous life, in the course of which he visited and explored four quarters of the globe, should have ended at the little spot in green Thuringia where he was born. He had just reached his fifty-fifth year when his lips, so apt in speech, were silenced, and the pen which he held so masterfully dropped from his hand. He was full of great plans as to various works, and it is much to be regretted that the notes which he had collected towards the realization of these were too fragmentary for anyone but their author to utilize. But the manuscripts which he left contained many a treasure, and it seemed to me a duty, both to the author and to all friends of thoughtful observation, to make these available to the reading public.

The following pages form the first book of the kind, and contain the most valuable part of the legacy—Alfred Edmund Brehm's lectures, once so universally popular. I believe that, in giving these pages to the world, I am offering a gift which will be warmly welcomed, and I need add no commendatory words of mine, for they speak adequately for themselves. Writing replaces spoken words very imperfectly, and

my father, who was never tied down to his paper, may often have delivered the same matter in different forms according to the responsiveness of his audience, abbreviating here, expanding there—yet to anyone who has heard him the following pages will recall his presence and the tones of his sonorous voice; everyone will not only recognize in them the individuality of the author of the *Tierleben* (Animal Life) and *Bird Life*, but will learn to know him in a new and attractive side of his character. For it is my father's lectures almost more than any other of his works which show the wealth of his experiences, the many-sidedness of his knowledge, his masterly powers of observation and description, and not least his delicate kindly humour and the sympathetic interpretation of animate and inanimate nature which arose from his deeply poetic temperament.

Therefore I send these pages forth into the world with the pleasant confidence that they will add many to the author's already numerous friends. May they also gain new and unprejudiced sympathizers for the animal world which he loved so warmly and understood so thoroughly; and may they, in every house where the love of literature, and of the beautiful is cherished, open eyes and hearts to perceive the beauty of nature, the universal mother; then will the highest and noblest aim of their author be achieved.

So may all success attend these pages, may they receive a joyful welcome, and wherever they gain an entrance may they remain as a prized possession.

HORST BREHM,

Doctor of Medicine.

BERLIN, *September, 1890*.

PREFATORY NOTE

TO THE ENGLISH TRANSLATION.

It has been a privilege to make available to English readers a book which shows a great naturalist at his best—a book that presents the reader with a series of vivid pictures of wild life and scenery, painted from actual observation, and with all the truth and accuracy that belong to the artist and man of science combined. It consists of a number of papers or articles that were originally read as public lectures and were afterwards collected into a volume that has met with much success in Germany. The subjects treated range over a wide and varied field. Some of them are unfamiliar to the ordinary reader, and besides their inherent interest have the added charm of novelty; others, if more familiar, are here invested with a freshness and charm that such a trained observer and practised writer as the author could alone impart.

To the translation of the German original have been added an introductory essay, showing Brehm's position among naturalist-travellers, an extended table of contents, an appendix containing a number of editorial notes, and an index. The number of pictorial illustrations has also been increased.

For a notice of the Author and his labours see the concluding part of the Introductory Essay.

M. R. T.

J. A. T.

University Hall,

Edinburgh, *December, 1895*.



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INTRODUCTORY ESSAY.

BY J. ARTHUR THOMSON.

BREHM'S PLACE AMONG NATURALIST-TRAVELLERS.

Though Brehm's lectures might well be left, as his son has said, to speak for themselves, it seems useful to introduce them in their English dress with some notes on the evolution of the naturalist-traveller and on Brehm's place in the honourable list; for an adequate appreciation of a book like this depends in part on a recognition of the position it occupies among analogous works, and on having some picture of the illustrious author himself.

In sketching the history of the naturalist-traveller it is not necessary to go very far back; for though it is interesting to recall how men of old followed their migrating herds, as the Lapp or Ostiak does his reindeer, and were led by them to fresh fields and new conquests, or how others followed the salmon down the rivers and became the toilers of the sea, this ancient lore is full of uncertainty, and is, besides, of more moment to the sociologist than to the naturalist. What we attempt here is merely to indicate the various types of naturalist-traveller who have in the course of time succeeded one another in the quest for the new.

I.

The foundations of zoology were laid by Aristotle some three hundred years before Christ, but they

remained unbuilt on for nearly eighteen centuries. Here and there some enthusiast strove unaided, but only a fragmentary superstructure was reared. In fact, men were pre-occupied with tasks of civilization more serious than the prosecution of zoology, though that is not trivial. Gradually, however, great social movements, such as the Crusades and the collapse of Feudalism; great intellectual and emotional movements, such as those of the Renaissance; great inventions, such as that of printing, gave new life to Europe, and zoology shared in the re-awakening. Yet the natural history of the Middle Ages was in great part mystical; fancy and superstition ran riot along paths where science afterwards established order, and, for all practical purposes, the history of zoology, apart from the efforts of a few pioneers, may be said to date from the sixteenth century.

Now, one indubitable factor in the scientific renaissance of the sixteenth century was the enthusiasm of the early travellers, and this stimulus, periodically recurrent, has never failed to have a similar effect—of giving new life to science. But while science, and zoology as a branch of it, has been evolving during the last three centuries, the traveller, too, has shared in the evolution. It is this which we wish to trace.

I. THE ROMANTIC TYPE. Many of the old travellers, from Herodotus onwards, were observant and enthusiastic; most were credulous and garrulous. In days when the critical spirit was young, and verification hardly possible, there could not but be a strong temptation to tell extraordinary “travellers’ tales”. And they did. Nor need we scoff at them loudly, for the type dies hard; every year such tales are told.

Oderico de Pordenone and other mediæval travellers who give some substance to the mythical Sir John de Maundeville were travellers of this genial type. Oderico describes an interesting connecting link between the animal and vegetable kingdom, a literal "zoophyte", the "vegetable lamb", which seems to have been a woolly Scythian fern, with its counterpart in the large fungus which colonials sometimes speak of as the "vegetable sheep". As for the pretended Sir John, he had in his power of swallowing marvels a gape hardly less than that of the great snakes which he describes. But even now do we not see his snakes in at least the picture-books on which innocent youth is nurtured? The basilisk (one of the most harmless of lizards) "sleyeth men beholding it"; the "cocodrilles also sley men"—they do indeed—"and eate them weeping, and they have no tongue". "The griffin of Bactria hath a body greater than eight lyons and stall worthier than a hundred egles, for certainly he will beare to his nest flying, a horse and a man upon his back." He was not readily daunted, Sir John, for when they told him of the lamb-tree which bears lambs in its pods, his British pluck did not desert him, and he gave answer that he "held it for no marvayle, for in his country are trees which bear fruit which become birds flying, and they are good to eate, and that that falleth on the water, liveth, and that that falleth on earth, dyeth; and *they* marvailed much thereat". The tale of the barnacle-tree was a trump card in those days!

Another example of this type, but rising distinctly above it in trustworthiness, was the Venetian Marco Polo, who in the thirteenth century explored Asia from the Black Sea to Pekin, from the Altai to Sumatra, and doubtless saw much, though not quite so much as he describes. He will correct the fables of

his predecessors, he tells us, demonstrating gravely that the unicorn or rhinoceros does *not* allow himself to be captured by a gentle maiden, but he proceeds to describe tailed men, yea, headless men, without, so far as can be seen, any touch of sarcasm. Of how many marvels, from porcupines throwing off their spines and snakes with clawed fore-feet, to the great Rukh, which could bear not merely a poor Sinbad but an elephant through the air, is it not written in the books of Ser Marco Polo of Venezia?

II. THE ENCYCLOPÆDIST TYPE.—This unwieldy title, suggestive of an omnivorous hunger for knowledge, is conveniently, as well as technically, descriptive of a type of naturalist characteristic of the early years of the scientific renaissance. Edward Wotton (d. 1555), the Swiss Gesner (d. 1565), the Italian Aldrovandi (d. 1605), the Scotsman Johnson (d. 1675), are good examples. These encyclopædists were at least impressed with the necessity of getting close to the facts of nature, of observing for themselves, and we cannot blame them much if their critical faculties were dulled by the strength of their enthusiasm. They could not all at once forget the mediæval dreams, nor did they make any strenuous effort to rationalize the materials which they so industriously gathered. They harvested but did not thrash. Ostrich-like, their appetite was greater than their power of digesting. A hasty judgment might call them mere compilers, for they gathered all possible information from all sources, but, on closer acquaintance, the encyclopædists grow upon one. Their industry was astounding, their ambition lofty; and they prepared the way for men like Ray and Linnæus, in whom was the genius of order.

Associated with this period there were many

naturalist-travellers, most of whom are hardly now remembered, save perhaps when we repeat the name of some plant or animal which commemorates its discoverer. José d'Acosta (d. 1600), a missionary in Peru, described some of the gigantic fossils of South America; Francesco Hernanded published about 1615 a book on the natural history of Mexico with 1200 illustrations; Marcgrav and Piso explored Brazil; Jacob Bontius, the East Indies; Prosper Alpinus, Egypt; Belon, the Mediterranean region; and there were many others. But it is useless to multiply what must here remain mere citations of names. The point is simply this, that, associated with the marvellous accumulative industry of the encyclopædists and with the renaissance of zoology in the sixteenth and seventeenth centuries, there were numerous naturalist-travellers who described what they saw, and not what they fancied might be seen.

III. THE GENERAL NATURALIST TYPE.—As Ray (d. 1705) and Linnæus (d. 1778) began to reduce to order the accumulations of the encyclopædists, and as the anatomists and physiologists began the precise study of structure and function, the naturalist-travellers became more definite in their aims and more accurate in their observations. Linnæus himself sent several of his pupils on precisely scientific journeys. Moreover, in the eighteenth century there were not a few expeditions of geographical and physical purpose which occasionally condescended to take a zoologist on board. Thus Captain Cook was accompanied on his first voyage (1768-1781) by Banks and Solander, and on his second voyage by the Forsters, father and son. On his third voyage he expressly forbade the intrusion of any naturalist, but from all that we can gather it would have been better for himself if he had not done so. In these combined

voyages there was nascent the idea of co-operative expeditions, of which the greatest has been that of the *Challenger*.

In illustration of travellers who were not specialists, but in varying degrees widely interested naturalists, it will be sufficient to cite three names—Thomas Pennant, Peter Pallas, and, greatest of all, Alexander von Humboldt.

Of Thomas Pennant (1726-1798) we may note that he was one of the early travellers in Scotland, which was then, as he says, almost as unknown as Kamchatka, and that he extorted from Dr. Johnson the admission, “He’s a Whig, sir, a sad dog; but he’s the best traveller I ever read; he observes more things than any one else does”. He knew Buffon and corresponded with Linnæus, and was the author of several works on British and North American zoology. His so-called *Arctic Zoology* is mainly a sketch of the fauna in the northern regions of North America, begun “when the empire of Great Britain was entire, and possessed the northern part of the New World with envied splendour”. His perspective is excellent! the botanist, the fossilist, the historian, the geographer must, he says, accompany him on his zoological tours, “to trace the gradual increase of the animal world from the scanty pittance given to the rocks of Spitzbergen to the swarms of beings which enliven the vegetating plains of Senegal; to point out the causes of the local niggardness of certain places, and the prodigious plenty in others”. It was about the same time (1777) that E. A. W. Zimmermann, Professor of Mathematics at Brunswick, published a quarto in Latin, entitled *Specimen Zoologiæ Geographicæ Quadrupedum*, “with a most curious map”, says Pennant, “in which is given the name of

every animal in its proper climate, so that a view of the whole quadruped creation is placed before one's eyes, in a manner perfectly new and instructive". It was wonderful then, but the map in question looks commonplace enough nowadays.

Peter Simon Pallas (1741-1811) was a student of medicine and natural science, and did good work as a systematic and anatomical zoologist. He was the first, we believe, to express the relationships of animals in a genealogical tree, but his interest for us here lies in his zoological exploration of Russia and Siberia, the results of which are embodied in a series of bulky volumes, admirable in their careful thoroughness. We rank him rather as one of the forerunners of Humboldt than as a zoologist, for his services to ethnology and geology were of great importance. He pondered over the results of his explorations, and many of his questionings in regard to geographical distribution, the influence of climate, the variation of animals, and similar problems, were prophetic of the light which was soon to dawn on biological science.

Alexander von Humboldt (1769-1859) was undoubtedly one of the greatest naturalists of the century which his life well nigh covered. Geologist, botanist, zoologist, and more, he was almost the last of the all-round naturalists. In this indeed lay his weakness as well as his strength, for great breadth of view is apt to imply a lack of precision as to details. In boyhood, "when life", as he says, "appears an unlimited horizon", he had strong desires after travel, which were in part gratified by excursions with George Forster and by Swiss explorations with the sagacious old geographer Leopold von Buch. These, however, only whetted his enthusiasm for

journeys with a larger radius. At length, after many discouragements, he sailed in 1799 from Corunna, with Aimé Bonpland as companion, and spent five years in exploring the equinoctial regions of the New World. The full record of his voyage one cannot be expected to read, for there are about thirty volumes of it in the complete edition, but what we should all know is Humboldt's *Personal Narrative*, in which the chief results of his explorations are charmingly set forth. Later in life (1829) he went with Ehrenberg and Rose to North Asia, and his crowning work was the publication of *Cosmos* (1845-58), which originated in a series of lectures delivered in the University of Berlin. In front of that building his statue now stands, along with that of his not less famous brother Wilhelm.

We think of Humboldt not so much as an early explorer of tropical America, nor because he described the habits of the condor and made observations on electric eels, nor because he furnished Cuvier and Latreille with many new specimens, but rather as a magnificent type of the naturalist-traveller, observant, widely interested, and thoughtful, who pointed forward to Darwin in the success with which he realized the complexity of inter-relations in nature. Many a traveller, even among his contemporaries, discovered more new plants and animals than the author of *Cosmos*, but none approached him as an all-round naturalist, able to look out on all orders of facts with keenly intelligent eyes, a man, moreover, in whom devotion to science never dulled poetic feeling. His work is of real importance in the history of geographical distribution, for he endeavoured to interpret the peculiarities of the various faunas in connection with the peculiar environment of the different regions—a

consideration which is at least an element in the solution of some of the problems of distribution. It is especially important in regard to plants, and one may perhaps say that Humboldt, by his vivid pictures of the vegetable "physiognomy" of different regions, and by his observations on the relations between climate and flora, laid the foundations of the scientific study of the geographical distribution of plants. We find in some of his *Charakterbilder*, for example in his *Views of Nature*, the prototype of those synthetic pictures which give Brehm's popular lectures their peculiar interest and value.

IV. THE SPECIALIST TYPE.—It would say little for scientific discipline if it were true that a man learned, let us say, in zoology, could spend years in a new country without having something fresh to tell us about matters outside of his specialism—the rocks, the plants, and the people. But it is not true. There have been few great travellers who have been narrow specialists, and one might find more than one case of a naturalist starting on his travels as a zoologist and returning an anthropologist as well. Yet it is evident enough that few men can be master of more than one craft. There have been few travellers like Humboldt, few records like Darwin's *Voyage of the Beagle* (1831-6). Hence we recognize more and more as we approach our own day that naturalist-travellers have been successful either as specialists, or, on the other hand, in so far as they have furnished material for generalization (Type V.). The specialism may of course take various forms: a journey may be undertaken by one who is purely an ornithologist, or it may be undertaken with one particular problem in view, or it may be organized, like the *Challenger* expedition, with the co-operation of a number of specialists.

The French took the lead in organizing zoological expeditions. As early as 1800 they sent out the *Géographe*, *Naturaliste*, and *Casuarina*, zoologically conducted by Bury de St. Vincent, Péron, and Lesueur. Further expeditions followed with Quoy and Gaimard, Lesson, Eydoux, Souleyet, Dupetit-Thouars, and others as zoological guides. The English whaling industry gave early opportunity to not a few naturalists; and it is now a long time since Hooker went with Sir James Ross on the South Polar expedition and Huxley went on the *Rattlesnake* to the Australian Barrier Reef. The Russians were also active, one of the more famous travellers being Kotzebue, who was accompanied on one of his two voyages (1823-6) round the world by Chamisso and Eschscholtz. In the early part of this century the Americans were also enterprising, the work of Dana being perhaps the most noteworthy. It would require several pages to mention even the names of the naturalists who have had their years of wandering, and have added their pages and sketches to the book of the world's fauna and flora, but such an enumeration would serve no useful purpose here.

There is, however, one form of zoological exploration which deserves a chapter to itself, that is the exploration of the Deep Sea. Several generations of marine zoologists had been at work before a zoology of the deep sea was dreamed of even as a possibility. It is true that in 1818 Sir John Ross had found a star-fish (*Astrophyton*) at a depth of 800-1000 fathoms, but this was forgotten; and in 1841 Edward Forbes dredged to no purpose in fairly deep water in the Ægean Sea. Indeed those who thought about the great depths at all deemed it unlikely that there could be life there, and if it had not been for the practical affair of laying the ocean

cables, we might possibly have been still in ignorance of the abyssal fauna.

But the cables had to be laid—no easy task—and it became important to know at least the topography of the depths. Cables broke, too, and had to be fished up again, and when that which ran between Sardinia and Algiers was lifted, in 1860, from a depth of 60-1000 fathoms, no less than 15 different species of animals were found on it. This was a discovery to fire enthusiasm, and Britain led the way in following it up. In 1868 Wyville Thomson began his explorations on the *Lightning*, and proved that most of the types of backboneless animals were represented at depths of at least 600 fathoms. Soon followed the similar cruise of the *Porcupine*, famous *inter alia* for the discovery of Bathybius, which many sceptics regard as a mare's nest. From various quarters the quest after the deep-sea fauna began to be prosecuted.

It is now more than a score of years since the world-famous *Challenger* sailed from Portsmouth with Wyville Thomson, Moseley, John Murray, and Willemoes-Suhm as naturalists. During three and a half years the explorers cruised over 68,900 nautical miles, crossed the Atlantic no less than five times, reached with the long arm of the dredge to depths equal to reversed Himalayas, raised treasures of life from over 500 stations, and brought home spoils over which the savants of Europe have hardly ceased to be busy, and the records of which, now completed under Dr. Murray's editorship, form a library of about forty huge volumes.

The *Challenger* expedition was important not only in itself, but in the wave of scientific enthusiasm which it raised. From Germany went forth the *Gazelle*;

Norway sent the *Vöringen* to Spitzbergen; America has despatched the *Tuscarora*, the *Blake*, and the *Albatross*; from Sweden the *Vega* and the *Sophia* sailed to Arctic seas: Count Liechtenstein's yacht *Hertha* explored Adria; the Prince of Monaco's *Hirondelle* darted hither and thither; the French sent forth the *Travailleur* and *Talisman*; the Italians the *Vettor Pisani* and *Washington*; Austria and Hungary organized the *Poli* for work in the Mediterranean; the Germans again have recently specialized in investigating the Plankton, or surface-life of the ocean; and so, with a range even wider than we have indicated, the wave of enthusiasm has spread, one of the latest barques which it has borne being the Prince of Monaco's, which was specially built for marine exploration.

Specialism in travelling has, of course, gone much further. Thus to cite only three examples, we have Semper's zoological work on the Philippines, the researches of the Sarasins in Ceylon, and the first results of Semon's recent visit to Australasia, all of them passing far beyond records of zoological exploration into monographs on the structure and development of characteristic members of the fauna of these countries. And it is no exaggeration to say that private enterprise, Royal Society subsidies, British Association grants, and the like have sent scores of naturalists from Britain half round the world in order to solve special problems, as to the larva of a worm, for instance, or as to the bird-fauna of some little island.

V. THE BIOLOGICAL TYPE. In some ways the most important scientific journey ever made was Darwin's voyage on the *Beagle*. It was the Columbus-voyage of zoology. There is a great deal to be said for the

Wanderjahre of the old students, for to have time to think is one of the conditions of intellectual progress. Not that the *Beagle* voyage was one of idleness, but it gave Darwin, at the age of twenty-two, a wealth of impressions and some measure of enforced leisure wherein to gloat intellectually over what he saw. He has said, indeed, that various sets of facts observed on his voyage, such as the aspect of the Galapagos Islands, started him on paths of pondering which eventually led to his theory of the origin of species.

We take Darwin as the type of the biological, or, we may almost say, evolutionist travellers; but he must share this position with his magnanimous colleague, Alfred Russel Wallace, whose journeyings were more prolonged and not less fruitful. Before Darwin the naturalist-travellers had been, for the most part, describers, systematists, and analysts, and it goes without saying that such work is indispensable, and must continue; but in the light of the conception of evolution all things had become new; the present world of life was henceforth seen as a stage in a process, as a passing act in a drama, not merely as a phantasmagoria to be admired and pictured, but as a growth to be understood.

It is within this group of biological travellers, which includes such men as Bates and Belt, that we must also place Brehm. For although he perhaps had not the firmness of grasp or the fineness of touch necessary for the successful handling of the more intricate biological problems, especially those which centre around the factors of evolution, he had unusual power as an observer of the habits of animals. His contributions, which must be judged, of course, from his great *Tierleben*,[A] as well as from his popular lectures, were rather to the old natural

history than to biology in the stricter sense. His works show that he was as much interested in men as in beasts, that he was specially an ornithologist, that he was beneath the naturalist a sportsman; but so scores of other travellers have been. His particular excellence is his power of observing and picturing animal life *as it is lived in nature*, without taking account of which biology is a mockery and any theory of evolution a one-sided dogma.

> [A] This well-known treasure-house of Natural History appeared originally in 1863-69 in six big volumes, which have since increased to ten. Even the first edition took a foremost place among similar works on the Natural History of Animals. With a wealth of personal observation on the habits of animals in their native haunts, it combined the further charm of very beautiful pictorial illustration.

Let us now bring together briefly the outstanding facts of this historical outline.

In early days men followed their wandering herds or pursued their prey from region to region, or were driven by force of competition or of hunger to new lands. Many of the most eventful journeys have been among those which had to be taken.

I. Gradually, intellectual curiosity rather than practical need became the prompter, and men travelled with all manner of mixed aims seeking what was new. When they returned they told travellers' tales, mostly in as good faith as their hunting ancestors had done in the caves of a winter night, or as the modern traveller does after dinner still. We pass insensibly from Herodotus to Marco Polo, from "Sir John Maundeville" to Mr. X. Y. Z., whose book was published last spring. This is the

type romantic.

II. But when science shared in the renaissance there ensued the extraordinary industry of the encyclopædist school, with which many naturalist-travellers were associated. Some of these were great men—perhaps Gesner was greatest of all—but all had the defects of their qualities. They gathered into stackyards both wheat and tares, and seldom found time to thrash. The type survives afield in the mere collector, and its degenerate sedentary representatives are called compilers.

III. Just as Buffon represents the climax of the encyclopædists, and is yet something more, for he thrashed his wheat, so Humboldt, while as ambitious as any encyclopædist traveller, transcended them all by vitalizing the wealth of impressions which he gathered. He was *the* general naturalist-traveller, who took all nature for his province, and does not seem to have been embarrassed. Of successful representatives of this type there are few, since Darwin perhaps none.

IV. Meanwhile Linnæus had brought order, Cuvier had founded his school of anatomists, Haller had re-organized physiology, the microscope had deepened analysis, and zoology came of age as a specialism. Henceforth travellers' tales were at a discount; even a Humboldt might be contradicted, and platitudinarian narratives of a voyage round the world ceased to find the publisher sympathetic or the public appetized. The naturalist-traveller was now a zoologist, or a botanist, or an ornithologist, or an entomologist; at any rate, a specialist. But it was sometimes found profitable to work in companies, as in the case of the *Challenger* expedition.

V. Lastly, we find that on the travellers, too,

"evolution" cast its spell, and we have Darwin and Wallace as the types of the biological travellers, whose results go directly towards the working out of a cosmology. From Bates and Belt and Brehm there is a long list down to Dr. Hickson, *The Naturalist in Celebes*, and Mr. Hudson, *The Naturalist in La Plata*. Not, of course, that most are not specialists, but the particular interest of their work is biological or bionomical.

I have added to this essay a list of some of the most important works of the more recent naturalist-travellers with which I am directly acquainted, being convinced that it is with these that the general, and perhaps also the professional student of natural history should begin, as it is with them that his studies must also end. For, not only do they introduce us, in a manner usually full of interest, to the nature of animal life, but they lead us to face one of the ultimate problems of biology—the evolution of faunas.

II.

Alfred Edmund Brehm (1829-1884) was born at Unter-Renthendorf in Sachsen-Weimar, where his father—an accomplished ornithologist—was pastor. Brought up among birds, learning to watch from his earliest boyhood, accompanying his father in rambles through the Thuringian forest, questioning and being questioned about all the sights and sounds of the woods, listening to the experts who came to see the famous collection in the *Pfarr-haus*, and to argue over questions of species with the kindly pastor, young Brehm was almost bound to become a naturalist. And while the father stuffed his birds in the evenings the mother read aloud from Goethe and Schiller, and her poetic feeling was echoed in her

son. Yet, so crooked are life's ways, the youth became an architect's apprentice, and acted as such for four years!

But an opportunity presented itself which called him, doubtless most willing, from the desk and workshop. Baron John Wilhelm von Müller, a keen sportsman and lover of birds, sought an assistant to accompany him on an ornithological expedition to Africa, and with him the youth, not yet out of his teens, set forth in 1847. It was a great opportunity, but the price paid for it was heavy, for Brehm did not see his home again for full five years, and was forced to bear strains, to incur responsibilities, and to suffer privations, which left their mark on him for life. Only those who know the story of his African journeys, and what African travel may be with repeated fevers and inconsiderately crippled resources, can adequately appreciate the restraint which Brehm displays in those popular lectures, here translated, where there is so much of everything but himself.

After he returned, in 1852, rich in spoils and experience, if otherwise poor, he spent several sessions at the universities of Jena and Vienna. Though earnestly busy in equipping himself for further work, he was not too old to enjoy the pleasures of a student life. When he took his doctor's degree he published an account of his travels (*Reiseskizzen aus Nordostafrica.* Jena, 1855, 3 vols.).

After a zoological holiday in Spain with his like-minded brother Reinhold—a physician in Madrid—he settled for a time in Leipzig, writing for the famous "*Gartenlaube*", co-operating with Rossmässler in bringing out *Die Tiere des Waldes*, expressing his very self in his *Bird-Life* (1861), and teaching in the

schools. It was during this period that he visited Lapland, of whose bird-bergs the first lecture gives such a vivid description. In 1861 he married Matthilde Reiz, who proved herself the best possible helpmeet.

In 1862, Brehm went as scientific guide on an excursion to Abyssinia undertaken by the Duke of Coburg-Gotha, and subsequently published a characteristic account of his observations *Ergebnisse einer Reise nach Habesch*: Results of a Journey to Abyssinia (Hamburg, 1863). On his return he began his world-famous *Tierleben* (Animal Life), which has been a treasure-house to so many naturalists. With the collaboration of Professors Taschenberg and Oscar Schmidt, he completed the first edition of this great work, in six volumes, in 1869.

Meanwhile he had gone to Hamburg as Director of the Zoological Gardens there, but the organizing work seems to have suited him ill, and he soon resigned. With a freer hand, he then undertook the establishment of the famous Berlin Aquarium, in which he partly realized his dream of a microcosmic living museum of nature. But, apart from his actual work, the business-relations were ever irksome, and in 1874 he was forced by ill-health and social friction to abandon his position.

After recovery from serious illness he took up his rôle as popular lecturer and writer, and as such he had many years of happy success. A book on Cage Birds (1872-1876), and a second edition of the *Tierleben* date from this period, which was also interrupted by his Siberian journeys (1876) and by numerous ornithological expeditions, for instance to Hungary and Spain, along with the Crown Prince Rudolph of Austria. But hard work, family sorrows,

and finally, perhaps, the strain of a long lecturing tour in America aged Brehm before his time, and he died in 1884.

For these notes I am indebted to a delightful appreciation of Brehm which Ernest Krause has written in introduction to the third edition of the *Tierleben*, edited by Pechuel-Loesche, and as regards the naturalist's character I can only refer to that essay. As to his published work, however, every naturalist knows at least the *Tierleben*, and on that a judgment may be safely based. It is a monumental work on the habits of animals, founded in great part on personal observation, which was always keen and yet sympathetic. It is a classic on the natural history of animals, and readers of Darwin will remember how the master honoured it.

Doubtless Brehm had the defects of his qualities. He was, it is said, too generous to animals, and sometimes read the man into the beast unwarrantably. But that is an anthropomorphism which easily besets the sympathetic naturalist. He was sometimes extravagant and occasionally credulous. He did not exactly grip some of the subjects he tackled, such as, if I must specify, what he calls "the monkey-question".

It is frankly allowed that he was no modern biologist, erudite as regards evolution-factors, nor did he profess to attempt what is called zoological analysis, and what is often mere necrology, but his merit is that he had seen more than most of us, and had seen, above all, the naturalist's supreme vision—the vibrating web of life. And he would have us see it also.

III.

The success of the pictures which Brehm has given us —of bird-bergs and tundra, of steppes and desert, of river fauna and tropical forest—raises the wish that they had been complete enough to embrace the whole world. As this ideal, so desirable both from an educational and an artistic standpoint, has not been realized by any one volume, we have ventured to insert here a list of some more or less analogous English works by naturalist-travellers, sportsmen, and others—

Adams, A. Leith. *Notes of a Naturalist in the Nile Valley and Malta* (Edinburgh, 1870).

Agassiz, A. *Three Cruises of the "Blake"* (Boston and New York, 1888).

Baker, S. W. *Wild Beasts and their Ways: Reminiscences of Europe, Asia, Africa, and America* (London, 1890).

Bates, H. W. *Naturalist on the Amazons* (6th Ed. London, 1893).

Belt, T. *Naturalist in Nicaragua* (2nd Ed. London, 1888).

Bickmore, A. S. *Travels in the East Indian Archipelago* (1868).

Blanford, W. T. *Observations on the Geology and Zoology of Abyssinia* (London, 1870).

Bryden, H. A. *Gun and Camera in Southern Africa* (London, 1893). *Kloof and Karroo* (1889).

Burnaby, F. *A Ride to Khiva* (8th Ed. London, 1877).

Buxton, E. N. *Short Stalks, or Hunting Camps, North, South, East, and West* (London, 1893).

Chapman, A. and C. M. Buck. *Wild Spain* (London, 1892).

Cunningham, R. O. *Notes on the Natural History of the Straits of Magellan* (Edinburgh, 1871).

Darwin, C. *Voyage of the "Beagle"* (1844, New Ed. London, 1890).

Distant, W. L. *A Naturalist in the Transvaal* (London, 1892).

Drummond, H. *Tropical Africa* (London, 1888).

Du Chaillu, P. B. *Explorations and Adventures in Equatorial Africa* (London, 1861). *Ashango Land* (1867).

Eha. *A Naturalist on the Prowl, or in the Jungle* (London, 1894).

Forbes, H. O. *A Naturalist's Wanderings in the Eastern Archipelago* (London, 1885).

Guillemard. *Cruise of the "Marchesa"* (London, 1886).

Heilprin, A. *The Bermuda Islands* (Philadelphia, 1889).

Hickson, S. J. *A Naturalist in North Celebes* (London, 1889).

Holub, Emil. *Seven Years in South Africa* (1881).

Hudson, W. H. *The Naturalist in La Plata* (London, 1892). *Idle Days in Patagonia* (London, 1893).

Humboldt, A. von. *Personal Narrative of Travels to the Equinoctial Regions of America.*

Views of Nature (Trans. 1849). *Cosmos* (Trans. 1849-58).

Johnston, H. H. *Kilima Ndjaro Expedition* (1885).

Kingsley, C. *At last! A Christmas in the West Indies* (1889).

Lumholtz. *Among Cannibals* (London, 1889).

Moseley, H. N. *Notes by a Naturalist on the "Challenger"* (London, 1879. New Ed. 1892).

Nordenskiöld, A. E. *Voyage of the "Vega"* (London, 1881).

Oates, F., Ed. by C. G. Oates. *Matabele Land, the Victoria Falls, a Naturalist's Wanderings in the Interior of South Africa* (1881).

Phillipps-Wolley. *Big-Game Shooting* (Badminton Libr. London, 1893).

Rodway, J. *In the Guiana Forest* (London, 1894). *British Guiana* (London, 1893).

Roosevelt, Th., and G. B. Grinell. *American Big-Game Hunting* (Edinburgh, 1893).

Schweinfurth, G. *The Heart of Africa* (1878).

Seebohm, H. *Siberia in Europe* (London, 1880), *Siberia in Asia* (London, 1882).

Selous, F. C. *A Hunter's Wanderings* (1881). *Travel and Adventure in South-East Africa* (London, 1893).

Sibree, Rev. J. *The Great African Island* (1879).

Solymos, B. (B. E. Falkenberg). *Desert Life* (London, 1880).

Stanley, H. M. *How I Found Livingstone* (1872, New Ed. 1885). *The Congo* (1885). *Through the Dark Continent* (1890). *In Darkest Africa* (1890).

Swayne, H. G. C. *Seventeen Trips through Somaliland* (London, 1895).

Tennent, J. E. *Natural History of Ceylon* (London, 1861).

Thomson, Wyville. *The Depths of the Sea* (London, 1873). *Narrative of the Voyage of the "Challenger"* (1885). And, in this connection, see S. J. Hickson. *Fauna of the Deep Sea* (London, 1894).

Tristram, H. B. *The Land of Israel* (1876). *The Land of Moab* (1873). *The Great Sahara* (1860).

Wallace, A. R. *Malay Archipelago* (London 1869). *Tropical Nature* (1878). *Island Life* (1880). *Travels on the Amazon and Rio Negro* (1889).

Waterton, Ch. *Wanderings in South America* (Ed. by J. G. Wood, 1878).

Woodford, C. M. *Naturalist among the Head-hunters* (London, 1890).

FROM

NORTH POLE TO EQUATOR.

THE BIRD-BERGS OF LAPLAND.

"WHEN the Creator of the worlds had made the earth, best loved of all, and was rejoicing in His perfect work, the devil was seized with a desire to bring it all to nought. Not yet banished from heaven, he lived among the archangels in the abodes of the blessed. Up to the seventh heaven he flew, and, seizing a great stone, hurled it with might down on the earth exulting in the beauty of its youth. But the Creator saw the ruthless deed, and sent one of His archangels to avert the evil. The angel flew even more swiftly than the stone to the earth beneath, and succeeded in saving the land. The huge stone plunged thundering into the sea, and hissing waves flooded all the shores for many a mile. The fall shattered the crust of the stone, and thousands of splinters sank on either side, some disappearing into the depths, and some rising above the surface, bare and bleak like the rock itself. Then God took pity, and in His infinite goodness resolved to clothe even this naked rock with life. But the fruitful soil was all but exhausted in His hand; there remained scarce enough to lay a little here and there upon the stone."

So runs an ancient legend still current among the Lapps. The stone which the devil threw is Scandinavia; the splinters which fell into the sea on either side are the skerries which form a richly varied wreath around the peninsula. The rents and cracks in the rock are the fjords and the valleys; the sprinkling of life-giving soil which fell from the gracious Creator's hand forms the few fertile tracts which Scandinavia possesses. To appreciate the full depth and meaning of the childish story one must one's self have visited Scandinavia, and especially Norway, have steered a boat among the skerries, and have sailed round the country from the extreme south to the farthest north. Marvellous, indeed, is the country; marvellous are its fjords; still more marvellous is the encircling wreath of islands and reefs.

Scandinavia is an alpine country like Switzerland and the Tyrol, yet it differs in a hundred ways from both of these. Like our Alps it has lofty mountains, glaciers, torrents, clear, still alpine lakes, dark pine and fir forests low down in the gorges, bright green birch woods on the heights, far-stretching moors—or more strictly tundras—on the broad shoulders of the mountains, log-huts on the slopes, and the huts of the cowherds in the upland valleys. And yet all is very different from our Alps, as is obvious to anyone who has seen both. The reason of this difference lies in the wonderful way in which two such grand and impressive features of scenery as lofty mountains and the sea are associated and harmonized.

The general aspect of Scandinavia is at once grave and gay. Stern grandeur and soft beauty go hand in hand; gloom alternates with cheerfulness; with the dead and disquieting is linked the living and

exhilarating. Black masses of rock rear themselves perpendicularly out of the sea, rise directly from the deeply-cut fjords, and, riven and cleft, tower precipitously upwards and lean threateningly over. On their heads lie masses of ice stretching for miles, covering whole districts and scaring away all life save the torrents to which they themselves have given birth. These torrents spread themselves everywhere in ribbons of silver over the dark masses, and not only give pleasure to the eye, but murmur to the ear the sublime melody of the mountains. They rush down through every cleft to the depths below, they burst forth from every gorge, or plunge in mad career from rock to rock, forming waterfall after waterfall, and awakening echoes from the farthest mountain sides. These rushing mountain-streams which hurry down to the valley through every channel, the gleaming bands of water on every wall of rock, the ascending smoke-like spray which betrays the most secluded falls—these call forth life even in the most dread wilderness, in places where otherwise nought can be seen but rocks and sky—and they are most truly characteristic of the scenery of the interior.

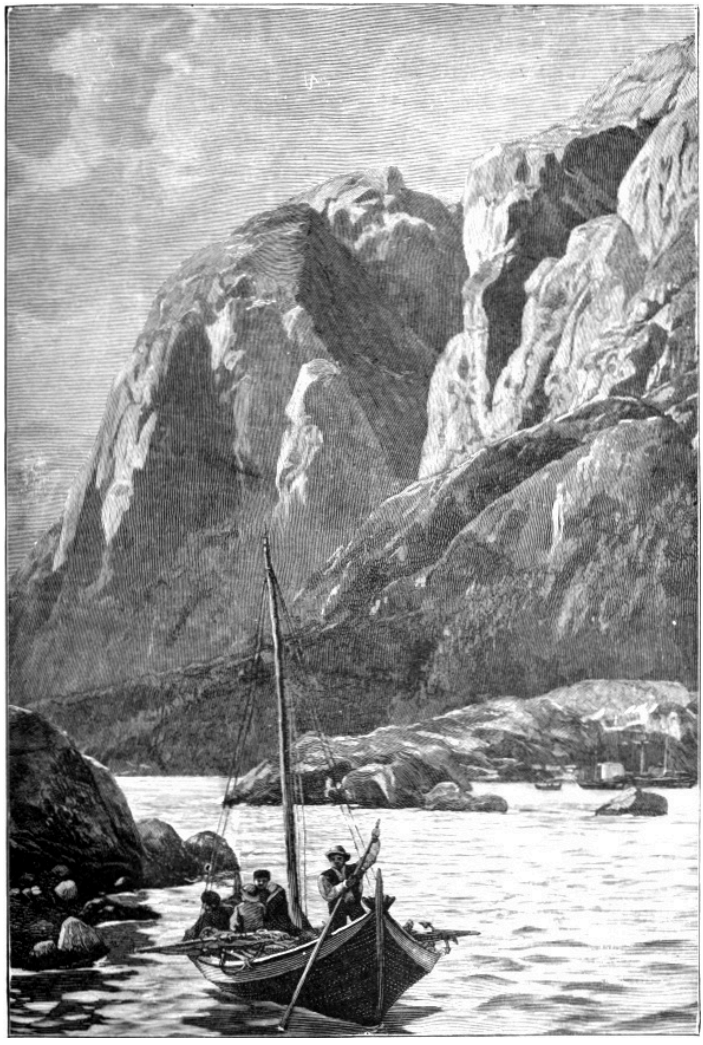


Fig. 1.—Scene on the Sogne Fjord, Norway.

But, majestic as this beauty is, bewildering and overwhelming as are the fjords with their precipitous walls, their ravines and valleys, headlands and peaks, they are yet less characteristic than the islands and skerries lying out in the sea, stretching from the

south of the country up to the far north, and forming a maze of bays, sounds, and straits such as can hardly be seen elsewhere in the wide world.

The larger islands reproduce more or less faithfully the characters of the mainland; the smaller ones and the skerries present, under all circumstances, an aspect of their own. But, as one travels towards the north, this aspect changes more or less with every degree of latitude. Like the sea, the islands lack the richness of the south, but are, nevertheless, by no means devoid of beauty. Especially in the midnight hours, when the low midsummer sun stands large and blood-red on the horizon, its veiled brilliance reflected alike from the ice-covered mountain-tops and from the sea, they have an irresistible charm. This is enhanced by the homesteads which are dotted everywhere over the landscape—dwellings built of wood and roofed with turf, glowing in a strange, blood-red colour which contrasts sharply with the green turf roof, the black darkness of the adjacent mountain-side, and the ice-blue of the glaciers in the background of the picture.

The southerner remarks, with some surprise, that these homesteads become larger, handsomer, and more roomy the farther north he travels; that, though no longer surrounded by fields, but at the most by small gardens, they far excel in size and equipment the hut-like buildings of southern Scandinavia; and that the most pretentious of all may be on comparatively small islands, where the rocks are covered only with turf, and where not even a little garden can be won from the inhospitable soil.

The seeming riddle is solved when we remember that in Norland and Finland it is not the land but the sea that is ploughed; that there men do not sow and

wield the scythe in summer, but reap in midwinter without having sowed; that it is in the months in which the long night holds its undisputed sway, when the light of the sun has given place to that of the moon, and the rosy flush of dawn and sunset to the glow of the Northern Lights, that the dwellers in the far north gather in the rich harvest of the sea.

About the time of the autumnal equinox strong men are preparing themselves all along the coasts of Norway to secure the harvest of the North. Every town, every village, every hamlet sends one or more well-manned ships to the islands and skerries within the Polar Circle, to anchor for months in every suitable bay. Making the ships or the homesteads on shore their head-quarters, the fishermen proceed to gather in the abundant booty. In the height of summer the whole country is still and deserted, but in winter the bays, islands, and sounds are teeming with busy men, and laborious hands are toiling night and day. Spacious as the dwelling-houses appear, they cannot contain the crowds of people who have assembled; many must remain in the ships, or even seek a rough-and-ready shelter in rudely-constructed turf-covered huts on the shore.

The bustle is at its height about the time of the winter solstice, when we celebrate our Christmas, and the Norsemen their Yule festival. For weeks the sea has been yielding its treasures. Impelled by the strongest impulse which moves living beings, guided by irresistible instinct to sow the seed of future generations, there rise from the depths of the sea innumerable shoals of fishes—cod, haddock, and the like. They ascend to the upper strata of the water, approach the coasts, and throng into the straits, sounds, and fjords in such numbers that they cover

the surface of the sea for many miles. Animated, almost maddened, by one impulse, the fish swim so thickly that the boat has literally to force a way among them, that the overweighted net baffles the combined strength of the fishermen or breaks under its burden, that an oar placed upright among the densely packed crowd of swimmers remains for a few moments in its position before falling to one side.[1] Wherever the rocky islands are washed bare by the raging high tides, from the mean tide-mark to the lower edge of the turf which covers their summits, the naked rocks are covered by an unbroken ring of fish split open and laid out to dry, while trestles are also erected that other fish may be exposed for the same purpose to the sharp and drying air. From time to time the rocks and frames are cleared of dried fish, which are packed in bundles and stored in sheds, but only that room may be found for others which in the meantime have been caught and prepared.

For months the bustle continues, and the traffic is uninterrupted; for months the North continues to exchange its treasures with the South. Then in the days when about noon a clear light in the south heralds the coming of the sun still hidden, or when the first rays of sunlight fall for a brief space upon the land, the rich catch comes gradually to an end. The dried cod and ling are carried from the storing sheds to the ships, all available space from keel to deck is filled up, and the fishermen prepare to journey homewards, or abroad into the wide world. One ship after another hoists its brown-edged sails and steers away.

The North becomes quieter again, more deserted the land, desolate the sea. At last, by the time of the

spring equinox, all the migrant fishermen have left the fishing grounds, and all the fish have returned to the depths of the sea. But the sea is already sending forth other children to people afresh the straits and sounds, and along with them the skerries and islands; and soon from those same cliffs, at whose base there was but lately all the bustle of the winter, millions of bright bird eyes look down upon the waves.

It is a deeply-affecting trait in the life of all true sea-birds that only two causes can move them to visit the land: the joyous spring-time sense of new-awakening love, and the mournful foreboding of approaching death. Not even Winter with its long night, its cold, and its storms can drive them to the land; they are proof against all the terrors of the North, and seek their food upon or under the waves; not even the threatening jaws of voracious fish scare them ashore. They may alight occasionally, but only for a short time, often on a solitary island in the sea, to oil their feathers more thoroughly than can be done in the water. But when, with the sun's first brightness, love stirs in their breasts, all, old and young alike, though they may have to swim and fly thousands of miles, strive to reach the place where they themselves first saw the light of day. And if, in mid-winter, months after the breeding-places have been left desolate, a sea-bird feels death in his heart, he hastens as long as his strength holds out, that he may, if possible, die in the place where he was cradled.

The annual assembling of innumerable birds at the breeding-places fills these for several months with a most marvellous life. The communities differ like the sea-birds themselves, and the places, or *bergs* (as the Norsemen call them), which they people vary also. While some choose only those reefs which rise just

above the high-tide mark, and bear no more vegetation than is enough to provide scanty material for the nest hollowed out in the sea-weed heaps, others select islands which rear themselves straight and steep for several hundred feet above the sea, and are either rich in shelves, ledges, cavities, fissures, and other hiding-places, or are covered by a thick layer of peat-like plant remains. The Norseman calls the lower islets ‘eider-holms’ (or eider bird-hills, as the German would say), for they are the favourite brooding-places of what is to him the most valuable, and, what is the same thing, the most useful of all sea-birds. The higher islands which rise precipitously from the sea, and are chiefly peopled by auks and gulls, are included under the general name of *bird-bergs*.

The observant naturalist is of course tempted to study and describe in detail each individual brooding bird of the sea, but the rich variety of the inhabitants of the bird-bergs of the far north and the variety of their habits impose certain limits. Similarly, lest I exceed the time allowed to me, I must refrain from giving detailed pictures of the habits of all the berg birds, though I think it well at least to outline those of a few in order to bring into prominence some of the chief characteristics of sea-bird life. Selection is difficult, but one, at any rate—the eider-duck, which returns every spring to these islands, and helps to beautify them and their surroundings so marvellously—must not be left undescribed.

Three species of these beautiful ducks inhabit or visit European shores; one of these, the true eider-bird, is to be found every summer, even on the north-western islands of Germany, especially Sylt. Its plumage is a faithful mirror of the northern sea.

Black and red, ash-gray, ice-green, white, brown, and yellow are the colours harmoniously blended in it. The eider-duck proper is the least beautiful species, but it is nevertheless a handsome bird. The neck and back, a band over the wings, and a spot on the sides of the body are white as the crests of the waves; throat and crop have a white ground faintly flushed with rose-colour as though the glow of the midnight sun had been caught there; a belt on the cheeks is delicate green like the ice of the glacier; breast and belly, wings and tail, the lower part of the back and the rump are black as the depths of the sea itself. This splendour belongs only to the male; the female, like all ducks, wears a more modest yet not less pleasing garb, which I may call a house-dress. The prevailing rust-coloured ground, shading more or less into brown, is marked with longitudinal and transverse spots, lines and spirals, with a beauty and variety that words cannot adequately describe.

No other species of duck is so thoroughly a child of the sea as the eider-duck; no species waddles more clumsily on land, or flies less gracefully, but none swims more rapidly or dives more deftly and deeply. In search of food it sinks fully fifty yards below the surface of the sea, and is said to be able to remain five minutes—an extraordinarily long time—under water. Before the beginning of the brooding season it does not leave the open sea at all, or does so very rarely; following a whim rather than driven by necessity. Towards the end of winter the flocks in which they congregate break up into pairs, and only those males who have not succeeded in securing mates swim about in little groups. Between two mates the most perfect unanimity reigns. One will, undoubtedly that of the duck, determines the actions of both. If she rises from the surface of the water to

fly for a hundred yards through the air, the drake follows her; if she dives into the sea, he disappears directly afterwards; wherever she turns he follows faithfully; whatever she does seems to express his wishes. The pair still live out on the sea, though only where the depth is not greater than twenty-five fathoms, and where edible mussels and other bivalves are found in rich abundance on the rocks and the sea-bottom. These molluscs often form the sole food of eider-ducks, and to procure them they may have to dive to considerable depths. But it is the abundance of this food which preserves the eiders from the scarcity from which so many other species of duck often suffer severely.

In April, or at the latest in the beginning of May, the pairs approach nearer and nearer the fringe of reefs and the shores of the mainland. Maternal cares are stirring in the breast of the duck, and to these everything else is subordinated. Out at sea the pair were so shy that they never allowed a ship or boat to get near them, and feared man, if he ever happened to approach them, more than any other living creature; now in the neighbourhood of the islands their behaviour changes entirely. Obeying her maternal instincts, and these only, the duck swims to one of the brooding-places, and paying no attention to the human inhabitants, waddles on to the land. Anxiously the drake follows her, not without uttering his warning “Ahua, ahua”, not without visible hesitation, for every now and then he remains behind as if reflecting for a while, and then swims forward once more. The duck, however, pays no heed to all this. Careless of the whole world around her, she wanders over the island seeking a suitable brooding-place. Being somewhat fastidious, she is not satisfied with the first good heap of sea-weed

cast up by the tide, with the low juniper-bush whose branches straggling on the ground offer safe concealment, with the half-broken box which the owner of the island has placed as a shelter for her, or with the heaps of twigs and brushwood which he has gathered to entice her, but approaches the owner's dwelling as fearlessly as if she were a domestic bird. She enters it, walks about the floor, follows the housewife through rooms and kitchen, and capriciously selects, it may be, the inside of the oven as her resting-place, thereby forcing the housewife to have her bread baked for weeks on another island. With manifest alarm the faithful drake follows her as far as he dares; but when she, in his opinion, so far neglects all considerations of safety as to dwell under the same roof with human beings, he no longer tries to struggle against her wayward whim, but leaves her to follow it alone, and flies out to the safety of the sea, there longingly to await her daily visit. His mate is in no wise distracted by his departure, but proceeds to collect twigs and brushwood—a task in which she willingly accepts the Norseman's help—and to pile up into a heap her nest materials, which include sea-weed as well as twigs. She hollows out a trough with her wings and makes it circular by turning round and round in it with her smooth breast. Then she sets about procuring the lining and incorporating it with the nest. Thinking only of her brood, she plucks the incomparably soft down from her breast and makes with it a sort of felt, which not only lines the whole hollow but forms such a thick border at its upper edge that it serves as a cover to protect the eggs from cold when the mother leaves the nest. Before the work of lining is quite completed, the duck begins laying her comparatively small, smooth-shelled, clouded-green or grayish-

green eggs. The clutch consists of from six to eight, seldom more or fewer.

This is the time for which the Norseman has been waiting, for it was self-interest that prompted all his hospitality to the bird. The host now becomes the robber. Ruthlessly he takes the eggs and the nest with its inner lining of costly down. From twenty-four to thirty nests yield about two pounds of down, worth at least thirty shillings on the spot. This price is sufficient explanation of the Norseman's way of acting.

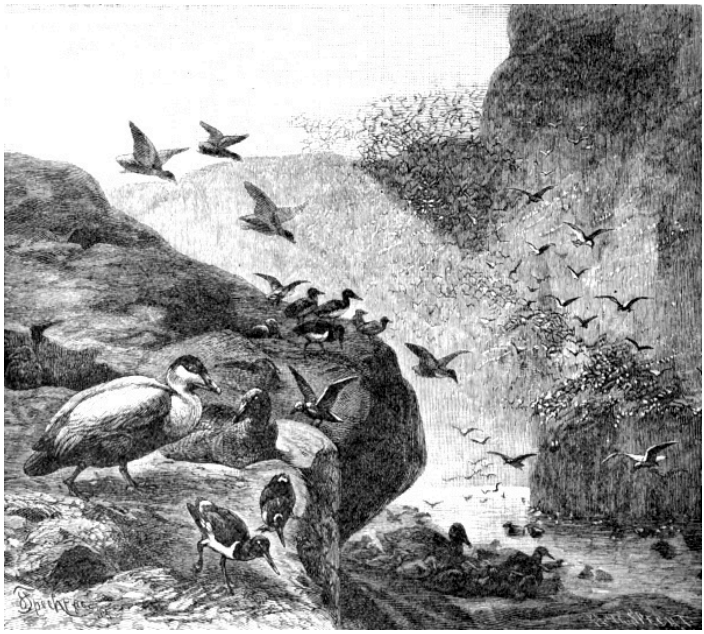


Fig. 2.—Colony of Eider-ducks.

With a heavy heart the duck sees the downfall of her hopes for that year. Perturbed and frightened, she flies out to sea, where her mate awaits her. Whether he takes the opportunity of repeating his warnings more urgently I cannot say, but I can testify that he

very soon succeeds in consoling her. The joy and spirit of the spring-time still live in the hearts of both; and in a very few days our duck waddles on land again as though nothing had happened, to build a second nest! This time she probably avoids her former position and contents herself with the first available heap of tangle which is not fully taken up by other birds. Again she digs and rounds a hollow; again she begins to probe among her plumage in order to procure the lining of down which seems to her indispensable. But, however much she exert herself, stretching her neck and twisting it in intricate snake-like curves, she can find no more. Yet when was a mother, even a duck mother, at a loss when her children had to be provided for? Our duck is certainly at none. She herself has no more down, but her mate bears it untouched on his breast and back. Now it is his turn. And though he may perhaps rebel, having a lively recollection of former years, he is the husband and she the wife, therefore he must obey. Without compunction the anxious mother rifles his plumage, and in a few hours, or at most within two days, she has plucked him as bare as herself. That the drake, after such treatment, should fly out to the open sea as soon as possible, and associate for some months only with his fellows, troubling himself not in the least about his mate and her coming brood, seems to me quite comprehensible. And when, as happens on every nesting island, a drake is to be seen standing by the brooding duck, I think he must be one who has not yet been plucked![2]

Our duck broods once more assiduously. And now her house-dress is seen to be the only suitable, I might say the only possible, garment which she could wear. Among the tangle which surrounds the nest she is completely hidden even from the sharp

eyes of the falcon or the sea-eagle. Not only the general colouring, but every point and every line is so harmonious with the dried sea-weed, that the brooding-bird, when she has drawn down her neck and slightly spread out her wings, seems to become almost a part of her surroundings. Many a time it has happened that I, searching with the practised eye of a sportsman and naturalist, have walked across eider-holms and only become aware of the brooding duck at my feet, when she warned me off by pecking at my shoes. No one who knows the self-forgetting devotion with which the birds brood will be surprised that it is possible to come so near an eider-duck sitting in her nest, but it may well excite the astonishment of even an experienced naturalist to learn that the duck suffers one to handle the eggs under her breast without flying away, and that she does not even allow herself to be diverted from her brooding when one lifts her from the nest and places her upon it again, or lays her on the ground at some little distance in order to see the charmingly quaint way in which she waddles back to her brood.

The eider-duck's maternal self-surrender and desire for offspring show themselves in another way. Every female eider-duck, perhaps every duck of whatever species, desires not only the bliss of bearing children, but wishes to have as many nestlings as possible under her motherly eye. Prompted by this desire, she has no scruples in robbing, whenever possible, other eiders brooding near her. Devoted as she is in her brooding, she must nevertheless forsake her nest once a day to procure her own food, and to cleanse, oil, and smooth her plumage, which suffers considerably from the heat developed in brooding. Throwing a suspicious glance at her neighbours to right and left, she rises early in the forenoon, after

having perhaps suffered the pangs of hunger for some hours, stands beside her nest and carefully spreads the surrounding fringe of down with her bill, so that it forms a concealing and protecting cover for the eggs. Then she flies quickly out to the sea, dives repeatedly, and hastily fills crop and gullet to the full with mussels, bathes, cleans, and oils herself, and returns to land, drying and smoothing her feathers continuously as she walks towards her nest. Both her neighbours sit seemingly as innocent as before, but in the interval a theft has been perpetrated by at least one of them. As soon as the first had flown away, one of them rose from her nest, and lifting the cover of her neighbour's nest, quickly rolled one, two, three, or four eggs with her feet into her own nest, then carefully replaced the cover, and resumed her place, rejoicing over her unrighteously-increased clutch. The returning duck probably notices the trick that has been played, but she makes not the slightest sign, and calmly settles down to brood again as though she thought, "Just wait, neighbour, you must go to the sea, too, and then I'll do to you what you have done to me". As a matter of fact, the eggs of several nests standing close together are shifted continuously from one to another. Whether it is her own or another's children that come to life under her motherly breast seems to matter very little to the eider-duck—they are children, at any rate!

The duck sits about twenty-six days before the eggs are hatched. The Norseman, who goes to work intelligently, lets her do as she pleases this time, and not only refrains from disturbing her, but assists her as far as possible by keeping away from the island all enemies who might harass the bird. He knows his ducks, if not personally, at least to this extent, that he can tell about what time this or that one will have

finished brooding, and will set out with her ducklings to seek the safety of the sea. The journey thither brings sudden destruction to many unwatched young eider-ducks. Not only the falcons breeding on or visiting the island, but even more the ravens, the skuas, and the larger gulls watch for the first appearance of the ducklings, attack them on the way, and carry off one or more of them. The owner of the island seeks to prevent this in a manner which enables one to appreciate how thoroughly the duck, ordinarily so wild and shy, has become a domestic bird during the breeding season. Every morning towards the end of the brooding-time he inspects the island in order to help the mothers and to gather in a second harvest of down. On his back hangs a hamper, and on one arm a wide hand-basket. Going from nest to nest he lifts each duck, and looks to see whether the young are hatched and are sufficiently dry. If this be the case, he packs the whole waddling company in his hand-basket, and with adroit grasp divests the nest of its downy lining, which he throws into his hamper, and proceeds to another nest. Trustfully the duck waddles after him or rather after her piping offspring, and a second, third, tenth nest is thus emptied, in fact the work goes on as long as the basket will accommodate more nestlings, and one mother after another joins the procession, exchanging opinions with her companions in suffering on the way. Arrived at the sea, the man turns the basket upside down and simply shakes the whole crowd of ducklings into the water. Immediately all the ducks throw themselves after their piping young ones; coaxing, calling, displaying all manner of maternal tenderness, they swim about among the flock, each trying to collect as many ducklings as possible behind herself. With obvious

pride one swims about with a long train behind her, but soon a second, less favoured, crosses the procession and seeks to detach as many of the ducklings as she can, and again a third endeavours to divert a few in her own favour. So all the mothers swim about, quacking and calling, cackling and coaxing, till at length each one has behind her a troop of young ones, whether her own or another's who can tell? The duck in question certainly does not know, but her mother-love does not suffer on that account—they are in any case ducklings who are swimming behind her!

In every case the flock thus collected follows the mother or foster-mother faithfully even in the first hours of free life. The mother leads them to places where edible mussels cover the rocks up to low-water mark, gathers as many as she and her family require, breaks the shells of the smallest and lays the contents before her brood. On the first day of their lives the ducklings are able to swim and dive as well as their parents, and they even excel them in one respect, for they are incomparably more nimble on land, being able to move about with surprising activity. If they become tired near an island the mother leads them on to it, and they run about like young partridges, and, by simply crouching down at the first warning cry, conceal themselves so effectively that they can only be found after long searching. If they get fatigued when they are far from land, the mother spreads out her wings a little and offers them these and her back as a resting-place. As they never know want they grow with extraordinary rapidity, and at the end of two months will have attained nearly the size, certainly all the adroitness, of their mother. The father soon joins them in order to pass the winter with his family—

usually in company with many other families, so that a flock of thousands may occasionally be formed.

The high and annually increasing price of its incomparable down makes the eider-duck the most valuable of all berg-birds. A thousand pairs of ducks form a possession well worth having. At least three or four thousand pairs brood on each island, and the fortunate possessor of still more numerously visited breeding-places derives revenues through his birds which many a German land-owner might envy. But besides the eider-ducks there breed also on the holms oyster-catchers and black guillemots, whose eggs are preserved and used for food for months, or are exported to a distance. Furthermore, the flesh of the young birds is sometimes salted for winter use, and thus the holms yield a rich harvest. They are therefore strictly preserved and protected by special laws.[3]

A brooding island peopled by eider-ducks and other sea birds presents a spectacle as unique as it is fascinating. A more or less thick cloud of brilliantly white sea-gulls veils such an island. Without intermission troops and swarms of brooding birds arrive and fly out to sea again, visiting the neighbouring reefs also, and sometimes marvellously adorning the drained moorland, now covered with green turf, in front of the red log-huts. With justifiable pride a dweller on the Lofodens pointed to several hundred gulls which were assembled directly before his door seeking for insects. “Our land is too poor, too cold, and too rough”, he said, “for us to be able to keep domestic birds as you do in the south. But the sea sends us our doves, and, I ask, have you ever seen more beautiful?” I could but answer in the negative, for the picture of the dazzling white and

delicate blue-gray gulls on the luxuriant green turf amid the grand environment of the northern mountains was indeed magnificent. It is these gulls chiefly which make the brooding holms conspicuous from a distance, and distinguish them from others which are physically the same. The other members of the feathered population are but little noticed, though they number many thousands. Only when one of the admirable light boats of the country is pushed off from the inhabited shores and rowed towards the holm does the quiet life of the birds change. Some oyster-catchers, which have been feeding directly above the high-water mark, have observed the boat and fly hastily towards it. These birds, which are absent from none of the larger islands, scarcely from any of the skerries, are the guardians of the safety and welfare of the peacefully united colony. More inquisitive and active than any other birds known to me, self-possessed, cautious, and deliberate, they possess all the qualities necessary to make them the sentinels of a mixed colony. Every new, unusual, or extraordinary event arouses their curiosity, and incites them to make closer examination. Thus they fly to meet the boat, sweep round it five or six times in ever-narrowing circles, screaming uninterruptedly the while, thus attracting others of their own species to the spot, and rousing the attention of all the cautious birds in the colony. As soon as they have convinced themselves of the presence of actual danger, they fly quickly back, and, with warning notes, communicate the result of their investigation to all the other birds on the berg who will pay any attention, as indeed many do. Some gulls now resolve to investigate the cause of the disturbance for themselves. Five or six of them fly towards the boat, hover falcon-like in the air,

perhaps even dart boldly down upon the intruders, and return to the holm more quickly than they came. Just as if their report was mistrusted, twice, three, four—ten times the number take wing, proceeding exactly as the first spies had done, and soon a cloud of birds forms above the boat. This cloud becomes thicker and thicker, more and more threatening, for the birds not only endeavour with continually increasing boldness to strike against the intruders in the boat, but they bestow upon them stuff which does not exactly tend to adorn faces and clothing. In the neighbourhood of the breeding-place the excitement increases to an apparently distracted confusion, the cries of individuals unite to form a maddening noise a thousand times repeated. Before the boat has touched the land the eider-drakes, who have been visiting their mates, have waddled to the shore and are now swimming out to sea with a warning "Ahua-ahua". The cormorants and mergansers follow them, but the oyster-catchers, plovers, black guillemots, eider-ducks, gulls, and terns, as well as the stone-chats and water-wagtails, cannot make up their minds to forsake the island. Running birds innumerable rush up and down the shore as if pursued by the evil one; the black guillemots, which had glided up the slanting blocks of rock, squat flat down upon them and stare in innocent wonder at the strangers, and the eider-ducks prepare to make themselves invisible after their fashion when the right moment comes.

The boat touches the shore. We step upon the holm. A screech rises from thousands of voices at once, the cloud of flying birds thickens to opaqueness; hundreds of brooding gulls rise croaking to join those in flight; dozens of oyster-catchers scream loudly, and the maze of moving birds and the noise of their

screeching become so bewildering that one feels as if one perceived with the bodily senses the din and riot of the witches' revel on the Blocksberg.

> "Voices o'er us dost thou hear?
> Voices far, and voices near?
> All the mountain-range along
> Streams a raving Witches' Song."

Mephisto's words are realized. The noise and tumult, the confusion of forms and cries, fatigue all the senses; everything swims and flickers before our eyes; there is singing and ringing in our ears, till at length we are conscious of neither colour nor noise, scarcely even of the usually very penetrating odour. In whatever direction we may turn the cloud covers the island; nothing is to be seen but birds, and when thousands alight to rest thousands more take wing, their care and anxiety for their brood making them forget their own powerlessness, and encouraging them to a defence which, though not dangerous, is certainly embarrassing to the explorers.

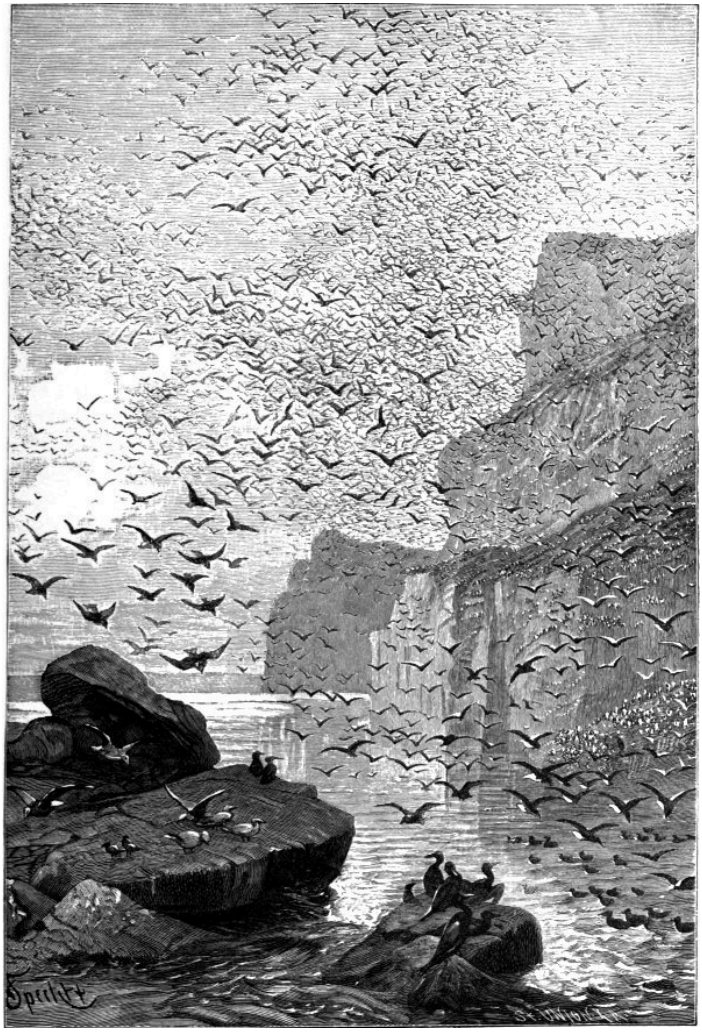


Fig. 3.—The Bird-bergs of Lapland.

Essentially different from the life—after all very inoffensive—on an eider-holm is the picture presented by an island peopled by silver, herring, or great black-backed gulls. These also congregate on certain islands for the breeding season in hundreds and hundreds of pairs, one such island being

sometimes inhabited by from three to five thousand pairs. The island presents quite as beautiful and noble a spectacle as the eider-holm. The large, dazzling white, and light or dark gray forms contrast wonderfully with the whole surroundings, and their movements possess much of the grace which characterizes all gulls. But these strong, powerful, rapacious gulls, though gregarious, are not peaceable neighbours. No member of such a colony trusts any other. Each pair lives by itself, marks out a definite brooding-ground, however small its diameter, allows no other pair within its boundaries, and both birds never leave the nest at the same time. If they have been disturbed by a powerful common enemy they hasten back as quickly as possible to the nest to protect it from others of their own species.

Less noisy, but certainly not less impressive, is the life on the real bird-bergs, the breeding-grounds of razor-bills, guillemots, and puffins, with at most here and there one or other of the gulls or of the cormorants. It will suffice if I attempt to describe one such berg in narrative form.

To the north of the large island belonging to the Lofoden group, and about three hundred yards from its shore, lie three bell-shaped rocky islands (the Nyken), rising rugged and steep for about three hundred feet above the surface of the sea, and closely surrounded by a circle of little reefs. One of these rocky cones is a bird-berg, and one can hardly imagine a finer of its kind.

We prepared to visit the island on a beautiful summer day when the sea was unusually smooth and calm, the sky clear and blue, the air warm and pleasant. Powerful Norsemen rowed our light boat in and out among innumerable skerries. Look where we

would, we saw birds. Almost every rock which rose above the surface of the water was peopled with them. Some of the reefs were coated with white by the excrement of the cormorants which regularly spent a portion of each day there in rest. Arranged in rows, like soldiers drawn up, they sat in tens, twenties, or hundreds, in the most extraordinary positions, their necks stretched, their wings spread out so that every part of their bodies might have full benefit of the sunshine, waving their wings also as if to fan each other, and all the while casting watchful glances in every direction. On our approach, they threw themselves heavily with hollow cries into the sea, and then, swimming and diving, defied all our attempts to get near them. Other reefs were covered with gulls, hundreds and thousands of the same species; or with male eiders, which had probably come from some eider-holm or other, to amuse themselves after the fashion of their sex while their mates were busied with maternal cares. Around other rocky islands the dazzling eider-birds, perhaps newly-plucked males, had congregated and arranged themselves in a circle, suggestive of the great white water-lilies of our quiet freshwater lakes. In the sounds that were not too deep one could see the fishing mergansers and divers, one or other of which would every now and then give full vent to its shrill, far-reaching cry—a cry so long-drawn-out and so varied in tone that one might call it a song, were it not rather a wild melody such as can only be executed by a child of the North Sea who has listened to the howling and blustering of winter storms, and has echoed the roar of the surging waves. Proud as a prince upon his throne sat here and there a sea-eagle, the terror of all the feathered creatures of the sea; sometimes we saw a whole

company of these robbers gorged with prey; the jerfalcon, who had his eyrie on one of the steep precipices, flew through his wide domain with the swiftness of an arrow; fluttering gulls and kittiwakes and fishing terns darted up and down; oyster-catchers greeted us with their trilling cries; razor-bills and guillemots appeared and disappeared all about us as they rose to the surface or dived underneath.

In such company we proceeded on our way. When we had traversed about ten nautical miles we came within range of the Nyke. In whatever direction we looked we saw some of the temporary dwellers on the berg, fishing and diving in the sea, or, startled by our boat, flying along so close to the surface of the water that their bright red webbed feet struck spray from the waves. We saw swarms of from thirty to fifty or a hundred birds streaming from or towards the berg, and we could not doubt that we were approaching a very populous breeding-colony. But we had been told of millions of brooding birds, and as yet we could see nothing of such numbers. At length, after we had rowed round a projecting ridge, the Nyke lay before us. In the sea, all around, were black points, at the foot of the hill white ones. The former were without order or regularity, the latter generally in rows, or sharply defined troops; the one set consisted of razor-bills swimming, with head, throat, and neck above the water, the others were the same birds sitting on the hill with their white breasts turned towards the sea. There were certainly many thousands, but not millions.

After we had landed at the opposite island and refreshed ourselves in the house of the proprietor of the Nyke, we crossed over to it, and choosing a place

round which the seething waves did not surge too violently, we sprang out on the rock and climbed quickly up to the turf which covers the whole Nyke, with the exception of a few protruding peaks, ledges, and angles. There we found that the whole turf was so pierced with nest-hollows something like rabbit holes, that on the whole hill not a single place the size of a table could be found free from such openings. We made our way upwards in a spiral, clambering rather than walking to the top of the berg. The undermined turf trembled under our feet, and from every hole there peeped, crept, glided, or flew out birds rather larger than pigeons, slate-coloured on the upper part of the body, dazzlingly white on breast and belly, with fantastic bills and faces, short, narrow, pointed wings, and stumpy tails. Out of every hole they appeared and even out of the fissures and clefts in the rocks. Whichever way we turned we saw only birds, heard only the low droning noise of their combined weak cries. Every step onwards brought new flocks out of the bowels of the earth. From the berg down to the sea, from the sea up to the berg there flew swarms innumerable. The dozens became hundreds, the hundreds became thousands, and hundreds of thousands sprang incessantly from the brown-green turf. A cloud not less thick than that over the holm enveloped us, enveloped the island, so that it—magically indeed, but in a way perceptible by the senses—seemed transformed into a gigantic bee-hive, round which not less gigantic bees, humming and buzzing, hovered and fluttered.

The farther we went, the more magnificent became the spectacle. The whole hill was alive. Hundreds of thousands of eyes looked down upon us intruders. From every hole and corner, from every peak and

ledge, out of every cleft, burrow, or opening, they hurried forth, right, left, above, beneath; the air, like the ground, teemed with birds. From the sides and from the summit of the berg thousands threw themselves like a continuous cataract into the sea in a throng so dense that they seemed to the eye to form an almost solid mass. Thousands came, thousands went, thousands fluttered in a wondrous mazy dance; hundreds of thousands flew, hundreds of thousands swam and dived, and yet other hundreds of thousands awaited the footsteps which should rouse them also. There was such a swarming, whirring, rustling, dancing, flying, and creeping all about us that we almost lost our senses; the eye refused duty, and his wonted skill failed even the marksman who attempted to gain a prize at random among the thousands. Bewildered, hardly conscious, we pushed on our way until at length we reached the summit. Our expectation here at last to regain quietness, composure, and power of observation, was not at once realized. Even here there was the same swarming and whirring as further down the slope, and the cloud of birds around us was so thick that we only saw the sea dimly and indefinitely as in twilight. But a pair of jerfalcons, who had their eyrie in a neighbouring precipice, and had seen the unusual bustle, suddenly changed the wonderful scene. The razor-bills, guillemots, and puffins were not afraid of us; but on the appearance of their well-known and irresistible enemies, the whole cloud threw themselves with one accord, as at the command of a magician, into the sea, and the outlook was clear and free. Innumerable black points, the heads of the birds swimming in the sea, stood out distinctly from the water, and broke up the blue-green colouring of the waves. Their number was

so great that from the top of the berg, which was over three hundred feet high, we could not see where the swarm ended, could not discover where the sea was clear from birds. In order to make a calculation, I measured out a small square with my eye, and began to count the points in it. There were more than a hundred. Then I endeavoured mentally to place several similar squares together, and soon came to thousands of points. But I might have imagined many thousands of such squares together and yet not exhausted the space covered by birds. The millions of which I had been told were really there. This picture of apparent quiet only lasted for a few moments. The birds soon began to fly upwards again, and as before, hundreds of thousands rose simultaneously from the water to ascend the hill, as before a cloud formed round it, and our senses were again bewildered. Unable to see, and deafened by the indescribable noise about me, I threw myself on the ground, and the birds streamed by on all sides. New ones crept constantly out of their holes, while those we had previously startled now crept back again; they settled all about me, looking with comical amazement at the strange form among them, and approaching with mincing gait so close to me that I attempted to seize them. The beauty and charm of life showed themselves in every movement of these remarkable birds. With astonishment I saw that even the best pictures of them are stiff and cold, for I remarked in their quaint forms a mobility and liveliness with which I had not credited them. They did not remain still a single instant, their heads and necks at least were moved incessantly to all sides, and their contours often showed most graceful lines. It seemed as though the inoffensiveness with which I had given myself up to observing them, had been

rewarded by unlimited confidence on their part. The thousands just about me were like domestic birds; the millions paid me no more attention than if I had been one of themselves.

I spent eighteen hours on this bird-berg in order to study the life of the auks.[4] When the midnight sun stood large and blood-red in the sky and cast its rosy light on the sides of the hill there came the peace which midnight brings even in the far North. The sea was deserted; all the birds which had been fishing and diving in it had flown up to the berg. There they sat wherever there was room to sit in long rows of tens, of hundreds, of hundreds of thousands, forming dazzling white lines as all, without exception, sat facing the sea. Their ‘arr’ and ‘err’, which had deafened our ears notwithstanding the weakness of the individual voices, were silent now, and only the roar of the surf breaking on the rocks far below resounded as before. Not till the sun rose again did the old bewildering bustle begin anew, and as we at length descended the hill by the way we had climbed it, we were once more surrounded by a thick cloud of startled birds.

It is not because of their enormous numbers alone that the auks are so fascinating; there is much that is attractive in their life and habits. During the brooding time their social virtues reach an extraordinary height. Till the beginning of that season they live entirely on the open sea, defying the severest winter and the wildest storms. Even in the long night of winter very few of them forsake their northern home, but they range, in flocks of hundreds and thousands, from one fishing-ground to another, finding all the open spaces among the ice as unfailingly as they do other promising feeding-

grounds in the open sea. But when the sun reappears they are animated by one feeling—love, by one longing—to reach as soon as possible the hill where their own cradle stood. Then somewhere about Easter-time they all set out, swimming more than flying, for the bird-berg. But among the auks there are more males than females, and not every male is fortunate enough to secure a wife. Among other birds such a disproportion gives rise to ceaseless strife, yet among these auks peace is not disturbed. The much-to-be-pitied beings whom, making use of a human analogy, we may call bachelors, migrate to the berg as well as the fortunate pairs, who coquette and caress by the way; they fly up with these to the heights and accompany them on their hunting expeditions to the surrounding sea. As soon as the weather permits, the pairs begin to get the old holes in order; they clear them out, deepen them, enlarge their chambers, and, if necessary, hollow out a new brooding-place. As soon as this has been done the female lays, on the bare ground at the further end of the hollowed-out brooding-chamber, a single very large, top-shaped, brightly-spotted egg, and begins to brood alternately with the male. The poor bachelors have a sad time of it now. They, too, would dearly like to take parental cares upon themselves if they could only find a mate who would share them. But all the females are appropriated, and wooing is in vain. So they resolve to give practical proof of their good-will, at least in so far that they force themselves on the fortunate pair as friends of the family. In the hours about midnight, when the female broods on the nest, they sit with the male as he keeps watch before it, and, when the male relieves his mate that she may fish in the sea, they mount guard in his stead. But when both parents

visit the sea at once the bachelors hasten to reap some reward for their faithfulness. Without delay they thrust themselves into the interior of the cavity, and sit for the time upon the forsaken egg. The poor birds who are condemned to celibacy want at least to brood a little! This unselfish devotion has one result for which men might envy the auks—there are no orphans on these bird-bergs. Should the male of a pair come to grief, his widow immediately consoles herself with another mate, and in the rarer case of both parents losing their lives at once the good-natured supernumeraries are quite ready to finish hatching the egg and to rear the young one. The young ones differ materially from those of the ducks and gulls. They are 'altrices', not 'præcoces' as the ornithologists say;[5] in plain language, they are not ready for active life as soon as they are hatched. In a dress of thick gray down the young auk slips from the egg in which it awakes to life, but it must spend many weeks in the hole before it is ready to attempt its first flight to the sea. This first flight is always a hazardous undertaking, as is proved by the countless dead bodies on the cliffs at the foot of the berg. The young bird, nervously using its unpractised legs, hardly less timidly its newly-developed wings, follows its parents as they lead the way down the hill towards some place from which the leap into the sea may be attempted with as little danger as possible. On a suitable ledge the parents often remain a long time with their young one before they can induce it to take a spring. Both father and mother persuade it coaxingly; the little one, usually obedient like all young birds, pays no heed to their commands. The father throws himself into the sea before the eyes of his hesitating offspring; the inexperienced young one remains where he was. More attempts, more coaxing,

urgent pressure: at length he risks the great leap and plunges like a falling stone deep into the sea; then, unconsciously obeying his instincts, he works his way to the surface, looks all around over the unending sea, and—is a sea-bird who thenceforth shuns no danger.

Different again is the life and activity on the bergs chosen as brooding-places by the kittiwakes. Such a hill is the promontory Swärtholm, high up in the north between the Laxen and the Porsanger fjord, not far from the North Cape. I knew well how these gulls appear on their brooding-places. Faber, with his excellent knowledge of the birds of the far North, has depicted it, as usual, in a few vivid words:

"They hide the sun when they fly, they cover the skerries when they sit, they drown the thunder of the surf when they cry, they colour the rocks white when they brood." I believed the excellent Faber after I had seen the eider-holms and auk-bergs, and yet I doubted, as every naturalist must, and therefore I ardently desired to visit Swärtholm for myself. An amiable Norseman with whom I became friendly, the pilot of the mail steamer by which I travelled, readily agreed to row me over to the breeding-place, and we approached the promontory late one evening. At a distance of six or eight nautical miles we were overtaken by flocks of from thirty to a hundred, sometimes even two hundred kittiwakes flying to their nesting-place. The nearer we approached to Swärtholm the more rapid was the succession of these swarms, and the larger did they become. At last the promontory became visible, a rocky wall about eight hundred yards long, pierced by innumerable holes, rising almost perpendicularly from the sea to a height of from four hundred and

fifty to six hundred feet. It looked gray in the distance, but with a telescope one could discern innumerable points and lines. It looked as though a gigantic slate had been scratched all over with all sorts of marks by a playful giant child, as though the whole rock bore a wondrous decoration of chains, rings, and stars. From the dark depths of large and small cavities there gleamed a brilliant white; the shelving ledges stood out in more conspicuous brightness. The brooding gulls on their nests formed the white pattern, and we realized the truth of Faber's words, "they cover the rocks when they sit".

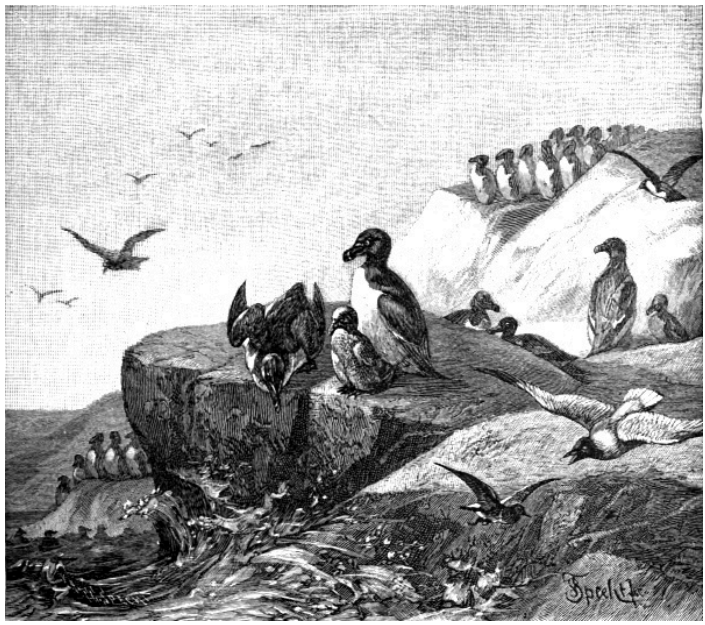


Fig. 4.—Razor-bills.

Our boat, as it grated on the rocky shore, startled a number of the gulls, and I saw a picture such as I had seen on many eider-holms and gull-islands. A shot from my friend's gun thundered against the precipice. As a raging winter storm rushes through

the air and breaks up the snow-laden clouds till they fall in flakes, so now it snowed living birds. One saw neither hill nor sky, nothing but an indescribable confusion. A thick cloud darkened the whole horizon, justifying the description “they hide the sun when they fly”. The north wind blew violently and the icy sea surged wildly against the foot of the cliffs, but more loudly still resounded the shrill cries of the birds, so that the truth of the last part also of Faber’s description was fully proved, “they drown the thunder of the surf when they cry”. At length the cloud sank down upon the sea, the hitherto dim outlines of Swärtholm became distinct again, and a new spectacle enchained our gaze. On the precipices there seemed to sit quite as many birds as before, and thousands were still flying up and down. A second shot scared new flocks, a second time it snowed birds down upon the sea, and still the hillsides were covered with hundreds of thousands. But on the sea, as far as the eye could reach, lay gulls like light foam-balls rocking up and down with the waves. How shall I describe the magnificent spectacle? Shall I say that the sea had woven millions and millions of bright pearls into her dark wave-robe? Or shall I compare the gulls to stars; and the ocean to the dome of heaven? I know not; but I know that I have seen nothing more gorgeous even on the sea. And as if the charm were not already great enough, the midnight sun, erewhile clouded over, suddenly shed its rosy light over promontory and sea and birds, lighting up every wave-crest as if a golden, wide-meshed net had been thrown over the water, and making the rose-tinted dazzling gulls appear more brilliant than before. We stood speechless at the sight! And we, with all our company, even the sailors of our boat, remained

motionless for a long, long time, deeply moved by the wonderful picture before us, till at last one of us broke the silence, and, rather to recover himself through the sound of his own voice than to express his inner feeling, softly uttered the poet's words:

Over the bergs the sun blood-red
  Shone through the night;
Nor day nor dark was over head,
  But weird twilight.

THE TUNDRA AND ITS ANIMAL LIFE.

Around the North Pole lies a broad belt of inhospitable land, a desert which owes its special character rather to the water than to the sun. Towards the Pole this desert gradually loses itself in fields of ice, towards the south in dwarfed woods, becoming itself a field of snow and ice when the long winter sets in, while stunted trees attempt the struggle for existence only in the deepest valleys or on the sunniest slopes. This region is the Tundra.[6]

It is a monotonous picture which I attempt to sketch when I seek to describe the tundra, a picture gray on gray, yet not devoid of all beauty; it is a desert with which we have to do, but a desert in which life, though for many months slumbering and apparently banished, stirs periodically in wondrous fulness.

Our language possesses no synonym for the word tundra, because our Fatherland possesses no such tract of country. For the tundra is neither heath nor moor, neither marsh nor fen, neither highlands nor sand-dunes, neither moss nor morass, though in many places it may resemble one or other of these. “Moss-steppes” someone has attempted to name it, but the expression is only satisfactory to those who have grasped the idea of steppe in its widest sense. In my opinion the tundra most resembles one of those moors which we find—and avoid—on the broad saddles of our lofty mountains; but it differs in many and important respects even from these boggy

plateaus; indeed its character is in every respect unique. The region is sometimes divided into low and high tundra, though the differences between the land under three hundred feet above sea-level and that above this line are in the tundra more apparent than real.

The low tundra is bounded by flat, wavy outlines; its valleys are shallow troughs, and even the heights, which, from a distance, look like hills or even mountains, turn out to be only flat hillocks when one approaches their base. Flatness, uniformity, expressionlessness prevail, yet that there is a certain variety in the landscape, a diversity in some of its individual features, cannot be disputed. As one wanders through the tundra for days at a time, one's attention is often arrested by dainty, even charming little pictures, but such pictures rarely stamp themselves on the memory, since on closer examination they prove, in all important details, in setting and surroundings, in contour and colour, like too many other scenes to make a distinct impression. Notwithstanding this monotony, the general aspect of the tundra has little unity, still less grandeur, and on this account one does not become enthusiastic about the region, does not reach to the heights of emotion which other landscapes awaken, perhaps does not even attain to full enjoyment of the real beauties which, it must be admitted, even this desert possesses.

The tundra receives its greatest beauty from the sky, its greatest charm from the water. The sky is seldom quite clear and bright, though even here the sun, shining uninterruptedly for months together, can beat down hot and oppressive on the flat hills and damp valleys. The blue sky is usually seen only in

isolated places through light, white, loose-layered clouds; these are often massed together into cloud-banks which form on all sides of the apparently immeasurable horizon, continually changing, shifting, assuming new forms, appearing and vanishing again, so ravishing the eye with their changeful brilliance that one almost forgets the landscape underneath. When a thunder-storm threatens after a hot day the sky darkens here and there to the deepest gray-blue, the vapour-laden clouds sink beneath the lighter ones, and the sun shines through, clear and brilliant; then the dreary, monotonous landscape is magically beautified. For light and shade now diversify the hill-tops and valleys, and the wearisome monotony of their colour gains variety and life. And when, in the middle of a midsummer night, the sun stands large and blood-red in the heavens, when all the clouds are flushed with purple from beneath, when those hill-tops which hide the luminary bear a far-reaching flaming crown of rays, when a delicate rosy haze lies over the brown-green landscape, when, in a word, the indescribable magic of the midnight sun casts its spell over the soul: then this wilderness is transformed into enchanted fields, and a blissful awe fills the heart.

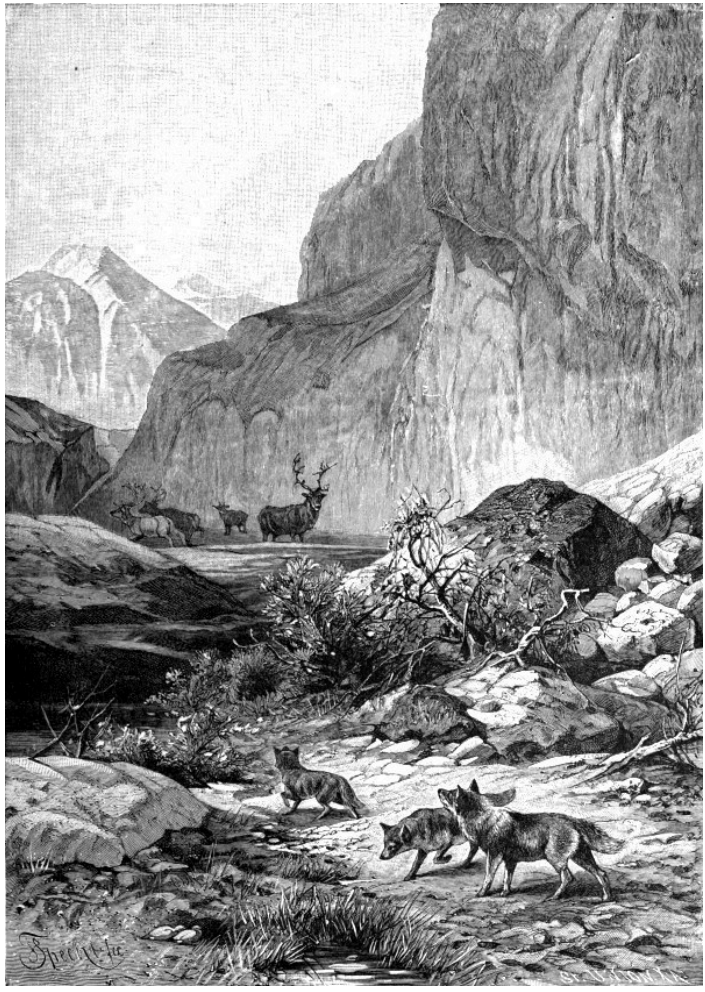


Fig. 5.—The High Tundra in Northern Siberia.

But variety and life are also given by the jewels of the tundra—its innumerable lakes. Distributed singly or in groups, lying beside or rising above each other, stretching out into water-basins miles in breadth, or shrinking into little pools, they occupy the centre of every hollow, beautify every valley, almost every glen, sparkle in the all-enlivening sunshine, and gray

and colourless though they may be, assume, if seen from the top of a hill, the deep blue of mountain lakes. And when the sunlight flashes and twinkles on their mirroring waves, or when they, too, are touched by the rosy glow of midnight, they stand out from the surrounding gloom like living lights, on which the eye delights to linger.

Much grander, though still gloomy and monotonous, is the spectacle presented by the high tundra. Here the mountains—for such they are—have all the charms of height. They almost always rise precipitously, and the chains they form have much-broken lines, and in all suitable places the snowy sheets which cover them become glaciers. Tundra in the strict sense is only to be found where the water does not find rapid outlet; the whole remaining country seems so different from the low grounds that only the essentially similar vegetation proclaims it tundra. The boulders, which in the low grounds are turfed over with thick layers of dead plant remains, are here almost everywhere exposed; endless heaps of gigantic blocks cover the slopes and fill the valleys; boulders form the substratum of wide, almost flat surfaces on which the traveller treads hesitatingly, as he ponders over the difficult riddle regarding the forces which have distributed the blocks over these vast surfaces with almost unvarying regularity. But everywhere between them the water trickles and glides, ripples and swells, rushes and roars, rages and thunders down to the low ground. From the slopes it flows in trickling threads, converging runlets, and murmuring brooklets; from the crevices of the glaciers it breaks forth in milky torrents; it enters the water-basins in turbid rivulets; it escapes from the purifying lakes in crystalline streams, and whirling and foaming,

hissing and raging, it hurries onwards down the valleys, forming alternate waterfalls and whirlpools, till it reaches the low tundra, a river, or the sea. But the sun, as often as it breaks through the clouds, floods this unique mountain region also with its magic colours, defines every hill and valley, illumines every snowfield, makes every glacier and ravine conspicuous and telling, gives effect to every peak, ridge and cliff, shows every lake as a clear and smiling mountain eye, spreads, morning and evening, the blue haze of distance like a delicate veil over the background of the picture, and, at midnight, floods the whole with its deepest rays, so that it is bathed in rosy light. Surely even the tundra is not without its charms.

In some places, though very rarely, the vegetation gives a certain form and beauty to the scenery. Pines and firs, if not altogether confined to the south, are only to be found in the most sheltered valleys. The few firs which are to be seen look as if they had been seized by a giant hand and twisted like a screw, and they do not thrive in the higher districts. The birches penetrate farther, but even they are stunted and bent like grizzled dwarfs. The larches alone here and there hold the field, and grow to be really trees, but they cannot be described as characteristic of the tundra. The most characteristic plant is certainly the dwarf-birch. Only under exceptionally favourable circumstances attaining to a yard in height, it predominates over by far the greater part of the tundra so absolutely that all other bushes and shrubs seem only to have sprung up between the birches. It spreads over all tracts where it can take root, from the shore of the sea or river to the tops of the mountains, a more or less thick covering so equal in height that great stretches look as if they had been

shorn along the top; it recedes only where the ground is so soaked with water that it forms swamp or morass; it is stunted only where the heights are covered with infertile quartz or with stiff clay, which hardens readily in the sun; but it strives for mastery with the bog-moss on all the low grounds and with the reindeer-moss on every height. Areas of many square miles are so thickly clothed—one might almost say felted—that only the indestructible bog-moss ventures to assert its claim to the soil beside, or rather under the birches. In other less moist places we find dwarf-birches, sweet-willow, and marsh-andromeda mixed together. In the same way various berry-bearing bushes are often mixed, especially cowberries, crowberries, cranberries, and whortleberries.

If the ground lies below the level of the surrounding plains, and is therefore very moist, the bog-moss gains the day, and, gradually crowding out the dwarf-birch, forms great swelling cushions. As the root-parts rapidly die away into peat, these cushions become higher and more extensive until the water impedes any further advance, or else they break up into dome-like hillocks. If the basin be very flat, the accumulated water rarely forms a lake or pond, scarcely even a pool, but soaks through the soil to an indefinite depth, and so forms a morass whose thin but tough covering of interlacing sedge-roots can only be trodden in safety by the broad-hoofed reindeer; and even his steps, and the deeply-sinking runners of the sledge, make it yield and tremble like jelly.

When the depression becomes a short confined trough, without outlet, into which a streamlet flows, however slowly, the morass becomes a bog, or lower

down, a swamp. In the first of these, reeds, in the second downy willows (sallows), a second characteristic plant of the tundra, attain to luxuriant growth. Though only in very favourable circumstances becoming as tall as a man, these plants form thickets which may be literally impenetrable. Their branches and roots interlace to an even greater extent than do those of the dwarf-firs on the mountains, forming an inextricable maze which can best be compared to a felt compacted out of all the different parts of the willow. It withstands the strongest arm, when one tries to clear a path through it, and it offers so much obstruction to the foot that the most persistent explorer soon gives up the attempt to pierce it, and turns aside, or retraces his steps. This he does the more readily as the substratum is in most cases morass or an almost continuous series of marshy, slimy pools whose fathomableness one is unwilling even to try.

As the traveller journeys through the tundra, he recognizes that the whole region presents to the eye the individual features already described, in regular alternation and monotonous repetition. Only where a large river of considerable volume flows through the low tundra is there any real change. Such a river deposits on its banks the masses of sand it has carried down; and the wind, which blows constantly and usually violently, piles these gradually up into dunes along the banks; thus a soil foreign to the tundra is formed. On these sand-hills the larch grows, even in the tundra of Siberia, to a stately tree, and becomes, in association with willows and dwarf alder bushes, an ornament to the landscape. In the neighbourhood of small lakes the trees may even be grouped together, and, with the shrubs already named, form a natural park which would not escape

observation even in a much richer and more fertile district, and is here so very remarkable that it leaves a lasting impression.

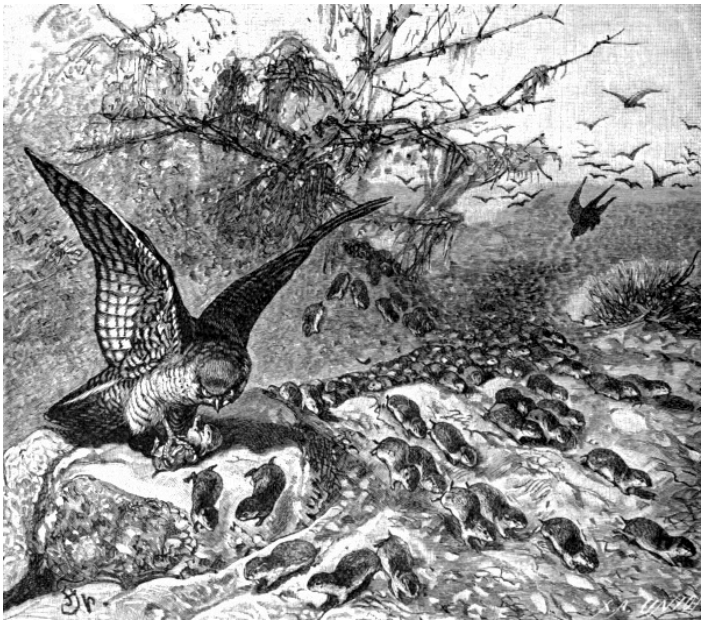


Fig. 6.—Peregrine Falcons and Lemmings.

When the larch has taken root in the sand-hills, there grow up under its sheltering branches other tall-stemmed plants such as sharp-leaved willows, mountain ash, black alder, and woodbine bushes, and there spring from the sand many flowers which one thought to have left far behind in the south. The surprised southerner is cheered by the red glory of the willow-herb; the charming wild rose clings close to the motherly earth, decorating it with its slender stems and its flowers; the bright forget-me-not looks up with home-like greeting; here hellebore and chives, valerian and thyme, carnations and blue-bells, bird-vetch and alpine vetch, ranunculus and immortelles, lady's-smock, Jacob's-ladder, cinquefoil,

love-lies-bleeding, and others find a home in the desert. In such places more plants grow than one had expected, but the traveller is certainly modest in his expectations when he has seen the same poverty all around for days and weeks together, always dwarf-birches and sallows, marsh-andromeda and sedge, reindeer-moss and bog-moss; has refreshed himself with the stunted crowberries and cranberries half-hidden in the moss, half-creeping on the ground, and has been obliged to take the cloudberries which decorate the moss-cushion as flowers; when he has tramped over them and among them for days together always hoping for a change, and always being disappointed. Every familiar plant from the south reminds him of happier regions; he greets it as a dear friend whose value is only realized when he has begun to fear losing him.[7]

It seems strange that the plants above-named and many others should spring only from the dry sand of the dunes, but the apparent riddle is solved when we know that it is only the sand thus piled up, that becomes sufficiently warmed in the months of uninterrupted sunshine for these plants to flourish. Nowhere else throughout the tundra is this the case. Moor and bog, morass and swamp, even the lakes with water several yards in depth only form a thin summer covering over the eternal winter which reigns in the tundra, with destructive as well as with preserving power. Wherever one tries to penetrate to any depth in the soil one comes—in most cases scarcely a yard from the surface—upon ice, or at least on frozen soil, and it is said that one must dig about a hundred yards before breaking through the ice-crust of the earth. It is this crust which prevents the higher plants from vigorous growth, and allows only such to live as are content with the dry layer of

soil which thaws in summer. It is only by digging that one can know the tundra for what it is: an immeasurable and unchangeable ice-vault which has endured, and will continue to endure, for hundreds of thousands of years. That it has thus endured is proved indisputably by the remains of prehistoric animals embedded in it, and thus preserved for us. In 1807 Adams dug from the ice of the tundras the giant mammoth, with whose flesh the dogs of the Yakuts sated their hunger, although it must have died many thousands of years before, for the race became extinct in the incalculably distant past. The icy tundra had faithfully preserved the carcase of this primitive elephant all through these hundreds of thousands of years.[8]

Many similar animals, and others of a more modern time, are embedded in the ice, though it is not to be supposed that the tundra was ever able to sustain a much richer fauna than it has now. Bison and musk-ox traversed it long after the time of the mammoth; giant-elk and moose belonged to it once. Now its animal life is as poor and monotonous as its vegetation—as itself. This holds true, however, only with regard to species, not to individuals, for the tundra is, at least in summer, the home of numerous animals.

The year is well advanced before the tundra begins to be visibly peopled. Of the species which never leave it one sees very little in winter. The fish which ascend its rivers from the sea are concealed by the ice; the mammals and birds which winter in it are hidden by the snow, under which they live, or whose colour they wear. Not until the snow begins to melt on the southern slopes does the animal life begin to stir. Hesitatingly the summer visitors make their

appearance. The wolf follows the wild reindeer, the army of summer birds follows the drifting ice blocks on the streams. Some of the birds remain still undecided in the regions to the South, behave as if they would breed there, then suddenly disappear from their resting-place by the way, fly hastily to the tundra, begin to build directly on their arrival, lay their eggs, and brood eagerly, as though they wished to make up for the time gained by their relatives in the South. Their summer life is compressed into few weeks. They arrive already united, paired for life, or at least for the summer; their hearts stirred by all-powerful love, they proceed, singing and rejoicing, to build a nest; unceasingly they give themselves up to their parental duties, brood, rear, and educate their young, moult, and migrate abroad again.



Fig. 7.—The White or Arctic Fox (*Canis lagopus*).

The number of species which may be looked upon as native to the tundra is small indeed, yet it is much greater than that of those which may be regarded as characteristic of the region. As the first of these, I should like to place the Arctic fox. He ranges over the whole extent of the tundra, and is sure of

maintenance and food in the south at least, where he occurs along with our fox and other allied species. Like some other creatures he wears the colours of his home, in summer a rock-coloured dress, in winter a snow-white robe, for the hairs of his thick fur coat are at first stone-gray or grayish-blue, and become snow-white in winter.[9] He struggles through life with ups and downs like other foxes, but his whole character and conduct are quite different from those of our reynard and his near relatives. One scarcely does him injustice in describing him as a degenerate member of a distinguished family, unusually gifted, intelligent, and ingenious. Of the slyness and ingenuity, the calculating craft, the never-failing presence of mind of his congeners he evinces hardly any trace. His disposition is bold and forward, his manner officious, his behaviour foolish. He may be a bold beggar, an impudent vagabond, but he is never a cunning thief or robber, weighing all circumstances, and using all available means to attain his end. Unconcernedly he stares at the huntsman's gun; unwarned by the ball, which passes whistling over his body, he follows his worst enemy; unhesitatingly he forces his way into the birch-bark hut of the wandering reindeer-herdsmen; without fear he approaches a man sleeping in the open, to steal the game he has caught, or even to snap at a naked limb. On one occasion an Arctic fox at which I had several times fired in vain in the dusk, kept following my steps like a dog. My old sporting friend, Erik Swenson of Dovrefjeld, relates that one night a fox nibbled the fur rug on which he lay, and old Steller vouches for many other pranks which this animal plays, pranks which every one would declare incredible were they not thoroughly guaranteed by corroborating observations. An insufficient

knowledge of human beings, so sparsely represented in the tundra, may to some extent account for the extraordinary behaviour of this fox, but it is not the only reason. For neither the red fox nor any other mammal of the tundra behaves with so little caution; not even the lemming approaches him in this respect.

A strange creature certainly is this last inhabitant of our region whatever species of his family we consider. He, or at least his tracks, may be seen everywhere throughout the tundra. The tracks run in all directions, often through places overgrown by dwarf-birches, narrow, smooth, neatly-kept paths in the moss, going straight for several hundred yards, then diverging to right or left, and only returning to the main path after many circuits. On these we may often see, in great numbers during a dry summer, a little, short-tailed, hamster-like animal nimbly pattering along and soon disappearing out of sight. This is the lemming, a rodent smaller than a rat, but larger than a mouse, and with brightly but irregularly marked skin, usually brown, yellow, gray, and black. If we dissect the animal we see, not without surprise, that it consists almost entirely of skin and viscera. Its bones and muscles are fine and tender; its viscera, especially the alimentary and the reproductive organs, are enormously developed. This state of things explains some phenomena of its life which were long considered unintelligible: the almost abrupt occurrence of well-nigh unlimited fertility, and the vast, apparently organized migrations of the animal. In ordinary circumstances the lemming leads a very comfortable life. Neither in summer nor in winter has he any anxiety about subsistence. In winter he devours all sorts of vegetable matter,—moss-tips, lichen, and bark; in

summer he lives in his burrow, in winter in a warm, thick-walled, softly-lined nest. Danger indeed threatens from all sides, for not only beasts and birds of prey, but even the reindeer devour hundreds and thousands of lemmings;[10] nevertheless they increase steadily and rapidly, until special circumstances arise when millions, which have come into existence within a few weeks, are annihilated within a few days. Spring sets in early, and a more than usually dry summer prevails in the tundra. All the young of the first litter of the various lemming females thrive, and six weeks later, at the most, these also multiply. Meantime the parents have brought forth a second and a third litter, and these in their turn bring forth young. Within three months the heights and low grounds of the tundra teem with lemmings, just as our fields do with mice under similar circumstances. Whichever way we turn, we see the busy little creatures, dozens at a single glance, thousands in the course of an hour. They run about on all the paths and roads; driven to extremity, they turn, snarling and sharpening their teeth, on the defensive even against man, as if their countless numbers lent to each individual a defiant courage. But the countless and still-increasing numbers prove their own destruction. Soon the lean tundra ceases to afford employment enough for their greedy teeth. Famine threatens, perhaps actually sets in. The anxious animals crowd together and begin their march. Hundreds join with hundreds, thousands with other thousands: the troops become swarms, the swarms armies. They travel in a definite direction, at first following old tracks, but soon striking out new ones; in unending files—defying all computation—they hasten onwards; over the cliffs they plunge into the water. Thousands fall victims to want and

hunger; the army behind streams on over their corpses; hundreds of thousands are drowned in the water, or are shattered at the foot of the cliffs; the remainder speed on; other hundreds and thousands fall victims to the voracity of Arctic and red foxes, wolves and gluttons, rough-legged buzzards and ravens, owls and skuas which have followed them; the survivors pay no heed. Where these go, how they end, none can say, but certain it is that the tundra behind them is as if dead, that a number of years pass ere the few who have remained behind, and have managed to survive, slowly multiply, and visibly re-people their native fields.[11]



Fig. 8.—The Reindeer (*Tarandus rangifer*).

A third animal characteristic of the tundra is the reindeer. Those who know this deer, in itself by no means beautiful, only in a state of captivity and slavery, can form no idea of what it is under natural conditions. Here in the tundra one learns to

appreciate the reindeer, to recognize and value him as a member of a family which he does not disgrace. He belongs to the tundra, body and soul. Over the immense glacier and the quivering crust of the unfathomable morass, over the boulder-heaps and the matted tops of the dwarf-birches or over the mossy hillocks, over rivers and lakes he runs or swims with his broad-hoofed, shovel-like, extraordinarily mobile feet, which crackle at every step. In the deepest snow he uses his foot to dig for food. He is protected against the deadly cold of the long northern night by his thick skin, which the arrows of winter cannot pierce, against the pangs of hunger by the indiscriminateness of his appetite. From the wolf, which invariably follows close on his heels, he is, in some measure at least, saved by the acuteness of his senses, by his speed and endurance. He passes the summer on the clear heights of the tundra, where, on the slopes just beside the glaciers, the soil, belted over with reindeer-moss, also brings forth juicy, delicate alpine plants; in winter he ranges through the low tundra from hill to hill seeking spots from which the snow has been cleared off by the wind.[12] Shortly before this, having attained to his full strength and fully grown his branching antlers, he had in passionate violence engaged in deadly combat with like-minded rivals as strong as himself until the still tundra resounded with the clashing of their horns. Now, worn out with fighting and with love, he ranges peacefully through his territory with others of his kind, associated in large herds, seeking only to maintain the struggle with winter. The reindeer is certainly far behind the stag in beauty and nobility, but when one sees the great herds, unhampered by the fetters of slavery, on the mountains of their native tundra, in vivid contrast to

the blue of the sky and the whiteness of the snowy carpet, one must acknowledge that he, too, takes rank among noble wild beasts, and that he has more power than is usually supposed to quicken the beating of the sportsman's heart.

The tundra also possesses many characteristic birds. Whoever has traversed the northern desert must have met one, at least, of these, the ptarmigan:

> "In summer gay from top to toe,
> In winter whiter than the snow".

I do not allude to the ptarmigan of our mountains, which is here also restricted to the glacier region, but to the much more abundant willow-grouse. Wherever the dwarf-birch thrives it is to be found, and it is always visible, but especially when the silence of night has fallen upon the tundra, even though the sun be shining overhead. It never entirely forsakes its haunts, but, at the most, descends from the heights to the low grounds in winter. It is lively and nimble, pert and self-possessed, jealous and quarrelsome towards its rivals, affectionate and devoted towards its mate and young. Its life resembles that of our partridge, but its general behaviour has a much greater charm. It is the embodiment of life in the desert. Its challenging call rings out through the still summer night, and the coveys enliven the wintry tundra, forsaken by almost all other birds. Its presence gladdens and charms naturalist and sportsman alike.

During summer the golden plover, which also must be described as a faithful child of the tundra, is to be met almost everywhere. As the swift ostrich to the desert, the sand-grouse to the steppes, the rock-partridge to the mountains, the lark to the corn-

fields, so the golden plover belongs to the tundra. Gay as its dress may be, they are the colours of the tundra which it wears; its melancholy cry is the sound most in keeping with this dreary region. Much as we like to see it in our own country, we greet it without pleasure here, for its cry uttered day and night makes us as sad as the tundra itself.

With much greater pleasure does one listen to the voice of another summer guest of the region. I do not refer to the tender melodies of the blue-throated warbler, which is here one of the commonest of brooding birds and justly named the "hundred-tongued singer", nor to the ringing notes of the fieldfare, which also extends to the tundra, nor to the short song of the snow bunting, nor to the shrill cries of the peregrine falcon or the rough-legged buzzard, nor to the exultant hooting of the sea-eagle or the similar cry of the snowy owl, nor to the resounding trumpet-call of the musical swan or the plaintive bugle-like note of the Arctic duck, but to the pairing and love cry of one or other of the divers—a wild, unregulated, unrestrained, yet sonorous and tuneful, resonant and ringing northern melody, comparable to the roar of the surge or to the thunder of a waterfall as it rushes to the deep. Wherever a lake rich in fish is to be found, with a secret place in the reeds thick enough to conceal a floating nest, we find these children of the tundra and the sea, these soberly-joyous fishers in the calm fresh waters and fearless divers in the northern sea. Thence they have come to the tundra to brood, and back thither they will lead their young as soon as these are able, like themselves, to master the waves. Over the whole extent of the tundra they visit its waters, but they prefer to the broad inland lakes the little ponds on the hills along the coast, whence they can daily

plunge, with their wildly jubilant sea song, into the heaving, bountiful ocean, which is their home.

From the sea come other two birds very characteristic of the tundra. The eye follows every movement of the robber-gulls with real delight, of the phalarope with actual rapture. Both breed in the tundra: the one on open mossy moors, the other on the banks of the most hidden ponds and pools among the sallows. If other gulls be the “ravens of the sea” the skuas may well be called the “sea-falcons”. With full justice do they bear the names of robber and parasitic gulls, for they are excellent birds of prey when there is no opportunity for parasitism, and they become parasites when their own hunting has been unsuccessful. Falcon-like they fly in summer through the tundra, in winter along the coast regions of the North Sea; they hover over land or sea to find their prey, then swoop down skilfully and gracefully and seize without fail the victim they have sighted. But even these capable hunters do not scruple, under some circumstances, to become bold beggars. Woe to the gull or other sea-bird which seizes its prey within sight of a skua! With arrow-like swiftness he follows the fortunate possessor uttering barking cries, dances, as if playfully, round him on all sides, cunningly prevents any attempt at flight, resists all defence, and untiringly and ceaselessly teases him till he gives up his prize, even though it has to be regurgitated from his crop. The life and habits of the Arctic skua, its skill and agility, its courage and impudence, untiring watchfulness and irresistible importunity are extraordinarily fascinating; even its begging can be excused, so great are its charms. Yet the phalarope is still more attractive. It is a shore bird, which unites in itself the qualities of its own order and those of the swimming birds, living, as it

does, partly on land, partly in the water, even in the sea. Buoyant and agile, surpassing all other swimming birds in grace of motion, it glides upon the waves; quickly and nimbly it runs along the shore; with the speed of a snipe it wings its zigzag flight through the air. Confidently and without fear it allows itself to be observed quite closely, and in its anxiety for the safety of its brood usually betrays its own nest, with the four pear-shaped eggs, however carefully it has been concealed among the reeds. It is perhaps the most pleasing of all the birds of the tundra.[13]



Fig. 9.—Skuas, Phalarope, and Golden Plovers.

Likewise characteristic of the tundra are the birds of prey, or, at least, their manner of life there is characteristic. For it is only on the southern boundary of the region or among the heights that

there are trees or rocks on which they can build their eyries, and they are perforce obliged to brood on the ground. Among the winding branches of the dwarf-birch is the nest of the marsh-owl, on its crown that of the rough-legged buzzard; on the bare ground lie the eggs of the snowy-owl and the peregrine falcon, though the latter chooses a place as near as possible to the edge of a gully, as though he would deceive himself by vainly attempting to make up for the lack of heights. That it and all the others are fully conscious of the insecurity of their nesting-place is shown by their behaviour on the approach of man. From a distance the traveller is watched suspiciously and is greeted with loud cries; the nearer he approaches the greater grows the fear of the anxious parents. Hitherto they have been circling at a safe distance, about twice as far as a shot would carry, over the unfamiliar but dreaded enemy; now they swoop boldly down, and fly so closely past his head that he distinctly hears the sharp whirr of their wings, sometimes indeed he has reason to fear that he will be actually attacked. Meanwhile the young birds, which are visible even from a distance as white balls, bend timidly down and await the approach of this enemy,—suspected at least, if not known as such,—sitting so still in their chosen, or perhaps forced position that one can sketch them without fear of being disturbed by a single movement—a charming picture!

Many other animals might be enumerated if I thought them necessary to a picture of the tundra. At least one more is characteristic—the mosquito. To call it the most important living creature of the tundra would be scarcely an exaggeration. It enables not a few of the higher animals, especially birds and fishes, to live; it forces others, like man, to periodic

wanderings; and it is in itself enough to make the tundra uninhabitable in summer by civilized beings. Its numbers are beyond all conception; its power conquers man and beast; the torture it causes beggars description.

It is well known that the eggs of all mosquitoes are laid in the water, and that the larvæ which creep forth in a few days remain in the water till their metamorphosis is accomplished. This explains why the tundra is more favourable than any other region to their development, and to their occurrence in enormous numbers. As soon as the sun, once more ascending, has thawed the snow, the ice, and the upper crust of the earth, the life of the mosquito, latent in winter but not extinguished, begins to stir again. The larvæ escape from the eggs which have been buried, but not destroyed, in the frozen mud; in a few days these larvæ become pupæ, the pupæ become winged insects, and generation follows generation in quick succession. The heyday of the terrible pests lasts from before the beginning of the summer solstice until the middle of August.

During the whole of this time they are present on the heights as in the low grounds, on the mountains or hills as in the valleys, among the dwarf-birches and sallow bushes as on the banks of rivers and lakes. Every grass-stalk, every moss-blade, every twig, every branch, every little leaf sends forth hundreds and thousands of them all day long. The mosquitoes of tropical countries, of the forests and marshes of South America, the interior of Africa, India, and the Sunda islands, so much dreaded by travellers, swarm only at night; the mosquitoes of the tundra fly for ten weeks, for six of these actually without interruption. They form swarms which look like thick black

smoke; they surround, as with a fog, every creature which ventures into their domains; they fill the air in such numbers that one hardly dares to breathe; they baffle every attempt to drive them off; they transform the strongest man into an irresolute weakling, his anger into fear, his curses into groans.

As soon as the traveller sets foot on the tundra their buzzing is heard, now like the singing of a tea-kettle, now like the sound of a vibrating metal rod, and, a few minutes later, he is surrounded by thousands and thousands. A cloud of them swarms round head and shoulders, body and limbs, follows his steps, however quickly he moves, and cannot possibly be dispersed. If he remain standing, the cloud thickens; if he move on, it draws itself out; if he run as quickly as possible, it stretches into a long train, but does not remain behind. If a moderate wind is blowing against them, the insects hasten their flight to make headway against the current of air; when the wind is more violent all the members of the swarm strain themselves to the utmost so as not to lose their victim, and pounce like pricking hailstones on head and neck. Before he knows, he is covered from head to foot with mosquitoes. In a dense swarm, blackening gray clothes, giving dark ones a strange spotted appearance, they settle down and creep slowly about, looking for an unappropriated spot from which to suck blood. They creep noiselessly and without being felt to the unprotected face and neck, the bare hands and the feet covered only with stockings, and a moment later they slowly sink their sting into the skin, and pour the irritant poison into the wound. Furiously the victim beats the blood-sucker to a pulp, but while the chastising hand still moves, three, four, ten other gnats fasten on it, while others begin work on the face, neck, and feet, ready

to do exactly as the slain ones had done. For when blood has once flowed, when several insects have met their death on the same place, all the rest seek out that very spot, even though the surface becomes gradually covered with bodies. Specially favourite points of attack are the temples, the forehead just under the hat-brim, the neck and the wrist, places, in short, which can be least well protected.

If an observer can so far restrain himself as to watch them at their work of blood, without driving them away or disturbing them, he notices that neither their settling nor their moving about is felt in the least. Immediately after alighting they set to work. Leisurely they walk up and down on the skin, carefully feeling it with their proboscis; suddenly they stand still and with surprising ease pierce the skin. While they suck, they lift one of the hind-legs and wave it with evident satisfaction backwards and forwards, the more emphatically the more the translucent body becomes filled with blood. As soon as they have tasted blood they pay no heed to anything else, and seem scarcely to feel though they are molested and tortured. If one draws the proboscis out of the wound with forceps, they feel about for a moment, and then bore again in the same or a new place; if one cuts the proboscis quickly through with sharp scissors, they usually remain still as if they must think for a minute, then pass the forelegs gently over the remaining portion and make a prolonged examination to assure themselves that the organ is no longer present; if one suddenly cuts off one of their hind-legs, they go on sucking as if nothing had happened and continue to move the stump; if one cuts the blood-filled body in half, they proceed like Münchausen's horse at the well, but at length they withdraw the proboscis from the wound, fly

staggeringly away and die within a few minutes.

Careful observation of their habits places it beyond doubt that, in the discovery of their victim, they are guided less by sight than by smell, or perhaps, more correctly, by a sense which unites smell and tactile sensitiveness.[14] It can be observed with certainty that, if a human being approach within five yards of their resting-place, they rise and fly to their prey without hesitating or diverging. If anyone crosses a bare sand-bank usually free from them he can observe how they gather about their victim. Apparently half carried by the wind, half moving by their own exertions, but at any rate wandering aimlessly, some float continually over even this place of pilgrimage, and a few thus reach the neighbourhood of the observer. At once their seeming inactivity is at an end. Abruptly they alter their course, and make straight for the happily-found object of their longing. Others soon join them, and before five minutes have passed, the martyr is again surrounded by a nimbus. They find their way less easily through different strata of air. While observing them on a high dune I had been followed and tormented for some time by thousands, so I led the swarm to the edge of the steep slope, let it thicken there, and then sprang suddenly to the foot. With much satisfaction I saw that I had shaken off the greater number of my tormentors. They swarmed in bewildered confusion on the top of the dune, forming a dense cloud for some time over the place from which I had leaped. A few hundreds had, however, followed me to the lower ground.

Though the naturalist knows that it is only the female mosquitoes which suck blood, and that their activity in this respect is indubitably connected with

reproduction, and is probably necessary to the ripening of the fertilized eggs, yet even he is finally overcome by the tortures caused by these demons of the tundra, though he be the most equable philosopher under the sun. It is not the pain caused by the sting, or still more, by the resulting swelling; it is the continual annoyance, the everlastingly recurring discomfort under which one suffers. One can endure the pain of the sting without complaint even at first, still more easily when the skin has become less sensitive to the repeatedly instilled poison; thus one can hold out for a long time. But sooner or later every man is bound to confess himself conquered and beaten by these terrible torturing spirits of the tundra. All resistance is gradually paralysed by the innumerable, omnipresent armies always ready for combat. The foot refuses its duty; the mind receives no impressions; the tundra becomes a hell, and its pests an unutterable torture. Not winter with its snows, not the ice with its cold, not poverty, not inhospitality, but the mosquitoes are the curse of the tundra.[15]

During the height of their season the mosquitoes fly almost uninterruptedly, during sunshine and calm weather with evident satisfaction, in a moderate wind quite comfortably, in slightly warm weather gaily, before threatening rain most boisterously of all, in cool weather very little, in cold, not at all. A violent storm banishes them to the bushes and moss, but, as soon as it moderates, they are once more lively and active, and in all places sheltered from the wind they are ready for attack even while the storm is raging. A night of hoar-frost plays obvious havoc among them, but does not rid us of them; cold damp days thin their armies, but succeeding warmth brings hosts of newly developed individuals on the field.

The autumn fogs finally bring deliverance for that year.

Autumn in the tundra comes on as quickly as spring came slowly. A single cold night, generally in August, or at the latest in September, puts an end to its summer life. The berries, which, in the middle of August, looked as if they would scarcely ripen at all, have become as juicy and sweet as possible by the end of the month; a few damp, cold nights, which lightly cover the hills with snow, hasten their ripening more than the sun, which is already clouded over all day long. The leaves of the dwarf-birch become a pale but brilliant lake-red on the upper surface, a bright yellow beneath; all the other bushes and shrubs undergo a similar transformation: and the gloomy brown-green of the tundra becomes such a vivid brown-red that even the yellow-green of the reindeer-moss is no longer conspicuous. The winged summer guests fly southwards or towards the sea, the fishes of the tundra swim down the rivers. From the hills the reindeer, followed by the wolf, comes down to the low grounds; the ptarmigan, now congregated in flocks of thousands, fly up to the heights to remain until winter again drives them down to the low tundra.

After a few days this winter, as much dreaded by us as by the migratory birds, yet longed for by the human inhabitants of the tundra, sets in on the inhospitable land, to maintain its supremacy longer, much longer than spring, summer, and autumn together. For days and weeks in succession snow falls, sometimes coming down lightly in sharp-cornered crystals, or sometimes in large flakes, driven by a raging storm. Hills and valleys, rivers and lakes are gradually shrouded in the same winter

dress. A brief ray of sunshine still gleams occasionally at mid-day over the snowy expanse; but soon only a pale brightness in the south proclaims that there the sunny day is half-gone. The long night of winter has begun. For months only the faint reflection of the stars twinkles in the snow, only the moon gives tidings of the vitalizing centre of our system. But when the sun has quite disappeared from the tundra another light rises radiant: far up in the north there flickers and flashes “Soweidud”, the fire of God, the flaming Northern Light.

THE ASIATIC STEPPES AND THEIR FAUNA.

There is perhaps monotony, but there is also the interest of a well-marked individuality in that immense tract of country which includes the whole of Central Asia, and extends into Southern Europe, and which forms the region of the steppes. To the superficial observer it may seem an easy thing to characterize these steppes, but the difficulty of the task is soon felt by the careful observer. For the steppes are not so invariably uniform, so absolutely changeless as is usually supposed. They have their time of blooming and their time of withering, their summer and their winter aspects, and some variety at every season is implied in the fact that there are mountains and valleys, streams and rivers, lakes and marshes. The monotony is really due to the thousand-fold repetition of the same picture, what pleased and even charmed when first seen becoming tame by everyday familiarity.

The Russian applies the word steppe, which we have borrowed from his language, to all unwooded tracts in middle latitudes, when they are of considerable extent, and bear useful vegetation. It matters not whether they be perfectly flat or gently undulating plains, highlands or mountains, whether there be patches of fat, black soil, admitting of profitable agriculture, or merely great tracts of poor soil covered with such vegetation as grows without man's aid, and is useful only to the nomadic herdsman.

This wide usage of the term is convenient, for throughout the whole region we find the same plants rising from the ground, the same types of animal life, and approximately the same phenomena of seasonal change.

Unwooded the steppe-lands must be called, but they are not absolutely treeless. Neither shrubs nor trees are awanting where the beds of the streams and rivers form broad and deep valleys. In very favourable circumstances, willows, white and silver poplars, grow to be lofty trees, which may unite in a thick fringe by the river banks, or birches may establish themselves and form groves and woods, or pines may plant their feet firmly on the sand-dunes, and form small settlements, which, though not comparable to true forests, are, at least, compact little woods, like the growths along the river-banks. But, after all, such wooded spots are exceptions, they constitute to some extent a foreign element in the steppe scenery, and suggest oases in a desert.

At one place the steppe may stretch before the eye as a boundless plain, here and there gently undulating; at another place the region has been much upheaved, is full of variety, and may even be mountainous. Generally the horizon is bounded on all sides by ranges of hills of variable height, and often these hills inclose a trough-like valley from which it seems as if the water must be puzzled to find its way out, if, indeed, it does so at all. From the longer cross valleys of the often much-ramified ranges a small stream may flow towards the lowest part of the basin and end in a lake, whose salt-covered shores sparkle in the distance as if the winter snow still lay upon them. Viewed from afar, the hills look like lofty mountains, for on these vast plains the eye loses its

standard for estimating magnitude; and when the rocks stand out above the surface and form domes and cones, sharp peaks and jagged pinnacles on their summits, even the practised observer is readily deceived. Of course there are some genuinely lofty mountains, for, apart from those near the Chinese boundary, there are others on the Kirghiz steppes, which even on close view lose little of the impressiveness that the ruggedness of their peaks and slopes gives them when seen from a distance. The higher and more ramified the mountains, the more numerous are the streams which they send down to the lower grounds, and the larger are the lakes that occupy the depressions at their base—basins which their feeders are unable to fill, even though unable to find a way through the surrounding banks. The more extensive, also, are the salt-steppes around these lakes—salt because they have no outlet. But apart from these variations, the characteristics of the steppes are uniform; though the composition of the picture is often changed, its theme remains the same.

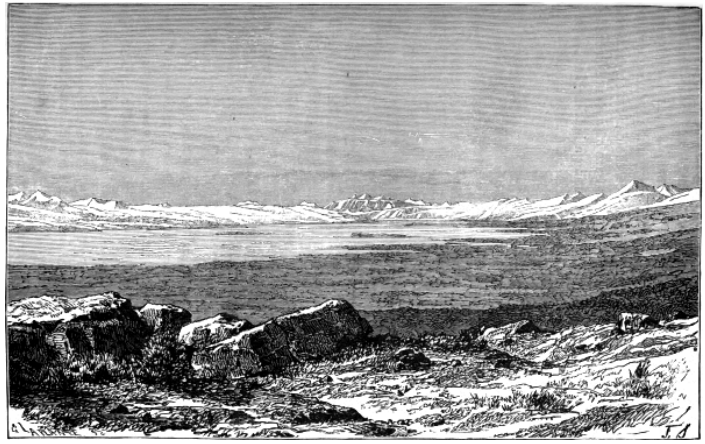


Fig. 10.—View in the Asiatic Steppes.

We should convey a false impression if we denied charm, or even grandeur, to the scenery of the steppes. The North German moorland is drearier, Brandenburg is more monotonous. In the gently undulating plain the eye rests gratefully on the lakes which fill all the deeper hollows; in the highlands or among the loftier mountains the gleaming water-basins are a real ornament to the landscape. It is true that the lake is, in most cases, though not invariably, without the charm of surrounding verdure, often without so much as a fringe of bushes. But, even when it lies naked and bare, it brightens the steppes. For the blue sky, mirrored on its surface, smiles kindly towards us, and the enlivening effect of water makes itself felt even here. And when a lake is ringed round by hills, or framed, as at Alakul, by lofty mountains; when the steppes are sharply and picturesquely contrasted with the glittering water-surface, the dark mountain-sides, and the snowy summits; when the soft haze of distance lies like a delicate veil over hill and plain, suggesting a hidden beauty richer than there really is; then we acknowledge readily and gladly that there is a witchery of landscape even in the steppes.

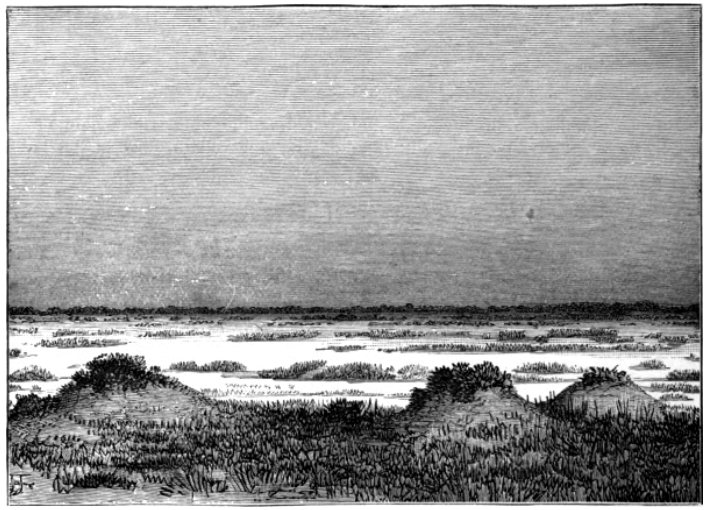


Fig. 11.—A Salt Marsh in the Steppes.

Even when we traverse the monotonous valleys many miles in breadth, or the almost unbroken plains, whose far horizon is but an undulating line, when we see one almost identical picture to north, south, east, and west, when the apparent infinitude raises a feeling of loneliness and abandonment, even then we must allow that the steppes have more to show than our heaths, for the vegetation is much richer, more brilliant, and more changeful. Indeed, it is only here and there, where the salt-steppes broaden out around a lake, that the landscape seems dreary and desolate. In such places none of the steppe plants flourish, and their place is taken by a small, scrubby saltwort, not unlike stunted heather, only here and there attaining the size of low bushes. The salt lies as a more or less thick layer on the ground, filling the hollows between the bushes so that they look like pools covered with ice. Salt covers the whole land, keeping the mud beneath permanently moist, adhering firmly to the ground,

and hardly separable from it. Great balls of salt and mud are raised by the traveller's feet and the horses' hoofs at every step, just as if the ground were covered with slushy snow. The waggon makes a deep track in the tough substratum, and the trundling wheels sometimes leave marks on the salt like those left on snow in time of hard frost. Such regions are in truth indescribably dismal and depressing, but elsewhere it is not so.

The vegetation of the steppes is much richer in species than is usually supposed, much richer indeed than I, not being a botanist, am able to compute. On the black soil, the tschi-grass, the thyrsa-grass, and the spiræa in some places choke off almost all other plants; but in the spaces between these, and on leaner soil, all sorts of gay flowers spring up. In the hollows, too, the vegetation becomes gradually that of the marsh, and reeds and rushes, which here predominate, leave abundant room for the development of a varied plant-life. But the time of blooming is short, and the time of withering and dying is long in the steppes.[16]

Perhaps it is not too much to say that the contrasts of the seasons are nowhere more vivid than in the steppes. Wealth of bright flowers and desert-like sterility, the charms of autumn and the desolation of winter, succeed one another; the disruptive forces are as strong as those which recreate, the sun's heat destroys as surely as the cold. But what has been smitten by the heat and swept away by raging storms is replaced in the first sunshine of spring; and even the devouring fire is not potent enough wholly to destroy what has been spared by the sun and the storms. The spring may seem more potent in tropical lands, but nowhere is it more marvellous than in the

steppes, where in its power it stands—alone—opposed to summer, autumn, and winter.

The steppes are still green when summer steals upon them, but already their full splendour has sped. Only a few plants have yet to attain their maturity, and they wither in the first days of the burning heat; soon the gay garment of spring is exchanged for one of gray and yellow. The sappy, green thyrsa-grass still withstands the drought; but its fine, flowing, thickly-haired beards have already attained their full growth, and wave about in the gentlest breeze, casting a silvery veil over the green beneath. A few days more, and both leaves and awns are as dry as the already yellowed tschi-grass, which appears in spring like sprouting corn, and is now like that which awaits the sickle. The broad leaves of the rhubarb lie dried on the ground, the spiræa is withered, the Caragan pea-tree is leafless, honeysuckle and dwarf-almond show autumnal tints; the thistle tops are hoary; only the wormwoods and mugworts preserve their gray-green leaves unchanged. Bright uninterrupted sunshine beats down upon the thirsty land, for it is but rarely that the clouds gather into wool-packs on the sky, and even if they are occasionally heavy with rain, the downpour is scarce enough to lay the whirling dust which every breath of wind raises. The animals still keep to their summer quarters, but the songs of the birds are already hushed. Creeping things there are in abundance, such as lizards and snakes, mostly vipers; and the grasshoppers swarm in countless hosts, forming clouds when they take wing over the steppes.

Before the summer has ended, the steppes have put on their autumnal garb, a variously shaded gray-

yellow, but without variety and without charm. All the brittle plants are snapped to the ground by the first storm, and the next blast scatters them in a whirling dance over the steppes. Grappling one another with their branches and twigs, they are rolled together into balls, skipping and leaping like spooks before the raging wind, half-hidden in clouds of drifting dust with which the dark or snow-laden packs in the sky above seem to be running a race. The summer land-birds have long since flown southwards; the water-birds, of which there are hosts on every lake, are preparing for flight; the migratory mammals wend in crowded troops from one promise of food to another; the winter-sleepers have closed the doors of their retreats; reptiles and insects have withdrawn into their winter hiding-places.

A single night's frost covers all the water-basins with thin ice; a few more days of cold and the fetters of winter are laid heavily on the lakes and pools; and only the rivers and streams, longer able to withstand the frost, afford a briefly prolonged shelter to the migratory birds which have still delayed their farewell. Gentle north-west winds sweep dark clouds across the land, and the snow drizzles down in small flakes. The mountains have already thrown on their snowy mantles; and now the low ground of the steppes puts on its garment of white. The wolf, apprehensive of storms, leaves the reed-thickets and the spiræa shrubberies which have hitherto served him well as hiding-places, and slinks hungrily around the villages and the winter quarters of the nomad herdsman, who now seeks out the most sheltered and least exhausted of the low grounds, in order to save his herds, as far as may be, from the scarcity, hardship, and misery of the winter. Against the greedy wolf the herdsman acts on the aggressive, as

do the Cossack settlers and peasants; he rides out in pursuit, follows the thief's tell-tale track to his lair, drives him out, and gives chase. With exultant shouts he spurs on his horse and terrifies the fugitive, all the while brandishing in his right hand a strong sapling with knobbed roots. The snow whirls around wolf, horse, and rider; the keen frost bites the huntsman's face, but he cares not. After a chase of an hour, or at most of two hours, the wolf, which may have run a dozen or twenty miles, can go no further, and turns upon its pursuer. Its tongue hangs far out from its throat, the ice-tipped hairs of its reeking hide stand up stiffly, in its mad eyes is expressed the dread of death. Only for a moment does the noble horse hesitate, then, urged on by shout and knout, makes a rush at the fell enemy. High in the air the hunter swings his fatal club, down it whizzes, and the wolf lies gasping and quivering in its death agony. Wild horses and antelopes, impelled by hunger, like the wolf, shift their quarters at this season, in the endeavour to eke out a bare subsistence; even the wild sheep of the mountains wend from one hillside to another; only the hares and the imperturbable sand-grouse hold their ground, the former feeding on stems and bark, the latter on seeds and buds, but both finding only a scant subsistence.



Fig. 12.—A Herd of Horses during a Snowstorm on the Asiatic Steppes.

For many days in succession the fall of snow continues; then the wind, which brought the clouds, dies away, but the sky remains as dark as ever. The wind changes and blows harder and harder from east, south-east, south, or south-west. A thin cloud sweeps over the white ground—it is formed of whirling snow; the wind becomes a tempest; the cloud rises up to heaven: and, maddening, bewildering even to the most weather-hardened, dangerous in the extreme to all things living, the *buran* rages across the steppes, a snow-hurricane, as terrible as the typhoon or the simoom with its poisonous breath. For two or three days such a snow-storm may rage with uninterrupted fury, and both man and beast are absolutely storm-stayed. A man overtaken in the open country is lost, unless some special providence save him; nay, more, even in the village or steppe-town, he who ventures out of doors when the buran is at its height may perish, as indeed not rarely happens. When February is past, man and beast are fairly safe, and may breathe freely, though

the winter still continues to press heavily on the steppes.

The sun rises higher in the heavens; its rays fall more warmly on the southern slopes of the mountains and hills, and dark patches of clear ground appear everywhere, growing larger day by day, except when an occasional fresh fall of snow hides them for a little. The first breath of spring comes at last, but only slowly can it free the land from winter's shackles. Only when the life-giving sunshine is accompanied by the soft south wind, at the earliest in the beginning of April, usually about the middle of the month, does the snow disappear quickly from the lower slopes of the mountains and from the deep valleys rich in black earth. Only in gorges and steep-walled hollows, behind precipitous hills, and amid thick bushes, do the snow-wreaths linger for almost another month. In all other places the newly-awakened life bursts forth in strength. The thirsty soil sucks in the moisture which the melting snow supplies, and the two magicians—sun and water—now unite their irresistible powers. Even before the last snow-wreaths have vanished, before the rotten ice-blocks have melted on the lakes, the bulbous plants, and others which live through the winter, put forth their leaves and raise their flower-stalks to the sun. Among the sere yellow grass and the dry gray stems of all herbs which were not snapped by the autumnal storm, the first green shimmers. It is at this time that the settlers and the nomads set fire to the thick herbage of various sorts, and what the storms have spared the flames devour. But soon after the fire has cleared the ground, the plant-life reappears, in patches at least, in all its vigour. From the apparently sterile earth herbaceous and bulbous growths shoot up; buds are unpacked, flowers

unfold, and the steppe arrays itself in indescribable splendour. Boundless tracts are resplendent with tulips, yellow, dark red, white, white and red. It is true that they rise singly or in twos and threes, but they are spread over the whole steppe-land, and flower at the same time, so that one sees them everywhere. Immediately after the tulips come the lilies, and new, even more charming colours appear wherever these lovely children of the steppes find the fit conditions for growth, on the hillsides and in the deep valleys, along the banks of all the streams, and in the marshes. More gregarious and richer in species than the tulips, they appear in much more impressive multitudes; they completely dominate wide stretches of country, and in different places remind one of a rye-field overgrown with corn-flowers, or of a rape-field in full blossom. Usually each species or variety is by itself, but here and there blue lilies and yellow are gaily intermingled, the two complementary colours producing a most impressive effect—a vision for rapture.

While these first-born children of the spring are adorning the earth, the heavens also begin to smile. Unclouded the spring sky certainly is not, rather it is covered with clouds of all sorts, even in the finest weather with bedded clouds and wool-packs, which stretch more or less thickly over the whole dome of heaven, and around the horizon appear to touch the ground. When these clouds thicken the heavens darken, and only here and there does the sunlight pierce the curtain and show the steppes warmed by the first breath of spring, and flushed with inconceivable wealth of colour.

But every day adds some new tint. There is less and less of the yellowish tone which last year's withered

stalks give even in spring to the steppes; the garment already so bright continues to gain in freshness and brightness. After a few weeks, the steppe-land lies like a gay carpet in which all tints show distinctly, from dark green to bright yellow-green, the predominant gray-green of the wormwoods being relieved by the deeper and brighter tones of more prominent herbs and dwarf-shrubs. The dwarf-almond, which, alone or in association with the pea-tree and the honeysuckle, covers broad stretches of low ground, is now, along with its above-mentioned associates, in all its glory. Its twigs are literally covered all over with blossom; the whole effect is a shimmer of peach-red, in lively contrast to the green of the grass and herbage, to the bloom of the pea-trees, and even to the delicate rose-red or reddish-white of the woodbine. In suitable places the woodbine forms quite a thicket, and, when in full bloom, seems to make of all surrounding colour but a groundwork on which to display its own brilliancy. Various, and to me unknown, shrubs and herbs give high and low tones to the picture, and the leaves of others, which wither as rapidly as they unfold, become spots of yellow-green and gold. Seen from a distance, all the colours do indeed merge into an almost uniform gray-green; but near at hand each colour tells, and one sees the countless individual flowers which have now opened, sees them singly everywhere, but also massed together in more favourable spots, where they make the shades of the bushes glorious. Amid the infinite variety of bulbous plants there are exquisite vetches; among many that are unfamiliar there are old friends well known in our flower-gardens; more and more does the feeling of enchantment grow on one, until at last it seems as if one had wandered into an unending, uncared-for

garden of flowers.

With the spring and the flowers the animal life of the steppes appears also to awaken. Even before the last traces of winter are gone, the migratory birds, which fled in autumn, have returned, and when the spring has begun in earnest the winter sleepers open the doors of the burrows within which they have slumbered in death-like trance through all the evil days. As the migratory birds rejoin the residents, so the sleepers come forth and join those mammals which are either careless of winter or know how to survive it at least awake. At the same time the insects celebrate their Easter, hastening from their hidden shelters or accomplishing the last phase of their metamorphosis; and now, too, the newts and frogs, lizards and snakes leave their winter quarters to enjoy in the spring sunshine the warmth indispensable to their activity and full life, and to dream of the summer which will bring them an apathetic happiness.

The steppe now becomes full of life. Not that the animal life is of many types, but it is abundant and everywhere distributed. The same forms are met with everywhere, and missed nowhere. There are here no hosts of mammals comparable to the herds of antelopes on the steppes of Central Africa, nor to the troops of zebras and quaggas[17] in the South African karoo, nor to the immeasurable trains of buffaloes on the North American prairies;[18] nor are the birds of the steppes so numerous as those on the continental shores or on single islands, or on the African steppes, or in equatorial forests. But both birds and mammals enter into the composition of a steppe landscape; they help to form and complete the peculiarity of this region; in short, the steppes also

have their characteristic fauna.

The places at which the animals chiefly congregate are the lakes and pools, rivers and brooks. Before the existence of a lake is revealed by the periodically or permanently flooded reed-forests surrounding it, hundreds and thousands of marsh-birds and swimmers have told the practised observer of the still invisible sheet of water. In manifoldly varied flight, fishing-gulls, common gulls, and herring-gulls sweep and glide over its surface; more rapidly and less steadily do the terns pursue the chase over the reeds and the pools which these inclose; in mid-air the screaming eagles circle; ducks, geese, and swans fly from one part of the lake to another; kites hover over the reeds; even sea-eagles and pelicans now and then show face. As to the actual inhabitants of these lakes, as to the number of species and individuals, one can only surmise until one has stationed oneself on the banks, or penetrated into the thicket of reeds. In the salt-steppe, as is readily intelligible, the animal life is sparser. With hasty flight most of the water-birds pass over the inhospitable, salt-covered shores, as they wend from lake to lake; only the black-headed gulls and fishing-gulls are willing to rest for a time by the not wholly dry, but shallow, briny basins; only the sheldrake fishes there in company with the charming avocet, who seeks out just these very places, and, living in pairs or small companies, spends his days stirring up the salt water, swinging his delicate head with upturned bill from side to side indefatigably. Of other birds I only saw a few, a yellow or white wagtail, a lapwing, a plover; the rest seem to avoid the uninviting desolateness of these brine pools, all the more that infinitely more promising swamps and pools are to be found quite near them. About the lake itself abundant food seems

to be promised to all comers. Thus not only do thousands of marsh and water birds settle on its surface, but even the little songsters and passerine birds, unprovided for by the dry steppes, come hither. Not the fishers alone, but other hungry birds of prey find here their daily bread. The steppe-lakes cannot indeed be compared with those of North Africa, where, during winter, the feathered tribes of three-quarters of the globe have their great rendezvous, nor with the equatorial water-basins, which are thronged by hundreds of thousands of birds at every season, nor even with the marsh-lands of the Danube, where, all through the summer, countless children of the air find rest; in proportion to the extent of water in the steppes the number of winged settlers may seem small, but the bird-fauna is really very considerable, and the lakes of the steppes have also a certain uniqueness in regard to the nesting-places chosen by the birds.



Fig. 13.—Lake Scene and Water-fowl in an Asiatic Steppe.

Here every creature has its home among the reeds: the wolf and the boar, the eagle and the wild-goose, the kite and the swan, the raven and the mallard, the

gadwall or teal, the thrush and the white-throat, the reed-tit and the sparrow, the reed-bunting and the ortolan, the willow wren and the blue-throated warbler, the lesser kestrel and the red-footed falcon, the crane and the lapwing, the shrike and the snipe, the starling, the yellow and white wagtails, the quail and the kingfisher, the great white heron and the spoonbill, the cormorant and the pelican. The reed-thickets afford home and shelter to all; they take the place of woods in affording hiding and security; in their retreats the secrets of love are told, and the joys of family life are expressed, exuberant rejoicings are uttered, and the tenderest cares are fulfilled; they are the cradles and the schools of the young.

Of the mammals which congregate among the reeds one usually sees only the tracks, provided, of course, that one does not resort to forceful measures and ransack the thicket with dogs. Of the flitting bird-life, however, in its general features at least, the practised eye of the naturalist may at any time obtain a lively picture.

When we leave the dry steppes and approach a lake, the widely-distributed larks disappear, and their place is taken by the plovers, whose plaintive cries fall mournfully on the ear. One of them may be seen running by fits and starts along the ground, with the characteristic industry of its race, stopping here and there to pick up some minute booty, and then running off again as swiftly as ever. Before we reach the reeds we see the black-headed gulls, probably also the common gulls, and, in favourable circumstances, even a great black-backed gull. The first fly far into the steppes to seek out the grazing herds, and are equally decorative whether they sweep gracefully over and around them in thick

crowds, catching in their flight the insects which the grazing beasts have disturbed, or whether they run behind the herd like white pigeons seeking their food in the fields. Near the reeds we also see one or other of the wild-geese—a male who for a short time has left his mate sitting upon the eggs, to graze, while it is still possible, on the grassy patches near the reed-thicket. Soon, however, parental cares, in which all ganders share, will recall him to the recesses of the willows close by the lake, to the nook where the careful parents have their gray-greenish-yellow goslings well hidden. Over all the flooded shallows there is a more active life. On the margins of the pools small littoral birds have their well-chosen fighting-grounds. Fighting-ruffs,[19] now arrayed in their gayest dress, meet there in combat; with depressed head each directs his beak like a couched lance against the bright neck-collar which serves his foe for shield. The combatants stand in most defiant attitudes, irresistibly amusing to us; for a moment they look at one another with their sharp eyes and then make a rush, each making a thrust, and at the same time receiving one on his feathery shield. But none of the heroes is in any way injured, and none allows the duelling to interfere with less exciting business; for if, during the onslaught, one see a fly just settling on a stem, he does not allow it to escape him, and his opponent is equally attentive to the swimming beetle darting about on the surface of a small pool; hastily they run, one here and the other there, seize the booty which they spied, and return refreshed to the fray. Meantime, however, other combatants have taken the field, and the fight seems as if it would never have an end. But suddenly a marsh-harrier comes swooping along, and the heroes hastily quit the field; they rise together in close-

packed flight, and hurry to another pond, there to repeat the same old game. The dreaded harrier is the terror of all the other birds of the lake. At his approach the weaker ducks rise noisily, and, a moment later, their stronger relatives, more disturbed by the ducks than by the bird of prey, rise impetuously, and with whizzing beating of wings, circle several times over the lake and sink again in detachments. With trilling call the redshanks also rise, and with them the snipe, whose cry, though tuneless, is audible from afar. The robber sweeps past all too near, but both redshank and snipe forget his menace as soon as they reach a safe height; they seem to feel only the golden spring-tide and the joy of love which now dominates them. For the redshank sinks suddenly to the water far beneath, flutters, and hovers with his wings hanging downwards and forwards, rises again with insistent calls and sinks once more, until a response from his mate near by invites him to cease from his love-play and to hasten to her. So is it also with the snipe, who, after he has ended his zigzag flight, and ascended to twice the height of a tower, lets himself fall suddenly. In the precipitous descent he broadens out his tail, and opposes the flexible, narrow, pointed lateral feathers to the resisting air, thus giving rise to that bleating noise to which he owes his quaint name of sky-goat. [20] Only a pair of the exceedingly long-legged black-winged stilts, which were pursuing their business in apparently aristocratic isolation from the throng, have remained undisturbed by the marsh-harrier; perhaps they saw the bold black-headed gulls hastening to drive off the disturber of the peace. Moreover, a Montagu's harrier and a steppe-harrier have united their strength against the marsh-harrier, whom they hate with a bitterness proportionate to

his near relationship. Without hesitation the robber makes for the open country, and next minute there is the wonted whistling and warbling, scolding and cackling over the water. Already there is a fresh arrival of visitors, drawn by that curiosity common to all social birds, and also, of course, by the rich table which these lakes afford.

When at length we reach the thicket of reeds the smaller birds become more conspicuous, the larger forms being more effectively concealed. The crane, which breeds on the most inaccessible spots, the great white heron, which fishes on the inner margin of the thicket, the spoonbill, which forages for food on the shallowest stretches among the reeds, all these keep themselves as far as possible in concealment, and of the presence of the bittern in the very heart of the reeds we are aware only by his muffled booming. On the other hand, all the small birds to which I have referred expose themselves to view almost without any wariness, singing and exulting in their loudest notes. The yellow wagtails run about confidently on the meadow-like plots of grass around the outer margin of the thicket; that marvel of prettiness, the bearded titmouse, climbs fearlessly up and down on the reeds, whose tops are graced here by a redbreast and there by a gray shrike. From all sides the cheerful, though but slightly melodious song of the sedge-warblers strikes the ear, and we listen with pleasure to the lay of the black-throated thrush, to the lovely singing of the blue-throat, the wood-wren, and the icterine warbler, and to the call of the cuckoo. On the open pools among the reeds there is sure to be a pair of coots swimming with their young brood, and where the water is deeper there is perchance an eared grebe among the various kinds of ducks. When it draws to

evening the red-footed falcon, the lesser kestrel, the starlings and the rose-starlings also seek the thicket for the night, and of chattering and fussing there is no end. Even the spotted eagle, the raven, and the hooded-crow appear as guests for the night, and, on the inner margins at least, the cormorant and the pelican rest from their fishing.

Finally, over the surface of the lake the gulls fly and hover, the terns dart hither and thither, the ernes and ospreys pursue their prey, and, where the water is not too deep, the pelicans and swans vie in their fishing industry with the greedy cormorants and grebes.

The beds of streams fringed with trees and bushes are hardly less rich in life. The trees bear the nests of large and small birds of prey, and serve also for their perches. From their tops may be heard the resonant call of the golden oriole, the song of the thrush, the laughter of the woodpecker, and the cooing of the ring-dove and stock-dove; while from the thick undergrowth the glorious song of the nightingale is poured forth with such clearness and power, that even the fastidious ear of the critic listens in rapture to the rare music. On the surface of the stream many different kinds of water-birds swim about as on the lake; among the bushes on the banks there is the same gay company that we saw among the reeds; the lesser white-throat chatters, the white-throat and the barred warbler sing their familiar songs.

When we traverse the dry stretches of the steppes we see another aspect of animal life. Again it is the bird-life which first claims attention. At least six, and perhaps eight species of larks inhabit the steppes, and give life to even the dreariest regions. Uninterruptedly does their song fall on the traveller's

ear; from the ground and from the tops of the small bushes it rises; from morning to evening the rich melody is poured forth from the sky. It seems to be only one song which one hears, for the polyphonous calandra lark takes the strophes of our sky-lark and of the white-winged lark and combines them with its own, nor despises certain notes of the black lark, the red lark, and the short-toed lark, but blends all the single songs with its own, yet without drowning the song of its relatives, no matter how loudly it may pour forth its own and its borrowed melodies. When, in spring, we listen enraptured to our own sky-larks in the meadows, and note how one sweet singer starts up after another in untiring sequence, heralding the spring with inspired and inspiring song, we hardly fancy that all that we can hear at home is surpassed a hundredfold on the steppes. Yet so it is, for here is the true home of the larks; one pair close beside another, one species and then another, or different kinds living together, and in such numbers that the broad steppes seem to have scarce room enough to hold them all. But the larks are not the only inhabitants of these regions. For proportionately numerous are the lark's worst enemies, full of menace to the dearly loved young brood—the harriers, characteristic birds of the steppes. Whatever region we visit we are sure to see one or another of these birds of prey, in the north Montagu's harrier, in the south the steppe-harrier, hurrying over his province, sweeping along near the ground in wavy, vacillating flight. Not unfrequently, over a broad hollow, four, six, eight or more may be seen at once absorbed in the chase. Even more abundant, but not quite so widely distributed, are two other children of the steppes, almost identical in nature and habits, and vieing with one another in

beauty, grace of form, and vigour of movement,—the lesser kestrel and the red-footed falcon. Wherever there is a perching-place for these charming creatures, where a telegraph-line traverses the country, or where a rocky hillock rises from the plain, there they are sure to be seen. As good-natured as they are gregarious, unenvious of each other's gain, though they pursue the same booty, these falcons wage indefatigable war against insects of all sorts, from the voracious grasshopper to the small beetle. There they sit, resting and digesting, yet keeping a sharp look-out meanwhile; as soon as they spy booty they rise, and after an easy and dexterous flight begin to glide, then, stopping, they hover, with scarce perceptible vibrations, right over one spot, until, from the height, they are able to fasten their eyes surely on their prey. This done, they precipitate themselves like a falling stone, seize, if they are fortunate, the luckless insect, tear it and devour it as they fly, and, again swinging themselves aloft, proceed as before. Not unfrequently ten or twelve of both species may be seen hunting over the same spot, and their animated behaviour cannot fail to attract and fascinate the observer's gaze. Every day and all day one comes across them, for hours at a time one may watch them, and always there is a fresh charm in studying their play; they are as characteristic parts of the steppe picture as the salt lake, the tulip or the lily, as the dwarf shrub, the tschi-grass, or the white wool-packs in the heavens. Characteristic also is the rose-starling, beautifully coloured representative of the familiar frequenter of our houses and gardens. He is the eager and successful enemy of the greedy grasshopper, the truest friend of the grazing herds, the untiring guardian of the crops and thus man's sworn ally, an

almost sacred bird in the eyes of those who inhabit the steppes. Notable also is the sand-grouse, a connecting link between fowl and pigeon,[21] which, with other members of its family, is especially at home in the desert. Not less noteworthy are the great bustard, its handsomer relative the ruffed bustard, and the little bustard. The last-named is of special interest to us, because a few years ago it wandered into Germany as far as Thuringia, where it now, as in the steppe, adds a unique charm to the landscape as it discloses its full beauty in whizzing flight. Other beautifully coloured, and indeed really splendid birds inhabit the steppes—the lovely bee-eater and roller, which live on the steep banks of the streams along with falcons and pigeons, the bunting and the scarlet bullfinch, which shelter among the tschi-grass and herbage, and many others. Even the swallows are not absent from this region in which stable human dwellings are so rare. That the sand-martin should make its burrows in all the steeper banks of the lakes will not seem strange to the ornithologist, but it is worthy of note that the swallow and martins are still in process of transition from free-living to semi-domesticated birds, that they still fix their nests to the cliffs, but leave these to establish themselves wherever the Kirghiz rear a tomb, and that the martins seek hospitality even in the tent or *yurt*.[22] They find it, too, when the Kirghiz is able to settle long enough to allow the eggs to hatch and the young to become fledged, in a nest fixed to the cupola ring of his hut.

But in these regions, whose bird-life I have been describing, there are other animals. Apart from the troublesome mosquitoes, flies, gadflies, wasps, and other such pests, there are only a few species of insects, but most of these are very numerous and are

distributed over the whole of the wide area. The same is true of the reptiles; thus in the region which we traversed we found only a few species of lizards and snakes. Among the latter we noted especially two venomous species, our common viper and the halys-viper; neither indeed occurred in multitudes like the lizards, but both were none the less remarkably abundant. Several times every day as we rode through the steppe would one and the other of the Kirghiz who accompanied us bend from his horse with drawn knife, and slash the head off one of these snakes. I remember, too, that, at a little hill-town in the northern Altai, a place called “Schlangenberg” [or Snakemount], we wished to know whether the place had a good right to its name, and that the answer was almost embarrassingly convincing, so abundant was the booty with which those whom we had sent in quest soon returned. We had no longer any reason to doubt the truth of the tale according to which the place owed its name to the fact that, before the town was founded, the people collected thousands and thousands of venomous snakes and burned them. Amphibians and small mammals seem much rarer than reptiles; of the former we saw only a species of toad, and of the latter, several mice, a souslik, two blind mole-rats, and the dainty jerboa, popularly known as the jumping-mouse.



Fig. 14.—The Souslik (*Spermophilus citillus*).
(⅓ natural size.)



Fig. 15.—The Jerboa (*Alactaga jaculus*).
(⅓ natural size.)

The sousliks and the jerboas are most charming creatures. The former especially are often characteristic features of steppe-life, for in favourable places they readily become gregarious, and, like the related marmots, form important settlements. It is usually towards evening that one sees them, each sitting at the door of his burrow. On the approach of the waggon or train of riders they hastily beat a retreat, inquisitively they raise their heads once more, and then, at the proper moment, they vanish like a flash into their burrows, only to reappear, however, a few minutes later, peering out

cautiously as if to see whether the threatened danger had passed safely by. Their behaviour expresses a continual wavering between curiosity and timidity, and the latter is fully justified, since, apart from man, there are always wolves and foxes, imperial eagles and spotted eagles, on their track. Indeed one may be sure that the sousliks are abundant when one sees an imperial eagle perching on the posts by the wayside or on the trees by a village. The jerboa—by far the prettiest of the steppe-mammals—is much less frequently seen, not indeed because he occurs less frequently, but because, as a nocturnal animal, he only shows himself after sunset. About this time, or later if the moon be favourable, one may see the charming creature steal cautiously from his hole. He stretches himself, and then, with his pigmy fore-limbs pressed close to his breast, trots off on his kangaroo-like hind-legs, going as if on stilts, balancing his slim erect body by help of his long hair-fringed tail. Jerkily and not very rapidly the jerboa jumps along the ground, resting here and there for a little, sniffing at things and touching them with its long whisker-hairs, as he seeks for suitable food. Here he picks out a grain of seed, and there he digs out a bulb; they say of him also that he will not disdain carrion, that he will plunder a bird's nest, steal the eggs and young of those which nest on the ground, and even hunt smaller rodents, from all which accusations I cannot venture to vindicate him. Precise and detailed observation of his natural life is difficult, for, his senses being keen and his intelligence slight, timidity and shyness are his most prominent qualities. As soon as man appears in what seems dangerous proximity, the creature takes to flight, and it is useless to try to follow; even on horseback one could scarce overtake him. With great

bounds he hurries on, jerking out his long hind-legs, with his long tail stretched out as a rudder; bound after bound he goes, and, before one has rightly seen how he began or whither he went, he has disappeared in the darkness.[23]

The fauna of the steppe-mountains differs from that of the low-grounds, differs at least, when, instead of gentle slopes or precipitous rocky walls, there are debris-covered hillsides, wild deeply-cut gorges, and rugged plantless summits. In the narrow, green valleys, through which a brook flows or trickles, the sheldrake feeds—an exceedingly graceful, beautiful, lively bird, scarce larger than a duck—the characteristic duck of the central Asiatic mountains. From the niches of the rocks is heard the cooing of a near relative of the rock-dove, which is well known to be ancestor of our domestic pigeons; from the rough blocks on which the wheatear, the rock-bunting, and the rock-grosbeak flit busily, the melodious song of the rock-thrush streams forth. Around the peaks the cheerful choughs flutter; above them the golden-eagle circles by day, and the horned owl flies silently as a ghost by night, both bent on catching one of the exceedingly abundant rock ptarmigan, or, it may be, a careless marmot. More noteworthy, however, is the *Archar* of the Kirghiz, one of the giant wild sheep of Central Asia, the same animal that I had the good fortune to shoot on the Arkat mountains.

According to the reports which I gathered after careful cross-examination of the Kirghiz, the archar occurs not only here, but also on other not very lofty ranges of the western Siberian steppes. They are said to go in small troops of five to fifteen head, rams and ewes living in separate companies until the breeding

season. Each troop keeps its own ground unless it be startled or disturbed; in which case it hastens from one range to another, yet never very far. Towards sunset the herd ascends, under the guidance of the leader, to the highest peaks, there to sleep in places scarce accessible to other creatures; at sunrise, both old and young descend to the valleys to graze and to drink at chosen springs; at noon, they lie down to rest and ruminate in the shade of the rocks, in places which admit of open outlook; towards evening they descend again to graze. Such is their daily routine both in summer and winter. They eat such plants as domesticated sheep are fond of, and they are, when needs must, easily satisfied; but even in winter they rarely suffer from want, and in spring they become so vigorous that from that season until autumn they are fastidious, and will eat only the most palatable herbs. Their usual mode of motion is a rapid, exceedingly expeditious trot; and even when frightened they do not quicken their steps very markedly unless a horseman pursue them. Then they always take to the rocks and soon make their escape. When in flight either on the plain or on the mountains they almost always keep in line, one running close behind another, and, if suddenly surprised and scattered, they re-form in linear order as speedily as possible. Among the rocks they move, whether going upwards or downwards, with surprising ease, agility, and confidence. Without any apparent strain, without any trace of hurry, they clamber up and down almost vertical paths, leap wide chasms, and pass from the heights to the valley almost as if they were birds and could fly. When they find themselves pursued, they stand still from time to time, clamber to a loftier peak to secure a wider prospect, and then go on their way so calmly that it

seems as if they mocked their pursuer. Consciousness of their strength and climbing powers seems to give them a proud composure. They never hurry, and have no cause to regret their deliberation except when they come within shot of the lurking ambuscade or the stealthy stalker.

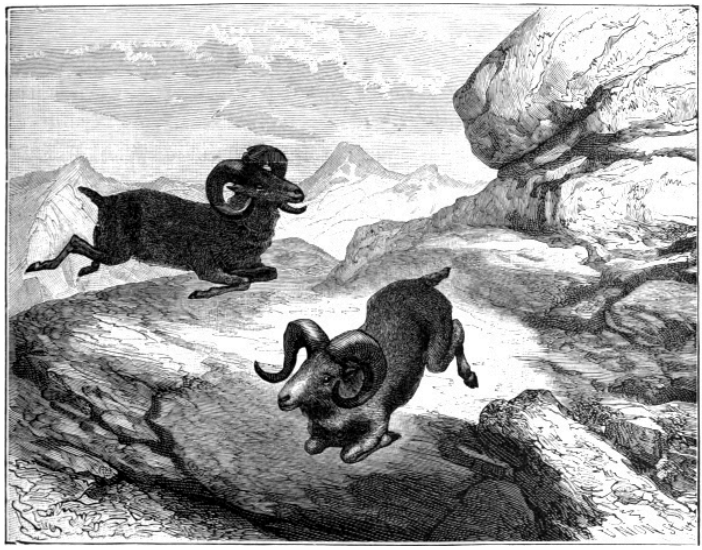


Fig. 16.—Archar Sheep or Argali (*Ovis Argali*).

The sheep live at peace together throughout the year, and the rams only fight towards the breeding season. This occurs in the second half of October and lasts for almost a month. At this time the high-spirited, combative rams become greatly excited. The seniors make a stand and drive off all their weaker fellows. With their equals they fight for life or death. The rivals stand opposed in menacing attitudes; rearing on their hind-legs they rush at one another, and the crash of powerful horns is echoed in a dull rumble among the rocks. Sometimes it happens that they entangle one another, for the horns may interlock inseparably, and both perish miserably; or one ram

may hurl the other over a precipice, where he is surely dashed to pieces.

During the last days of April or the first of May the ewe brings forth a single lamb or a pair. These lambs, as we found out from captive ones, are able in a few hours to run with their mother, and in a few days they follow her over all the paths, wherever she leads them, with the innate agility and surefootedness characteristic of their race. When serious danger threatens, the mother hides them in the nooks of the rocks, where the enemy may perchance overlook their presence. She returns, of course, after she has successfully eluded the foe. The lambkin, pressed close to the ground, lies as still as a mouse, and, looking almost like a stone, may often escape detection; but not by any means always is he safe, least of all from the golden eagle, which often seizes and kills a lamb which the mother has left unprotected. So we observed when hunting on the Arkat Mountains. Captive archar lambs which we got from the Kirghiz were most delightful creatures, and showed by the ready way in which they took to the udders of their foster-mothers that they might have been reared without special difficulty. Should it prove possible to bring the proud creatures into domestication the acquisition would be one of the greatest value. But of this the Kirghiz does not dream, he thinks only of how he may shoot this wild sheep or the other. Not that the chase of this powerful animal is what one could call a passion with him; indeed the sheep's most formidable enemy is the wolf, and it is only in the deep snow in winter that even he manages to catch an archar.

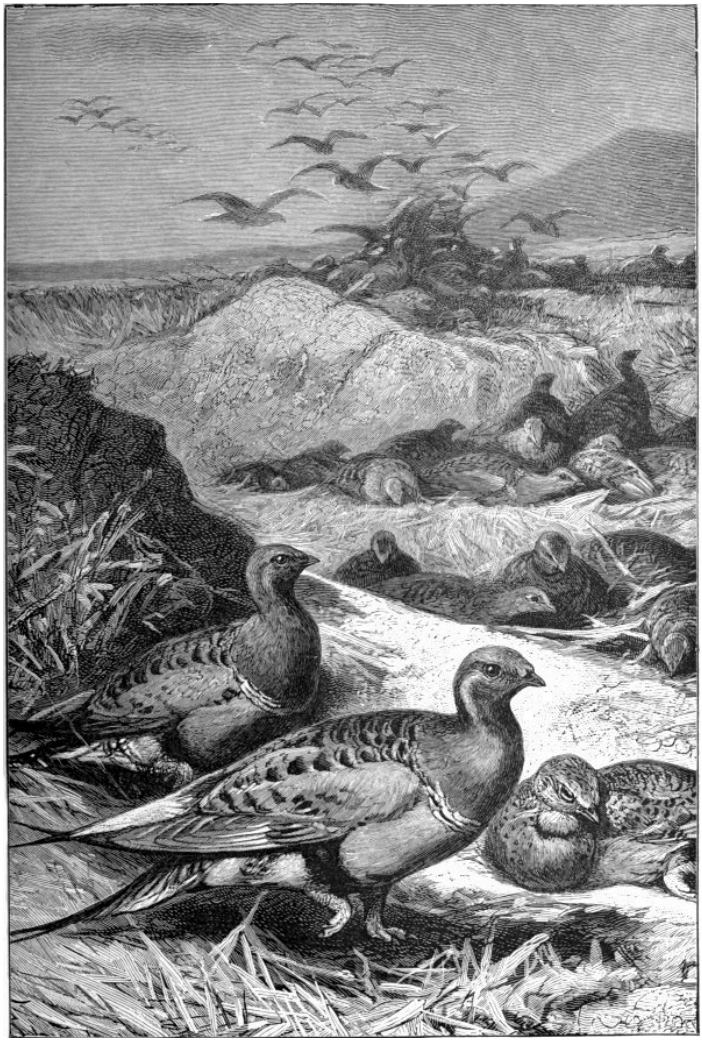


Fig. 17.—Pallas's Sand-grouse (*Syrrhaptes paradoxus*).

As on the mountains, so on the driest, dreariest stretches of the steppes, which even in spring suggest African deserts, there are characteristic animals. In such places almost all the plants of the highlands and valleys disappear except the low tufted grass and

diminutive bushes of wormwood. Here, however, grows a remarkable shrub which one does not see elsewhere, a shrub called *ramwood* on account of its extreme hardness and toughness, which baffles the axe. It roots on those rare spots in the wilderness where the rain-storms have washed together some poor red clay. There it sometimes grows into bushwork of considerable extent, affording shelter and shade to other plants, so that these green spots come to look like little oases in the desert. But these oases are no more lively than the dreary steppes around, for apart from a shrike, the white-throat, and a wood-wren, one sees no bird, and still less any mammal. On the other hand, amid the desolation there live some of the most notable of the steppe animals, along with others which occur everywhere; besides the short-toed lark and calandra lark there is the coal-black Tartar lark, which those aware of the general colour-resemblance between ground-birds and the ground would naturally look for on the black earth. Along with the small plover there is the gregarious lapwing, along with the great bustard the slender ruffed bustard, which the Kirghiz call the ambler, along with the sand-grouse there is Pallas's sand-grouse or steppe-grouse.[24] It was this last bird which some years ago migrated in large numbers into Germany and settled on the dunes and sandy places, but was so inhospitably received by us, so ruthlessly persecuted with guns, snares, and even poison, that it forsook our inhuman country and probably returned to its home. Here, too, along with the specially abundant souslik, there are steppe antelopes and the *Kulan*, the fleet wild horse of the steppes. I must restrict myself to giving a brief sketch of the last, so as not to overstep too far the limits of the time allowed me.

If Darwin's general conclusions be reliable, we may perhaps regard the kulan as the ancestor of our horse, which has been gradually improved by thousands of years of breeding and selection. This supposition is more satisfactory than the vague and unsupported assertion that the ancestor of our noblest domestic animal has been lost, and to me it is more credible than the opinion which finds in the Tarpan which roams to-day over the Dnieper steppes an original wild horse, and not merely one that has reverted to wildness.[25] As recent investigations in regard to our dogs, whose various breeds we cannot compute with even approximate accuracy, point to their origin from still existing species of wolf and jackal, my conclusion in regard to the horse acquires collateral corroboration. Moreover, the ancestor of our domestic cat, now at last recognized, still lives in Africa, and the ancestor of our goat in Asia Minor and in Crete.[26] As to the pedigree of our sheep and cattle we cannot yet decide with certainty, but I have consistent information from three different quarters, including the report of a Kirghiz who declared that he had himself hunted the animal, to the effect that in the heart of the steppes of Mongolia there still lives a camel with all the characteristics of wildness.[27] I cannot doubt the truth of the reports which I received, and the only question is, whether this camel represents the original stock still living in a wild state, or whether, like the tarpan, it be only an offshoot of the domesticated race which has returned to wild life. As the veil is slowly being lifted which hid, and still hides, the full truth from our inquiring eyes, as the ancestors of our domesticated animals are being discovered one after the other, and that among species still living, why should we suppose that the ancestor of the horse, the conditions of

whose life correspond so thoroughly with those of the broad measureless steppes, has died out without leaving a trace? It is, I maintain, among the still living wild horses of the Old World that we must look for the progenitor of our horse, and among these none has more claims to the honour of being regarded as the ancestor of this noble creature than the kulan. It may be that the tarpan more closely resembles our horse, but, if it be true that the Hyksos brought the horse to the ancient Egyptians (from whose stone records we have our first knowledge of the domesticated animal), or that the Egyptians themselves tamed the horse before the time of the Hyksos, and therefore at least one and a half thousand years before our era, then certainly the race had not its origin in the steppes of the Dnieper and the Don. For nearer at hand, namely in the steppes and deserts of Asia Minor, Palestine, and Persia, and in several valleys of Arabia and India, they had a wild horse full of promise, one which still lives, our kulan. This differs indeed in several features from our horse, but not more than the greyhound, the poodle, or the Newfoundland differs from the wolf or any other wild dog, not more than the dachshund, the terrier, or the spaniel from the jackal, not more than the pony from the Arabian horse, or the Belgian-French cart-horse from the English racer. The differences between our domesticated horse and the wild form which seems to me its most probable ancestor are indeed important, but horse and kulan seem to regard themselves as belonging to the same blood, since they seek each other's company.

When, on the 3rd June, 1876, we were riding through the dreary desert steppes between the Saisan lake and the Altai—a region from which I have

drawn the main features of the above sketch—we saw in the course of the forenoon no fewer than fifteen kulans. Among these we observed one pair in particular. They stood on the broad crest of a near hillock, their forms sharply defined against the blue sky, and powerfully did they raise the desire for the chase in us and in our companion Kirghiz. One of them made off as we appeared, and trotted towards the mountain; the other stood quietly, and seemed as if considering a dilemma, then raised its head once and again, and at last came running towards us. All guns were at once in hand; the Kirghiz slowly and carefully formed a wide semicircle with the intention of driving the strangely stupid and inconceivably careless creature towards us. Nearer and nearer, halting now and then, but still steadily nearer he came, and we already looked upon him as a sure captive. But a smile broke over the face of the Kirghiz riding beside me; he had not only discovered the motive of the creature's apparently foolish behaviour, he had recognized the animal itself. It was a Kirghiz horse, dappled like a kulan, which, having strayed from his master's herd, had fallen in with wild horses, and, for lack of better company, had stayed with them. In our horses he had recognized his kin, and had therefore forsaken his friends in need. Having come quite near to the Kirghiz, he stopped again as if to reflect whether he should once more yield his newly-healed back to the galling saddle; but the first steps towards return were followed by others, and without an attempt at flight he allowed them to halter him, and in a few minutes he was trotting as docilely by the side of one of the horsemen as if he had never known the free life of his ancestors. Thus we were able to confirm by personal experience the already accepted fact, that

horse and kulan do sometimes keep company.

The kulan is a proud, fascinating creature, full of dignity, strength, and high spirits. He stares curiously at the horseman who approaches him; and then, as if deriding the pursuer, trots off leisurely, playfully lashing his flanks with his tail. If the rider spurs his horse to full speed, the kulan takes to a gallop as easy as it is swift, which bears him like the wind over the steppes and soon carries him out of sight. But even when at full speed he now and again suddenly pulls himself up, halts for a moment, jerks round with his face to the pursuer, neighs, and then, turning, kicks his heels defiantly in the air, and bounds off with the same ease as before. A fugitive troop always orders itself in line, and it is beautiful to see them suddenly halt at a signal from the leader, face round, and again take to flight.

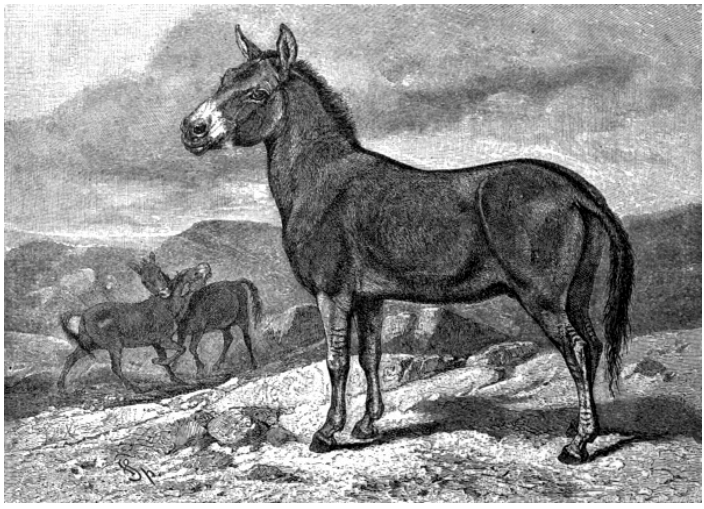


Fig. 18.—The Kulan (*Equus hemionus*).

As among all horses, each troop of kulans has a stallion for leader, and he is the absolute master of them all. He leads the troop to pasture as well as in

flight, he turns boldly on carnivores which are not superior in force, he permits no quarrelling among his followers, and tolerates no rival, indeed no other adult male in the herd. In every district which the kulans frequent, solitary individuals are to be seen unaccompanied by any troop; they are stallions which have been vanquished and driven off after furious and protracted combats, and which must roam about alone until the next breeding season. In September they again approach the herds, from which the old stallion now drives off the newly-matured stallions, and a fierce battle begins when they catch sight of an opponent. For hours at this season they stand on the crests of steep ridges, with widely-open nostrils raised to the wind, with their eyes on the valley before them. As soon as the banished one sees another stallion, he rushes down at full gallop, and fights to exhaustion with both teeth and hoofs. Should he conquer the leader of a herd, he enters upon his rights, and the mares follow him as they did his predecessor. After the battles are over comes the time of wandering, for the hard winter drives the herds from one place to another, and it is only when spring has fully come that they return to their old quarters. Here, in the end of May or in the beginning of June the mare brings forth her foal, which in every respect resembles that of the domestic horse—a somewhat awkward-looking, but very nimble and lively creature. We had the good fortune to be able to make its acquaintance.

On climbing one of the elongated hillocks of these desert-steppes, we suddenly saw at a short distance three old kulans and a foal, which seemed to be only a few days old. Our Russian companion fired a shot, and away rushed the wild horses, with their hoofs scarce touching the ground, yet exerting their

incomparable agility almost with the ease of play, and obviously keeping themselves in check for the sake of the foal. Down rushed all the Kirghiz and Cossacks of our company; our attendants, carried away with the general excitement, also gave chase; and down we also rushed. It was a wild chase. Still playing with their strength, the wild horses made for the distant mountains, while all the riders urged on their steeds to their utmost, till their bellies seemed almost to touch the ground. The desert resounded with the jubilant cries of the Kirghiz, the thundering of their horses at full gallop, the neighing of our slower horses which gnashed at their bridles; fluttering cloaks and kaftans and whirling clouds of dust filled and enlivened the solitudes. Further and further rushed the chase. Then the foal separated itself from its older companions and fell behind; the distance increased between it and the anxious glance which the mother repeatedly cast back; the distance between it and our horsemen decreased; and in a few minutes it was taken. Without resistance it gave itself up to its pursuers; it showed no trace of the characteristic qualities of the adults—wildness, hardly governable self-will, and inconquerable roguishness, which often degenerates into downright spite. Innocently it gazed at us with its large lively eyes, with apparent pleasure it allowed us to stroke its soft skin, without resistance it allowed itself to be led along with a halter, in child-like carelessness it lay down beside us seeking obviously much-needed rest after the heat of the chase. The charming creature at once captivated every one. But who was to find a milk-mare to be its foster-mother, who was to give it rest and care? Both were impossible, and on the second day the lovable creature was dead. With the passion of sportsmen would we have killed

a full-grown kulan, but to see the foal die gave us genuine sorrow.

In vain we tried to capture one of the adults; in vain we lay in ambush beside the bound foal in hopes of inveigling its mother; in vain we tried to effect something by driving; none of us had any luck. As a sportsman, I left the dreary solitudes with regret, but as a naturalist I was in the highest degree satisfied, for there I had come to know the noblest creature of the steppes.

THE FORESTS AND SPORT OF SIBERIA.

Siberian scenery gives one an impression of uniformity and monotony, which is mainly due to the fact that the whole country consists of three zones, each more or less homogeneous within itself, though distinct from the other two. Each of these zones preserves its special character everywhere, and the same picture is repeated a hundred times, satiating and blunting the senses till one becomes almost incapable of recognizing or appreciating the charms of any scene. Thus it is that we seldom hear anyone speak with appreciation, much less with enthusiasm, of the scenery of this wide region,—although it certainly deserves both—and, thus, gradually there has become fixed in our minds an impression of Siberia which refuses correction with an obstinacy proportionate to its falseness. Siberia is thought of as a terrible ice-desert, without life, without variety, without charm, as a frozen land under the curse of heaven and of miserable exiles. But it is entirely forgotten that Siberia includes a full third of Asia, and that a region which is almost twice as large as the whole of Europe, which extends from the Ural to the Pacific Ocean, from the Arctic sea to the latitude of Palermo, cannot possibly be excessively monotonous nor uniform in all its parts. But people usually picture only one district of Siberia, and even that in a false light.

In truth the country is richer in variety than any one

has hitherto described it. Mountains interrupt and bound the plains, both are brightened by flowing and standing water, the sun floods hills and valleys with shimmering light and gleaming colour, lofty trees and beautiful flowers adorn the whole land, and men live happily, joyous in their homes.

Of course there are undeniable wildernesses even now in Siberia, and these, along with the likewise real ice-deserts, the tundras, do, to a certain extent, justify the popular impression. Dreary also are the forests which lie between the tundra and the steppes, and form the third zone. In them man never ventures to establish himself; on them the industry of the settlers along their borders make relatively little impression; within them the forces of nature hold absolute sway, creating and destroying without interference. The flame of heaven sets the trees ablaze, the raging winter-storm hurls them to the ground; the forests rise and disappear without any human control, and may in the fullest sense of the word be called primeval. Full of mystery they attract, and at the same time inhospitably repel; inviting they seem to the hunter, but resistant they bar his steps; rich gain they promise the eager merchant, but postpone the fulfilment of his wishes to the future. This girdle of forest extends, as we have mentioned, between the steppes and the tundra. Here and there it encroaches on both; here and there they intrude upon it. At certain places in both the unwooded zones, a compact wood may dispute possession with the characteristic vegetation of steppes or of tundra, as the case may be, but such isolated woods are almost always like islands in the sea, for whose presence there is no obvious justification. In the steppes they are restricted to the northern slopes of the mountains and to the valleys, in the tundra to the

deepest depressions. But in both cases they are unimportant in comparison with the measureless extent of the forest zone, in which it is only here and there that a stream, a lake, or a swamp interrupts the continuity of the wilderness of trees which extends on all sides. A conflagration may make a clearing, or, at the extreme fringe, man may make a gap, but otherwise there is no interruption. Whole countries, as we know them, might find space in one of these immense forest tracts; and there are kingdoms of smaller area than some of them. What the interior is like no one can tell, for not even by the streams which flow from them can one penetrate far, and even the boldest sable-hunters do not know more than a margin of at most fifty or sixty miles.

The general impression which the Siberian forests make on the German traveller is by no means favourable. At the apparently boundless tracts which are wooded, he is of course astonished, but he cannot be enthusiastic, or at least very rarely. The creative, productive, renewing power of the North does not seem to be adequate to balance the destructive forces. Hoary age stands side by side with fresh youth, but somehow there is no vitality in the combination; incomputable wealth appears in beggar's garb; and moribund life without any promise of vigorous rejuvenescence inhibits any feeling of joy. Everywhere we seem to perceive the hard struggle for existence, but nowhere are we really fascinated or attracted by the spirit of the woods, nowhere does the interior fulfil the expectations which the external aspect suggested. The splendour of the primitive forests in lower latitudes is entirely and absolutely lacking in this derelict, uncared-for woodland. The life which stirs within them seems as if it had already fallen under

the shadow of death.[28]

True forest, full of fresh life, with continuance amid a regular succession of changes, is rare. The devastation wrought by fire is a much more frequent spectacle. Sooner or later a lightning-flash, or the culpable carelessness of the Siberian, sets the forest in a blaze. Favoured by the season and the weather the conflagration spreads in a manner scarce conceivable. Not for hours, but for days, or even for weeks, the destruction rages. On the mossy and turfy ground the flames smoulder and creep further and further; the quantities of dry and mouldy débris on the ground feed them, dry branches hanging down to the ground, or dead trunks, still upright, lead them to the tops of the living trees. Hissing and cracking the resinous needles fall, and a gigantic spray of sparks rises to heaven. In a few minutes the giant tree is dead, and the destruction spreads; the rockets which radiate from it fall in thousands of sparks, and all around fresh flames spring from the glowing seed. Thus every minute the fire gains ground, and destruction spreads on all sides uncontrolled. In a few hours square miles of the forest are ablaze. Over hundreds of square *versts* steaming clouds of smoke darken the sun; slowly, but thickly, and ever more thickly, the ashes drizzle down, and tell by day to distant settlers, as the glow reflected in the sky proclaims by night, that there is a fire in the forest. Affrighted animals carry terror into the surrounding townships. Immediately after great forest-fires, bears appear in districts where they have not been seen for years; wolves wander over the open country in formidable troops as if it were winter; elks, stags, roedeer and reindeer seek new homes in distant forests; and squirrels in countless swarms hurry through wood and plain, field and meadow, village

and town. How many of the terror-stricken beasts fall victims to the fire no one can estimate, but it has been found that woodlands desolated by conflagration remain for many years thereafter without fresh settlers, and that the valuable beasts of the chase have entirely disappeared from many of these desolated districts. The devastation is sometimes on a scale of vast magnitude; thus, in 1870, a fire which raged for about fourteen days destroyed a million and a quarter acres of valuable forest in the government of Tobolsk, while clouds of smoke and showers of ashes were borne to a distance of a thousand miles from the seat of the conflagration.

For many years the devastated woodland remains like an immense succession of ruins; even after a generation or two the limits of the conflagration may be recognized and defined. The flames destroy the life of almost all the trees, but they devour only those which were already dry; thus stems more smoked than charred remain standing, and even their tops may remain bereft only of their needles, young shoots, and dry twigs. But they are dead and their destruction is in process. Sooner or later they are bound to fall before the storm. One after another is hurled to the ground, and one after another is robbed of its branches, its crown, or a third or a fourth of the trunk is broken off from the top. Across one another, at all angles, and at different levels, thousands of these tree-corpses lie prostrate on the ground already thickly covered with piles of débris. Some rest on their roots and top-branches, others lean on the still upright stems of their neighbours, and others already lie crumbling among the fallen branches, their tops often far from their trunks, their branches scattered all around. To the lover of the

woods, those stems which still withstand the storm have perhaps an even more doleful appearance than those which have fallen. They stand up in nakedness like bare masts. Only a few retain their tops, or parts of them, for several years after the fire; but the weather-beaten twigless branches of the crowns rather increase than lessen the mournfulness of the picture. Gradually all the crowns sink to the ground, and the still upright trunks become more and more rotten. Woodpeckers attack them on all sides, chisel out nesting-holes, and make yard-long passages leading into the tree's heart, thus allowing the moisture free entrance and accelerating the process of decay. In the course of years even the largest trunk has mouldered so completely that it is really one huge homogeneous mass of rotten tinder which has lost all stability. Indeed, a rough shake from a man's hand is sufficient to make it fall into a heap of shapeless débris. Finally, even this disappears, and there is left a treeless expanse, broken only here and there by the last traces of a trunk.

But even here a new life begins to rise from amid the ruins. Some years after the conflagration, the charred ground, manured by ashes and decayed débris, begins once more to be adorned. Lichens and mosses, ferns and heaths, and above all various berry-bearing bushes cover the ground and the débris of the trees. These flourish more luxuriantly here than anywhere else, and they begin to attract animals as various as those which the flames had banished. Seeds of birch borne by the wind germinate and become seedlings, which gradually form, at first exclusively, a thicket as dense as if it had sprung from man's sowing. After some years a young undergrowth has covered the field of the dead; after a longer interval other forest trees gradually arise in the room of their

predecessors. Every forest-fire spares some parts of the region which it embraces; even isolated trees may survive in the midst of the burned area, and effect the re-sowing of the desolated tract. Sheets of water and deep gorges may set limits to the fire, and it may even happen that the flames, leaping over a gulley, continue their devastation on the opposite bank without injuring the trees in the depths beneath. Moreover, individual larch-trees which have been attacked by the fire may escape destruction. The bases of the trunks are charred and all the needles are shrivelled up, but often the crown bursts forth afresh, and for a time the tree continues, though somewhat miserably, to live.

In comparison with the ravages of the flames, the devastations for which man is directly responsible seem trivial, but in themselves they are of no slight importance. Of forest-culture the Siberian has no conception. The forest belongs to God, and what is His is also the peasant's; thus, in view of the practically infinite wealth, he never thinks of sparing, but does what he pleases, what the needs of the moment seem to him to demand. Every Siberian fells and roots out, where and as he pleases, and everyone destroys infinitely more than he really requires. For a few cones he will fell a pine, even if it be in the prime of growth; to obtain building wood he will cut down three or four times the quantity required, leaving the residue without a thought, often not even using it for fuel. Already, such careless procedure has entailed serious consequences. The woods in the neighbourhood of townships, and here and there even those near the highways, are worked out, and appear scarce better than those which the fire has devastated; and still the work of destruction goes on. It is only since 1875 that there

have been forest-officers in Western Siberia, and even they give their attention rather to the exploitation than to the renewal of the woods.

Even where neither man nor fire has ravaged them the forests present an appearance essentially different from ours—an appearance of complete, absolutely uncontrolled naturalness. It is but rarely, however, that this attracts us. At first, perhaps, we are impressed by seeing at one glance all stages of growth and decay; but the dead soon becomes more conspicuous than the living, and this depresses instead of stimulating.[29] In forests thus left in their natural state, thick growth alternates with clearing, tall trees with mere thicket, hoary senility with vigorous youth. Mouldering trees stand or lean, hang or lie everywhere. From the remains of fallen stems young shoots sprout; gigantic corpses bar the way within the thickets. Willows and aspens, which, with the birch, are the most abundant foliage-trees of Western Siberia, appear at times in irreproachable perfection, and at times as if they had been persistently hindered from full growth. Stems thicker than a man's waist bear tangled crowns of small size, on which, year after year, fresh twigs break forth without being able to grow into branches; other apparently aged trees remain not more than bushes; and others, broken across the middle, have their split, cracked, and twisted upper parts connected to the trunk only by the splintered bark. Rarely does one get a complete picture; everything looks as if it were going to ruin, and could advance only in decay.

Yet this sketch is not true of all the woods in this vast region; there are indeed woodlands, especially in the south of the zone, on which the eye rests with satisfaction. Locality, situation, soil, and other

conditions are sometimes alike propitious and combine to produce pleasing results. The growth of the individual trees becomes vigorous, and the general composition of the wood changes; the undergrowth, which is luxuriant everywhere, becomes diversified in the most unexpected manner. Gladly one welcomes each new species of tree or bush which reduces the marked poverty of species in these forests, but even from the richest tracts many trees are awanting which we rarely miss in Europe at the same latitude. It must be confessed that the forests of Siberia are uniform and monotonous, like the steppes, and like the tundra.

In the river-valleys of the forest zone the uniformity is perhaps most conspicuous. Here the willows predominate, forming often extensive woods by the banks and on the islands, almost to the complete exclusion of other trees. Over wide stretches willows alone form the woods of the valley, and in many places the trees rise to a stately height, yet even then without often gaining in impressiveness or charm. For the isolated willow-tree is not more, but rather less picturesque than the willow bushes; its crown is always thin and irregular, it is not close-set but loose and open, in fact almost scraggy. On frequent repetition it becomes wearisome. When the willows stand, as is usual, close beside one another, they form a dense thicket, and then, even more than the isolated tree, they lack character, for all the stems rise like posts and all the crowns fuse into a close, straight-contoured mass of foliage, suggestive of a clipped hedge, in which the individual trees are entirely merged. As pleasing additions to such monotonous woods we welcome the sprinkling of poplars, the silver poplar in the south, the aspen in the north, both of them giving some animation to the

willows. In the valley of the stream too, but only in those places which are not subject to regularly-recurring floods, the birch appears in addition to the trees already noticed; indeed birch-covered tracts occur with some constancy as connecting links between the willow-woods and the pine-forests. But it is only in the south of the zone that the birch attains its full size and vigour; it is as unresisting a victim to the flames as the most resinous pine, and is therefore incapable of greatly affecting the general aspect of the forest. More or less unmixed birch woods bound the forest zone to the south, and sometimes intrude far into the steppes, yet it is but rarely that they form thick, compact, well-established stretches of timber; and they are, when one sets foot in them, disappointing.

On the other hand, the pine-forests which cover all the regions between the river-courses often fascinate and satisfy the traveller from the west. If the tundra has not gained upon them or begun to make its desolating mark, they consist in the main of vigorous pines and Norway spruce firs, the pichta or Siberian silver fir, the cembra pine, and more rarely larches. Among these there are aspens and willows, with occasional mountain-ash and bird-cherry, while birches often appear in as great vigour as in woods which consist exclusively of this accommodating tree. The pichta and the cembra pine are the characteristic trees of all West Siberian pine-forests, and vie with one another in beauty and vigour of growth. The pichta is a particularly beautiful tree. Nearly related to our silver fir, and representing it in all East Russian and West Siberian woodlands, even from a distance it catches the eye, standing out impressively from among all the other conifers. From the silver fir and from the Norway spruce fir the

pichta is distinguished by the stateliness of its slender conical crown and by the rich, delicate, bright green needles. Almost always it overtops the other trees of the forest; usually, indeed, the topmost third is above the crowns of its neighbours, thus effectively breaking the sky-line of the forest and giving an individual character to certain regions. The cembra or stone pine, which flourishes especially in the south of the forest zone, though it also occurs far to the north, has round, smooth, usually compact tops which contrast well with those of the other pines and firs; and it also contributes not a little to the external adornment of the forest, towards making it seem more attractive than it is. Pines and spruce firs are nowhere absent, but they do not flourish everywhere as they do in the mountains of Central Germany; towards the north they sink rapidly into crippled senility. And so is it also with the larches, whose true home is Siberia; it is only in the south of the forest zone, especially on the mountains, that they attain the stately height of those in our country.

The above-named species include almost all those which occur regularly in the woodlands of Western Siberia. There seems to be a complete absence of oak and beech, elm and ash, lime and maple, silver fir and yew, hornbeam and black poplar. On the other hand, there are many kinds of bushes and shrubs in abundance everywhere. Even in the north the undergrowth of the forests is surprisingly rich and luxuriant. Currants and raspberries flourish to a latitude of 58°, a species of woodbine occurs up to 67°; juniper, white alder, sallow, crowberry, bilberry, cranberry, and cloudberries increase rather than decrease as one goes north; and even on the margins of the tundra, where dwarf-birches and marsh-andromedas, mosses, and cowberries insinuate

themselves into the interior of the woods, the ground is still everywhere thickly covered, for the mosses thrive the more luxuriantly the poorer the woods become. The steppes also contribute to enrich the woods, for in the south of the forest zone, not only most of the steppe-bushes and shrubs, but also various herbs and flowers, enter or fringe the forest. Thus certain wooded stretches of this border-land become natural parks, which in spring and early summer display a surprising splendour of blossom.

As an instance of a forest glorious in such charms, I may mention that region known as "Taiga,"[30] which lies between the towns Schlangenberg and Salain, in the domain of Altai. In the broad tract which this beautiful forest covers there is a most pleasing succession of long ridges and rounded hills, valleys, troughs, and basins. One hill rises beyond and above another, and everywhere one sees a sky-line of forest. Pines and pichta firs, aspen and willow, mountain-ash and bird-cherry, are in the majority among the high trees, and are mingled in most pleasing contrasts of bright and dark colour, of light and shade. The soft lines of the foliage trees are pleasingly broken by the conical summits of the pichta firs which overtop them. The two species of Siberian pea-tree, guelder-rose and woodbine, wild rose and currant are combined in the brightly blooming undergrowth; Umbellifers as tall as a man, especially hemlock; spiræa; ferns such as maidenhair, larkspur and foxglove, bluebell and hellebore all shooting up in unparalleled luxuriance, weave a gay carpet, from which the wild hops climb and twine up to the tall trees. It is as if the art of the landscape gardener had been intelligently exercised, as if man had fashioned the whole with an eye to scenic effect.

In the south, the forests show their greatest beauty in spring, in the north, in autumn. By the first days of September the leaves of the foliage trees begin to turn yellow here, and by the middle of the month the north Siberian forest is more brilliant than any of ours. From the darkest green to the most flaming red, through green and light green, light yellow and orange yellow, pale red and carmine, all the shades of colour are represented. The dark Norway spruce firs and pichta firs are followed by the cembra pines and larches; and next in order come the few birches which are not yet yellowed. The white alders display all gradations from dark to light green and to greenish yellow; the aspen leaves are bright cinnabar red, the mountain-ash and the bird-cherry are carmine. So rich and yet so harmonious is the mingling of all these colours that sense and sentiment are satisfied to the full.

Such are the pictures which the woodlands of Western Siberia display to the traveller. But all the sketches we have attempted to give have been taken from within a narrow fringe. To penetrate further into the primeval forests, in summer at least, seems to the western traveller absolutely impossible. On the slopes of the mountains he is hindered by thickets and masses of débris, on highland and plain alike by prostrate trees and a tangle of bushes, in the hollows and valleys by standing and flowing water, by brooks and swamps. Wide-spread talus from the rocks, blocks and boulders rolled into heaps and layers form barriers on all the hills; lichens and mosses form a web over the rocks, and treacherously conceal the numerous gaps and clefts between them; a young undergrowth is rooted between and upon the old possessors of the soil; and the old trees as well as the young increase the risk of attempting to traverse

these regions. On the low ground the obstacles which the forests present are hardly less formidable. Literally impenetrable thickets such as exist in the virgin forests of equatorial countries there are none, but there are obstacles enough. The prostrated trunks are all the more troublesome because most of them lie, not on the untrodden path, but at an inconvenient height above it; they are turnpikes in the most unpleasant sense of the word. Sometimes it is possible to climb over them or to creep under them; but equally often neither is possible, and one is forced to make a circuit, which is the more unwelcome, since, without constant reference to the compass, it is only too easy to stray from the intended direction. Real clearings are met with but rarely, and if one tries to walk across them, deep holes and pools full of mud and decayed débris soon show that here also the greatest caution is necessary. If the traveller trusts to one of the many cattle-tracks, which, in the south of the forest-zone, lead from every village to the forest, and penetrate into it for some distance, even then sooner or later he finds himself at fault. It is impossible to tell, or even to guess, whither such a path leads, for it intersects hundreds of others, and runs through tangled brushwood, through tall grass concealing unpleasant débris of trees, through moss and marsh; in short, they are not paths for human foot. Thus, though there are not everywhere insuperable obstacles, one meets everywhere and continuously with hindrances so numerous and so vexatious, that even where the plague of mosquitoes is not intolerable, the traveller is apt to return much sooner than he had intended. Only in winter, when hard frost has covered all the pools, bogs, and swamps with a trustworthy crust, when deep snow has smoothed off most of the

roughnesses, and is itself coated with a hard layer of ice, only then are the forests accessible to the hunter equipped with snow-shoes, and accompanied by weather-hardened dogs; only then can even the natives think of making long expeditions.

Siberian forests are dumb and dead, “dead to the point of starvation”, as Middendorf most justly says. The silence which reigns within them is a positive torture. When the pairing of the black-cock is past one may hear the song of the fieldfare and the black-throated thrush, the warbling of the white-throat, the linnet, and the pine grosbeak, the melody of the wood-wren, and the call of the cuckoo, but hardly ever all these voices at once. The trilling call of the greenshank and redshank becomes a song, the chattering of the magpie gains a new charm, even the cawing of the hooded crow and the raven seem cheerful, and the call of a woodpecker or a titmouse most refreshing. The silence expresses the desolateness of the woods. He who hopes to be able to lead in them a joyous sportsman’s life will be bitterly disappointed. Doubtless all the immense woods of this region have more tenants, especially birds and mammals, than we are at first inclined to believe, but these animals are so unequally distributed over the immeasurable area, and probably also wander so widely, that we can arrive at no standard for estimating their numbers. Miles and miles are, or appear to be for a time at least, so lifeless and desolate that naturalist and sportsman alike are almost driven to despair, their expectations are so continually disappointed. All the reports of even experienced observers who have sojourned there leave one still in the dark. Districts which seem to combine all the conditions necessary for the vigorous and comfortable life of certain species of

animals, shelter, to all appearance, not a single pair, not even a male, naturally fond of roving. In such woods, far from human settlements, and to some extent beyond the limits of human traffic, one cannot but hope at length to fall in with the species which should frequent such places, but the hope is as fallacious as the supposition that one is more likely to meet with them in the heart of the forest than on its outskirts. The fact is that the regions under man's influence, which he has modified, and to some extent cultivated, seem often to exhibit a more abundant and diverse life than the interior of the forest-wilderness. Wherever man has founded stable settlements, rooted out trees, and laid out fields and pasture-lands, there gradually arises a greater diversity of animal life than is to be seen in the vast untouched regions which remain in their original monotony. It seems as if many animals find suitable localities for settlement only after the ground is brought under cultivation. Of course the fact that certain animals are more abundant in the neighbourhood of man, where they are ruthlessly hunted, than they are in the inaccessible forest, where danger scarce threatens them, implies a gradual reinforcement from without. At certain seasons at least there must be migrations of more or less considerable extent, and in these most of the West Siberian animals take part. All the observations hitherto made corroborate this view.

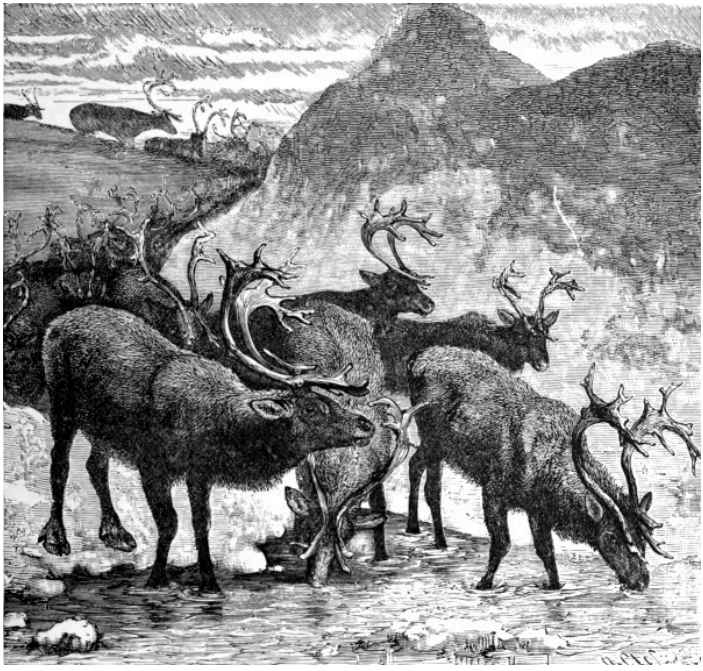


Fig. 19.—Reindeer Flocking to Drink.

The only stationary animals, in the usual sense of the word, seem to be certain mountain species and those which hibernate in caves and holes; all the rest migrate more or less regularly. At the pairing and nesting time all the West Siberian animals segregate themselves, except those which are gregarious during the breeding season. Later on, the parents and their young combine with their fellows in herds or flocks, which, impelled by the need for more readily obtainable food, and perhaps also driven off by the plague of mosquitoes, set out on their wanderings together. Localities rich in fodder attract the herbivorous creatures, which are the first to arrive, but on their heels come others, and finally their enemies. Thus certain parts of the woodland are depopulated and others are peopled, and there occur

actual blocks in the migratory stream, which must be the more striking in contrast to the usual desolateness and emptiness of the forest. The scenes of old conflagrations are favourite rendezvous, for, on the fertilized soil, berry-bearing bushes of various sorts have sprung up and attained luxuriant growth. Here, in autumn, the Siberian herbivores find a rich harvest, and not only they, but wolves and foxes, martens and gluttons, sables and bears, primarily attracted by the collected herds, may be seen banqueting, devouring the berries with evident pleasure. The different animals thus brought together seem to remain for a time in a certain correlation. The herbivores, as observant sportsmen have noticed, keep with unmistakable constancy to the berries; and the carnivores follow closely in their tracks.

These migrations explain how it is that during certain years some of the woods are filled with all kinds of beasts of the chase, while during other years they are entirely forsaken. The traveller from the west, who journeys in late winter or early spring in Western Siberia, beholds with astonishment a flock of three to five hundred black-game rise in crowded flight from the highway through the forest, and learns with not less astonishment a little later that the same or even more favourable woods are but sparsely stocked with these birds. In summer he searches in the most suitable localities for the hazel-grouse, and is discouraged because his search is continually futile; in autumn he is pleasantly surprised to see, in the same places, abundance of the same game.

So peculiar are the conditions due to the monotonous uniformity of wide stretches, that the huntsman who

will make sure of his booty must be very familiar with them; indeed, even the most skilful and experienced sportsman is always and everywhere in the measureless forests at the mercy of chance. Whatever be the game he pursues, he never can predict where he will find it. Yesterday the goddess of the chase was kind to extravagance; to-day she refuses him every aid. There is no lack of game, but the huntsman who had to live on what he shot would starve. A sportsman's life, such as is possible in other latitudes, is inconceivable in Western Siberia; the profit to be derived from the forest chase is inconsiderable. Some animals, for example the beaver,[31] seem already to have been exterminated; and others, especially the much-prized sable, have withdrawn from the inhabited districts into the interior of the forest. Everywhere in Siberia one hears the common complaint, that game becomes scarcer every year; and it is certain that from one decennium to another the diminution is perceptible. For this man is not wholly responsible; the forest-fires and the devastating epidemics which now and then break out are probably as much, if not more, to blame. At the same time, no Siberian ever realizes that a temporary sparing of the game is the first condition of its preservation. Sportsman-like hunting is unknown; the most varied means are used to kill as many animals as possible. Gun and rifle are mere accessories; pitfalls and nets, spring-guns and poison are the most important agents employed by natives and immigrants alike.

"Game" to the Siberian means every animal which he can in any way use after its death, the elk and the flying squirrel, the tiger and the weasel, the capercaillie and the magpie. What the superstition of one race spares falls as a booty to the other; animals

whose flesh the Russians despise are delicacies to the Mongolian palate. Ostiaks and Samoyedes take young foxes, martens, bears, owls, swans, geese, and other creatures, treat them tenderly as long as they are young, care for them sedulously until the fur or plumage is fully developed, and then kill them, eating the flesh and selling the skin. The number of skins brought from Siberia to the markets there and in Europe is computed in millions: the number used in the country itself is much smaller, but still very considerable. The quantity of furred, and especially of feathered game, which is transported to a distance in a frozen state, also mounts up to many hundreds of thousands. Along with the furs of mammals the skins of certain birds are at present much exported, especially those of swans, geese, gulls, grebes, and magpies, which, like the furs, are used in making muffs, collars, and hat trimmings. A single merchant in the unimportant town of Tjukalinsk passes through his hands every year thirty thousand plover-skins, ten thousand swan-skins, and about a hundred thousand magpies; and some years ago his sale was much larger.[32] That the total traffic in skins must involve a yearly diminution of the animals is certain; and that only the inaccessibility of the wildernesses of forest and water preserves the affected species from utter destruction will be plain to everyone who knows the unsparing hand of the Siberian huntsman.

Although it is plain from what we have said that the Siberian's conception of game is a very wide one, the animals looked upon as worthy of hunting are really those which we ourselves regard as furred and feathered game, or would so regard if they occurred in Germany. In our sense of the term, the game of the forest girdle includes the Maral stag and the roe-deer, the elk and the reindeer, the wolf, the fox, the

Arctic fox, the lynx and the bear, the Arctic hare, the squirrel, the striped and flying squirrel, but above all, the martens, viz., sable, pine-marten and stone-marten, pole-cat, kolonok, ermine, weasel, glutton, and otter; besides the capercaillie, black-grouse, and hazel-grouse. In the south must be added the tiger, which now and then prowls within this region, the ounce, the musk-deer, and the wild boar of the mountain forest; while the north also yields the willow grouse, occasionally found at least on the outskirts of the forest. These animals everyone hunts, and the more civilized do so in a regular, if not always sportsmanlike, fashion; for most of them ingenious and effective snares are also laid.

Of the latter the much-used “fall-trap” is most worthy of notice. Its arrangement is as follows:—Across clear spaces in the forest, especially those which afford a clear view, a low and very inconspicuous fence is stretched, and in the middle of this an opening is left, or there may be two or three if the fence be long. Each opening is laterally bounded by two firm stakes which bear a cross-beam above, and are meant to guide the falling beam, which consists of two long, moderately thick tree-stems, bound side by side. A long lever rests on the cross-beam, on its short arm the falling beam is suspended, while a cord from the long arm forms the connection with a peg-arrangement. The latter is contrived as follows. A short stick, forked at one end and pointed at the other, is fixed with the fork against a notch in one of the stakes, and with its pointed end fastened against another longer peg whose forked end rests lightly on the other stake. The two pegs keep one another in position, but on the slightest pressure they fall asunder. When the trap is set, the peg arrangement which corresponds

to the trigger is covered with numerous light, dry twigs, not so much to conceal it, as to form a larger surface of possible contact. When an animal, even a small bird, steps upon the twigs, the two pegs fall asunder, and the beam drops, killing the animal under it. If it be set for a beast of prey, bait is laid beside the triggers; all other kinds of game are simply guided to the trap by the direction of the fence. In many woods all the haunts, paths, and clear spaces are beset with these traps in hundreds and thousands, so that the huntsman is often compensated by abundant booty for the slight trouble which it takes to arrange his effective apparatus. Grouse, hares, squirrels, and ermine are the commonest victims; polecat, pine-marten, and sable, the rarest. Gluttons also and wolves often lose their lives, but the survivors learn like dogs, and anxiously avoid the set traps, though neither is at all afraid to steal or gnaw at and thus destroy the booty caught in one which has sprung.

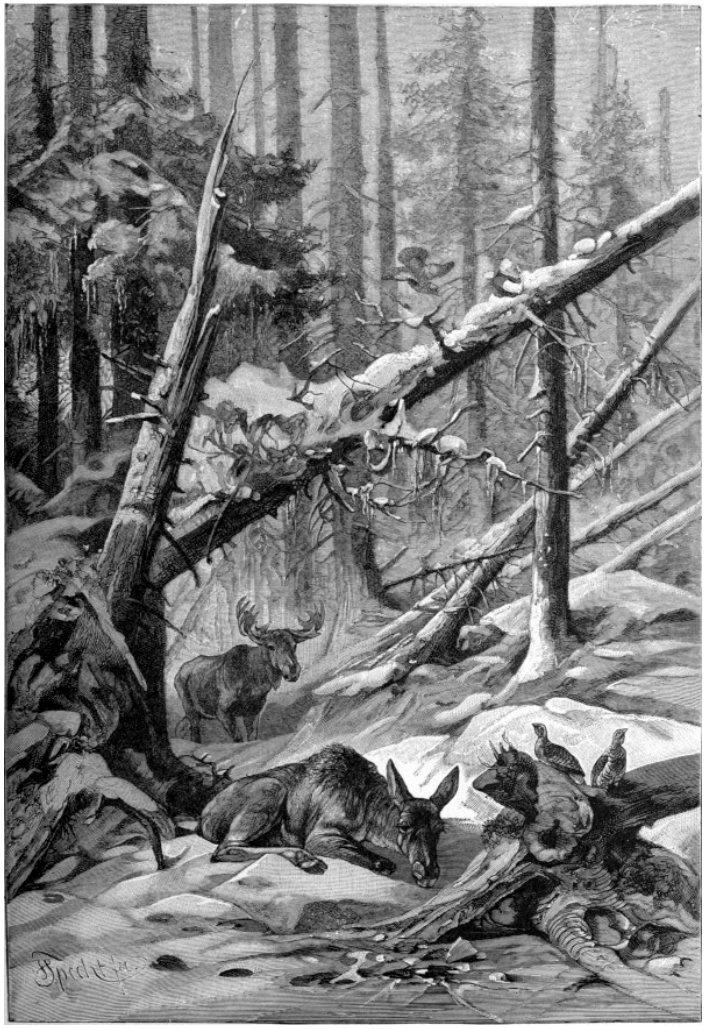


Fig. 20.—Elk and Black-cock in a Siberian Forest.

Besides the “fall-trap”, the Ostiaks and Samoyedes are fond of using a spring-gun arrangement, fitted with bow and arrow or automatic cross-bow. As the bow is very strong and the arrow well made, the murderous contrivance is very effective, and exceedingly dangerous to the inattentive explorer.

Ingenious arrangements hold the bow stretched, and keep it and the arrow in position; a wooden clasp relaxes the bow whenever a line stretched across the animal's run is touched. In order to direct the arrow so that it may pierce the heart of the victim, the ingenious people use a pillar-like perforated target the size of the desired booty. When this is placed on the run it has the perforation at the precise level of the beast's heart, and according to the distance between the heart and the collar-bone, the hunters determine the distance between the mark and the trigger. As all the natives are well acquainted with the tracks of various kinds of game, the spring-gun only fails when a creature comes along entirely different in size from that for which the arrow was destined. Usually they are set for foxes, and with hardly less success for wolves, or even for elk and reindeer, while the automatic cross-bow is arranged for smaller game, especially ermine and squirrels. For both of these, bait is spread which can only be got at when the animal creeps through a narrow hole in front of the lower part of the set cross-bow. In so doing the creature touches a trigger, and is forthwith crushed by a broad, chisel-like arrow which the cross-bow shoots forcibly down on its appointed course.

As an important addition to these old-fashioned contrivances, fire-arms have recently come more and more into vogue among the natives of Western Siberia, but they do not displace the bow and arrow. Powder and bullets are dear, and the people prefer small-bored matchlocks and flint-locks, which are exceedingly bad; but they use these defective weapons with remarkable skill. A fork fastened in front to the barrel, and used as a rest, is to be seen on every gun, and even the educated sportsmen use

it as indispensable to the effective use of the matchlock. Fowling-pieces are used by the officials and well-to-do townsfolk, but not by the natives, who have to make a profit by the chase, and to measure their powder, as it were, by the grain. They fill a small horn with the expensive material, wind a leaden wire of the diameter of their bore twice or thrice round their waists, and thus equipped set out on the chase. The leaden wire serves for making bullets, which are not cast but simply cut, or, even more simply, bitten off the wire; the resulting peg-like shot is laid without any wad directly on the powder, and thus the gun is loaded. Of course the native huntsmen do not shoot from a distance except when forced to, but to the height of medium-sized trees their aim is so sure that they take the eye of the sable or squirrel for their mark and seldom miss it.

The various species of grouse are more generally hunted than any other creatures, and are caught and killed in hundreds of thousands. During the pairing season capercaillie and black-grouse are almost everywhere left unmolested. The sportsman's joy as we know it when the pairing grouse take wing can scarcely be experienced in Siberia, owing to the inaccessibility of the woodland; not even for the pairing black-grouse does one rise betimes in May; the hazel-grouse alone is sought after by mimicking his love-call. But who would put himself to so much trouble and discomfort for so uncertain a prize? Only in autumn and winter does the chase reward the Siberian as he desires and expects; when the young birds change their plumage, when the coveys unite in large flocks, and when these wander through the forest in search of berries, then is the huntsman's opportunity. Whoever is not afraid of discomforts of all kinds pursues the migrating flocks with his dogs—

usually pitiable helpers—and generally returns with rich booty; those who know how to use snow-shoes hunt capercaillie and black-game even in winter. After the first heavy snowfall the migrations are stopped, and each flock seeks out a resting-place which promises abundant food for a few days at least. In the beginning of winter the still ungathered cranberries afford sufficient food, and afterwards the juniper berries; when both these supplies are exhausted the easily satisfied birds take to the leaves of larch, and finally of pine and fir, and to the young cones of all these conifers. As long as possible they continue their wanderings on foot, and often cover seven or eight miles in a day; occasionally they come within a few hundred paces of a settlement, and leave such distinct footprints on the fresh snow that the huntsman is bound to discover them. When they are forced to take to a diet of pine-needles, the sportsman is able to track them, at first by their droppings, and eventually by their sleeping-places. For the Siberian capercaillie and black-game differ in habit from their relatives in Germany, and make more or less deep burrows, usually reaching from the surface of the snow down to the ground. They leave these in the morning, or when danger threatens, breaking with beating wings through the coverlet of snow. These shelters are, therefore, readily recognizable, and as they also afford sure indication of the night on which they were used, they are most valuable guides to the experienced sportsman. Amid continuous snowfall the birds sometimes remain beneath the snow till towards mid-day, and then, after they have taken to the trees and are eating, they will allow the huntsman to come within range, for they are not scared by the barking of his dogs, and, while watching the cur at the foot of the tree,

often overlook the marksman. The first condition of success in such hunting is, that the snow have not only smoothed off most of the roughness of the ground, and thus removed the greatest obstacles to progress, but that it be sufficiently firm to afford the necessary resistance to the huntsman's snow-shoes.

With incomparably greater comfort, and usually with more success, the black-grouse may be hunted by means of the decoy or *bulban*. When using this the huntsman sets out before dawn in autumn, hides in the forest in a previously-prepared or rapidly-constructed hut, and there fixes up the *bulban*. This is a stuffed decoy-bird or one fashioned of wood and tow, with black, white, and red cloth at appropriate places, a deceptive imitation of the living bird. It is perched by means of a pole on the highest of the surrounding trees, with its head to the wind, and while the sportsman hides in the hut, men and dogs drive the adjacent forest. All the young black-game, or all which have not learned wisdom from previous experience, fly, when disturbed, to the bulban, which, to all appearance, is a fellow-bird sitting in reassuring security. They crowd on to the same tree, and the sportsman beneath, equipped with a small-bored and but slightly noisy rifle, or sometimes also with a fowling-piece, often has the pick of dozens of silly birds. In woods which are undisturbed throughout the summer, the black-grouse are so heedless of the slight report of the rifle, that after a bird has fallen dead from the tree the others do not fly away, but stretching their necks gaze at their fallen comrade, and wait quietly until the marksman has reloaded and claimed a second or a third victim. So abundant are these birds that the assertion that a single sportsman may, in the course of the morning, bring down twenty or more without leaving his hut

is perfectly credible.

Not less effective than the decoying of black-game, fascinating moreover, and satisfactory to every sportsman, is the hunting of the hazel-grouse as practised in Siberia. No special equipment of any kind is required, not even trained dogs—useful auxiliaries none the less—are indispensable. The hazel-grouse is very abundant in all suitable parts of the West Siberian forests, perhaps more abundant than the capercaillie and black-grouse, but it is so noiseless that one may often miss it although there are numerous coveys in the wood. It never forms such large flocks as its relatives, nor does it undertake such long migrations, but it is more uniformly distributed throughout the wide forest-wilderness, and the sportsman who knows its ways gets more readily within shot of it than in the case of any other bird of the woods. During spring and summer it seems to the inexperienced to have wholly disappeared; but in autumn it occurs everywhere, even in those places where, a few months before, it might have been sought for in vain. It is as fond of berries as are its relatives, and to secure these it visits the larger clearings, which, in spring and summer, it seems to avoid. But even there it knows how to escape observation. It lies much more closely than capercaillie or black-cock, and, without anxiously concealing itself on the approach of an intruder, remains as long as possible motionless, only rising when the enemy is almost touching it. Even then its flight is so noiseless and inconspicuous that one may readily fail to hear or see it; even a partridge or a wood-cock makes more noise than this charming bird, of whose flight only a gentle whirring is perceptible. When startled, it usually, though by no means always, flies to the nearest fir-tree and

alights on the first convenient branch, but there it sits so quietly that it is once more as inconspicuous as it was on the ground. The sportsman often tries for a long time in vain to discover the bird's whereabouts, and when he has finally decided that it has secretly flown off, he is suddenly nonplussed by a start or movement which betrays its presence on the very branch on which he had looked for it repeatedly. The cleverness with which all birds of this sort hide themselves from observation has reached a rare perfection in the hazel-grouse. For its haunts it prefers the boggy and mossy parts of the forest, which abound in bilberries and cranberries and are surrounded by old dead trees and young growths. Here it knows so skilfully how to use the cover, that one rarely perceives it until it has flown for security to one of the lifeless giants. When it does not move, it appears most deceptively like a knot on the tree, and it behaves as if it knew that it could trust to the colour-resemblance between its plumage and its surroundings. Nevertheless, whenever it shows itself freely it keeps looking anxiously all round, and, if it suspects danger, leaves its perch as silently as it gained it. Hazel-grouse shooting is a true pleasure to the sportsman. He may expect the bird almost everywhere in the forest, and can never tell how it will show itself; he must usually dispense with all auxiliaries, but his success is not prejudiced by awkward companions; and he is even more richly rewarded by the continuous tension and pleasurable excitement than by the exquisite dish afforded by this best-flavoured of game-birds.

Compared with the importance of game-birds to the sportsman, and indeed to the community generally, the chase and exploitation of big game in West Siberia must seem inconsiderable. The four species of

stag found in this region are for various, but equally unsatisfactory reasons, much less appreciated than they deserve. They are treated in a manner which, if not actually barbarous, seems to us disagreeable or even repulsive. This is especially true in regard to the Maral stag. This splendid creature, according to some naturalists a large-sized red-deer, according to others a nearly related species with larger body and stronger antlers, lives in all the southern forests, especially on the mountains, and is probably by no means so rare as the untiring lust for the chase on the part of both natives and strangers has made it seem. For a strange reason the said lust for the chase endangers this stag most seriously just at the time when he needs most to be spared. For he is hunted by all the North Asiatic hunters not for his flesh nor his skin, nor for his fully-branched head, but solely and wholly for the growing, incompletely tined, and still velvety antlers.[33] Out of this the Chinese physicians or quacks prepare a specific, which is greatly sought after by rich debilitated Celestials, and is sold for its weight in gold. It is esteemed as a stimulant of rare virtue, and believed to be replaceable by no other. Most sought after are the half-branched, six-tined antlers, still richly filled with blood; for these the price is from £10 to £15, while completely formed antlers, with twelve or fourteen tines, and bared of their velvet, may be bought for six to twelve shillings. Not only the Mongols of North and Central Asia, but also the Siberians of Russian origin, exert themselves to procure these valuable antlers, which, when obtained in the proper condition, are despatched as quickly as possible, especially by post, to Kiachta, whence, through special merchants, thousands are sent every year to China without satisfying the demand. Siberian

peasants also keep the Maral stag in captivity for the sole purpose of cutting off the blood-charged antlers at the proper time and selling them. Now, since all stags when growing their antlers avoid the dense thickets, and are less wary than at other seasons, and as the one- and two-year-old stags are as little spared as those with crown antlers, it is obvious that the numerical strength of the race must be notably impoverished, and that the breeding must also be appreciably affected. The flesh and the skin obtained in the slaughter are but rarely taken into consideration; if it would involve any trouble to remove the carcase, it is usually left without reluctance to the wolves and foxes.

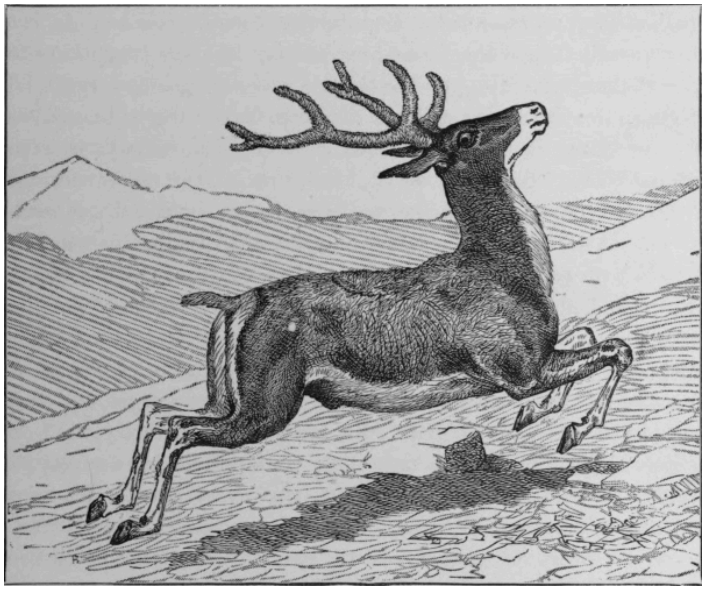


Fig. 21.—The Maral Stag.

As the Maral stag excels ours, so is it with the Siberian or large roe-deer, which differs from ours in its larger growth and by the high antlers with weakly

developed burrs. Its specific independence, however, is still a subject of controversy among taxonomists. In Siberia it prefers the stretches of woodland which have begun to recover from the effects of a conflagration, and in which the pichta fir is abundant. It also frequents the fringes of the forest and small woods, and ascends the mountains to considerable heights, not unfrequently above the forest-line; it may likewise pass into the open steppes, associating on the heights with the steinbock and wild sheep, and on the plains with the antelope. According to the nature of the country, it undertakes more or less regular migrations, even without being forced to these by forest fires, and in its wanderings it will traverse wide stretches and cross broad rivers without hesitation. In certain circumstances it appears in regions in which it has not been seen for years, and from these centres it makes excursions round about. In its wanderings it usually keeps to definite roads, but is now and then forced to follow narrow paths. The rocky and precipitous river-banks of the larger streams compel it to make its way through a few cross-valleys and gorges, and this necessity is often the animal's ruin, for the trapper rarely omits to stretch his leading-fence across these runs, and to lay his pitfalls fatally. Wolf and lynx press upon it at every season; Russians and native Siberians likewise. Like other game it is hunted unsparingly; every circumstance is utilized and every trick is tried to effect its capture. At the beginning of the thaw, when cold nights have frozen the top layer of snow into a thin crust of ice, the hunter sets off on horseback or on snow-shoes with a pack of nimble dogs; he rouses the stag with his shouts and runs it down, fatiguing it the sooner the harder the ice is, for, as the stag bounds, the crust breaks under its

slender hoofs, and its ankles are cut. In spring, the hunters entice the doe by imitating the cry of the fawn, and the buck is similarly allured in the leafy season by a skilful echo of the doe's call; in the intermediate season and later, both sexes are inveigled by special dainties; in autumn a drive is organized, or the migrating deer is pursued in boats as he swims across the streams, and is killed in the water; in early winter he is shot from the swift sledge. In fact the only method of capture which is not resorted to is that of snaring, so common a practice with knavish hunters at home; but in all probability the reason for this abstinence is simply that the spring-bow is more effective.



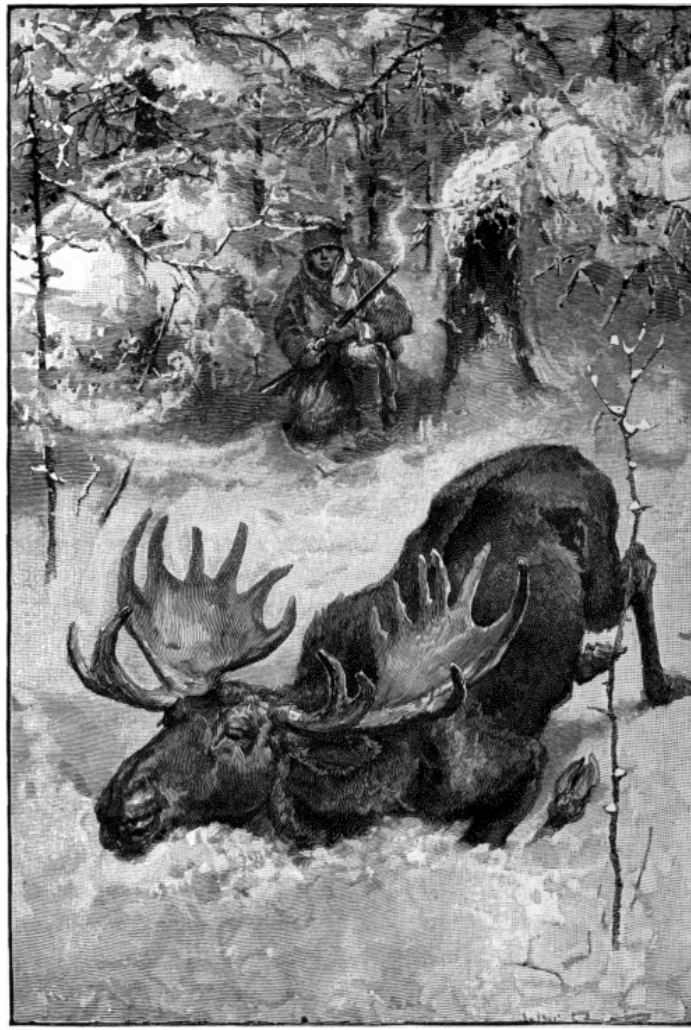


Fig. 22.—The Elk Hunter—A Successful Shot.

The elk[34] exists under decidedly more favourable conditions, and has a firmer footing in the struggle for existence. Its haunts and habits, its strength and power of self-defence, secure it from many, if not most pursuers. A forest animal in the full sense of the word, as much at home in swamp and bog as in

thicket or wood, overcoming with equal ease all obstacles of forest and morass, assured by the nature of its diet from the scarcity of winter, it escapes more readily than any other beast of the chase from pursuit either by man or by other dangerous enemies. The latter include wolves, lynxes, bears, and gluttons; but it may be doubted whether all these beasts of prey together very seriously affect the elk. For it is as strong as it is courageous, it has in its sharp hoofs even more formidable weapons than its antlers, and it knows right well how to use both of them. It may fall victim to a bear who surprises and overcomes it; but it undoubtedly hurls a single wolf to the ground, and may even be victorious over a pack of these eternally hungry creatures. As to lynx and glutton, the old story that these are able to leap on the elk's neck and sever the jugular vein does not seem to have been proved. Only against human weapons are the elk's resources ineffective. But its pursuit in Siberian forests is a precarious undertaking, and is little practised except by the natives. During summer the water-loving beast is hardly to be got at; it spends the greater part of the season in the marsh, browsing by night and resting by day among the high marsh-plants in a place accessible only to itself. The juicy water-plants and their roots suit it better than the sharp sedges, and it therefore browses in the deeper parts of the bog, where it pulls the plants out of the water, dipping its uncouth head in the muddy moisture as far as the roots of its donkey-like ears. When it lifts its head it blows from its nose and mouth the mud and moisture which necessarily entered its nostrils as it grubbed, and this makes a loud snorting noise which can be heard from afar. Experienced hunters have based a peculiar trick of the chase on the elk's

method of feeding. They listen to the usually watchful animal for several nights in succession, and mark his whereabouts; thither in the daylight they quietly carry a light, shallow-water boat; by night, guided by the snorting, they row with muffled oars towards the browsing creature, whose scent and hearing are dulled by his grubbing; at close range they send a bullet through him. The clearness of the northern summer night facilitates operations, though it renders close approach more difficult; yet the sport is all the more exciting, and by eager lovers of the chase it is pursued passionately, and usually with success. On the advent of frost the elk leaves the swamps, for the brittle coat of ice hinders his movements, and hies to the drier parts of the forest until the thickly falling snow forces him to wander in search of specially favourable localities. At this season the chase of the elk, with well-trained and, above all, silent dogs, is preferred to all other sport. In its wanderings the elk does not avoid human settlements, and betraying itself by its unmistakable footprints, soon has the huntsman on its heels. Now is the time to send the dogs after it. Their duty is to keep the creature continually agog, but never to chase it. They must never attack it in the rear, nor ever come too near it, but must rather bark at it continually, and keep its attention unceasingly engrossed. When the elk sees itself thus threatened in front it stops after a short trot, looks angrily at the dogs, seems trying to make up its mind to attack them, but only in rare cases succeeds in carrying out the resolution so slowly arrived at, and thus gives the sportsmen time to get within easy range, and to take sure aim. If a small herd of elk is suddenly surprised by the dogs and driven into a narrow defile, they may be so nonplussed that several may fall before a

well-handled rifle. But when old experienced elks are pursued for some time during a heavy snowfall they take the first trodden path which they come across, and trot along it whether it lead to the recesses of the forest or to the township; thus they are not unfrequently led quite close to inhabited houses, on seeing which they diverge into the woods. A hard crust of snow is not less dangerous to the elks than to the roe-deer; and then the spirited and experienced huntsmen pursue them even with boar-spears, speeding along on snow-shoes, outrunning and fatiguing the impeded animals till they can use the ancient weapons to good effect. The flesh is readily eaten both by immigrants and natives, but it has no great market value; the skin, on the other hand, finds ready sale at six to eight roubles[35] a hide, and affords the professional huntsman sufficient recompense for his trouble and exertions.

The wild reindeer belongs strictly to the tundra, but it also occurs throughout the whole extent of the forest-zone. Along the eastern slopes of the Urals it is frequent both in the depths of the forest and on the mountain heights, and the huntsmen of these parts accordingly speak with a certain emphasis of forest-reindeer and mountain-reindeer, and seem inclined to attribute different characteristics to the two kinds, though they cannot define their distinctive marks. The reindeer is less shy of populated districts than any other deer, which perhaps best explains the fact that every year among those living in freedom individuals are captured with slit ears and brand-marks. These have probably escaped from the herds of the Samoyedes and Ostiaks during the breeding season, and have wandered southwards till they met a wild stock to which they attached themselves. Once free from bondage, they very rapidly assume all the

habits of wild life. But neither these escaped truants nor the wild forms are regarded by the forest-folk as of much moment among the beasts of the chase. Reindeer are indeed captured wherever, whenever, or however that may be possible; but apart from a few specially keen hunters of Russian origin only the natives pursue them with persistence and eagerness.

Excepting the Semites and the Russians, all sensible people include hares among edible game. In consequence of this exception, the variable hare of Western Siberia is hunted only by educated and unprejudiced Siberians of Russian origin, and by the natives of the North, who are uninfluenced by any laws of diet. Even the skin of the snowy hare, since it loses its fur very readily, has little value in the eyes of the huntsman, and perhaps for this reason is presented by the heathen peoples as an offering to the gods. Yet in spite of the indifference with which the forest-folk regard this rodent so highly prized by us, the hare is nowhere plentiful. Many perish in the traps; the majority are caught by wolves, foxes, and lynxes; and the severe winter, which often impels them to long migrations, thins them sadly. The hare is certainly not important among the beasts of the chase.

Among the non-edible furred beasts of the forest the first place may be given to the wolf, since it is most bitterly hated and most generally hunted. For although it is said that the direct injury which it does to man is not very considerable, or at any rate not insufferable, he misses no opportunity of destroying it. It is certain that in West Siberia wolves only exceptionally appear in large packs, and that they even more rarely venture to attack man, but it is equally certain that they do much damage to

domestic animals. This is very considerable when we take into account the destruction caused by wolves among the herds of the nomads on the steppes and the tundra. There is no possibility of computing the numbers of wolves in the forest-zone. They are found everywhere and yet nowhere; to-day they fall upon the herds of a village, where there has been no trace of them for years, and to-morrow they ravage the sheepfolds somewhere else; they leave certain districts suddenly, and establish themselves in them again just as unexpectedly; here they defy their persecutors, and there precautions against them are almost superfluous.

Broad, much-used highways and settlements rich in meadows attract them, for on the former they find the carcasses of horses, and by the latter they find an easy booty in the herds which wander unhindered by any herdsman, and often stray far into the woods. But they are not absent from those parts of the forest which lie beyond the limits of traffic. Sometimes in broad daylight they are seen singly or in small packs prowling near the settlements; by night they not unfrequently pass through villages or even towns. In a single night they destroy dozens of sheep, attack horses and cattle also, and more rarely dogs (for which in other countries they show a preference). The only animals which they avoid are the courageous swine, for here and elsewhere these at once show fight, and invariably get the best of it.

Like the Russians, the Siberians hold to the superstition that the she-wolf suckling young carefully avoids ravaging in the neighbourhood of her litter, but that if she be robbed of her whelps, she avenges herself terribly, following the robber to his village home, and falling with unbounded rage upon

all his herds. For fear of this revenge, every Siberian passes by any wolf-litter which he finds, and only now and then does he dare to cut the Achilles tendon of the whelps, thus laming them and keeping them near their birthplace until the time of the autumn hunt. For, as they grow up, the mother's love is supposed to disappear, at least her thirst for revenge grows less, and the skins of the young wolves caught in autumn reward the clever foresight of the cunning peasant.

According to locality and opportunity, the methods employed in the capture of the wolf vary greatly. Pitfalls, traps, strychnine, and the spring-bows already described do good service; actual driving is seldom successful. A favourite method is to pursue the wolf with sledges, and to shoot him from the sledge. To attract the wolf within range an ingenious device is resorted to. An old, steady, or worn-out horse is yoked to a large sledge, in which four comrades—the driver, two marksmen, and a fair-sized sucking-pig—take their places. The driver, whose sole duty is to look after his horse, takes the front seat; the marksmen sit behind, and the pig lies in a bag between their feet. Towards evening the mixed company sets off along a well-beaten road to a part of the forest where during the day fresh wolf-tracks were seen. On to the track one of the hunters throws a bag stuffed with hay, and fastened to the sledge by a long line; while this trails along, the other hunter teases the young pig, and makes it squeal. Isegrim hears the complaint, and probably thinking that it comes from a young boar separated from its mother, draws near quietly and carefully, that is, as far as possible hidden from the road. He perceives the bundle trailing behind the sledge, supposes this to be the squealing pig, and, after some

consideration, determines to put an end to its sufferings. With a great bound he leaps upon the course, and eagerly rushes after the sledge. What does he care for the threatening forms which it bears? Such he has often inspected close at hand, and robbed before their very eyes. Nearer and nearer he comes, gaining on the now quickened sledge; crueller tormenting makes the pig utter louder and more clamant squeals; they are maddening to the robber; just another bound, and—two rifles ring out, and the wolf rolls gasping in death.

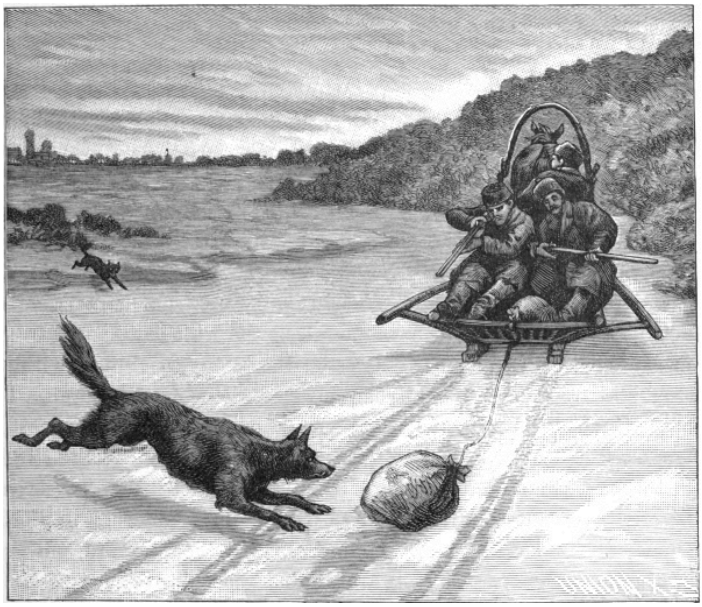


Fig. 23.—A Siberian Method of Wolf-shooting.

Equally artful is the circular trap much used in the Ural district. At a short distance from the village a circular space about two yards in diameter is enclosed with close-set deep-sunk stakes; around this is formed a second similar circle at an interval of about a foot and a half from the first. Two specially

strong posts support a solid deal door moving on firm hinges, furnished with a spring-catch, and so arranged that it opens only inwards, pressure outwards causing the spring-catch to shut. Both circles are roofed over, not thickly, indeed, but firmly, and a trapdoor in the roof admits to the inner circle. When it is perceived that the wolves are beginning to visit the village by night, the trap is set by placing a live goat in the inner enclosure and opening the door of the outer ring. The pitiful bleating of the goat, frightened by being taken from his usual surroundings, attracts Isegrim. He does not in the least like the look of the strange enclosure, but the frantic behaviour of the goat, still more terrified by the wolf's appearance on the scene, makes him forget his habitual caution, and he begins to try to get at the welcome booty. Several times does he prowl round the outer fence, ever more quickly and eagerly, twisting and snuffing, sometimes coming quite near, and again retreating, till at last he discovers the only door by which it is possible for him to get near the goat. His appetite gets the better of his natural cunning. Still hesitating, but yet advancing, he pushes his head and body through the narrow doorway. With despairing cries the goat springs to the opposite side of the inner fence. Without further consideration or hesitation the robber follows. The goat rushes round in a circle, and the wolf does the same, with this difference, that he has to move between the two rows of stakes. Then the projecting door impedes his progress. But the victim is now so near, and apparently so sure, that the wolf dashes furiously forwards, pressing the door outwards; the spring-catch falls with a snap into its groove, and the distrustful, cautious dupe is trapped —trapped without being able to get a step nearer the

tempting booty. Unable to turn round, boiling over with rage, he runs and trots and jumps, ever forwards, ever in a circle, hurrying without a pause on his endless circuit. The intelligent goat soon appreciates the situation, and though still crying and trembling, remains standing in the middle of the inner circle. The wolf also begins to see the fruitlessness of his circling, and tries to recover his freedom, tearing splinters a foot long out of the stakes with his teeth, howling with rage and fear, but all in vain. After a night of torment, the daylight appears—the wolf's last morning. The villagers begin to move about, and voices mingle with the barking of dogs. Dark men, accompanied by noisy dogs, approach the scene of the tragedy. Motionless, like a corpse, the wolf lies; scarce a wink of his eyes betrays that there is still life in him. With furious barking the dogs press round the outer fence, but he does not move; with mocking welcome the men call to him, but he heeds not. But neither dogs nor men are deceived by his shamming death. The former, pressing between the stakes, try to get a grip of him; the latter slip the much-used horse-noose or *arkan* over his head. Once more the beast springs up, once more he rages on his path of torture, howling he seeks to terrify, gnashing his teeth he attempts defiance, but in vain—there is no escape from the dread noose, and in a few minutes he is throttled.

The fox is everywhere attacked, hunted, killed, and devoured, or at least hard pressed, by the wolf, and is therefore not abundant in Siberia, but neither his hostile relative nor man have as yet been able to exterminate him. In the eastern parts of the forest-zone he sometimes undertakes long migrations, following the hares or the grouse; in the west, observations on this point do not appear to be

recorded. They do not complain in Siberia of the damage he does, nevertheless they hunt him eagerly, for his fur is prized by natives and Russians alike, and is always dear. It fetches an especially high price when it is of a certain much-appreciated colour. As a beast of the chase, only the sable takes higher rank. For the sake of the fox alone professional hunters undertake winter expeditions which often take them as far into the heart of the forest as the sable-hunters are wont to penetrate. Especially for it do the Ostiaks and Samoyedes set their spring-bows, and they spare no trouble in their search for the burrow where the young are hidden, not in order to kill them, but that they may rear them carefully and tenderly till they become large and strong, and gain, in their first or second winter, their beautiful fur. For that the fosterers care more than for the life of their winsome charges, and they give them over remorselessly to the fatal noose.

The Arctic fox may be included conditionally among the forest animals, but it never actually penetrates into the forest. Sometimes, however, in winter, in pursuit of hares and moor-fowl, it follows the course of the large rivers beyond the southern limits of the tundra, its true home.

The lynx, on the other hand, is a forest animal in the strictest sense of the word. But in Siberia it only occurs singly, and is very rarely captured. Its true home is in the thickest parts in the interior of the forest, and these it probably never leaves except when scarcity of food or the calls of love prompt it to wander to the outskirts. Experienced hunters of the Eastern Ural say that the lynxes not only live in the same locality as the bear, but that they remain in the neighbourhood of the bear’s winter-quarters after he

has gone to sleep. They assert, moreover, that the preference the lynxes show for these winter-quarters betrays the bears, since search has only to be made where most lynx-tracks cross, and especially where there is a circular track, for that always surrounds a bear's sleeping-place. The lynx's habit of keeping to his old paths with almost anxious carefulness must greatly facilitate the discovery of the bear's quarters. Moreover, it may be added that in Siberia the lynxes show themselves very fond of fresh meat, and that they possibly seek the neighbourhood of a bear in the hope of occasionally sharing his booty. For, although it may be urged that the lynx is able enough on his own account to bring down big game without any help from so doubtful a friend as the bear, and that he hunts the reindeer and the roe, and may in a short time overpower them, yet the fact remains that his booty chiefly consists of small animals, such as hares, ground-squirrels, tree-squirrels, black-cock, capercaillie, hazel-grouse, young birds, mice, and the like. Of this there is no doubt, and it explains satisfactorily why the lynx is so rare in the fringes of the forest which are accessible to man. As long as squirrels and game birds abound in the interior of the forest, the lynx has no temptation to stray from this unvisited wilderness; when his prey migrates, he is forced to follow. How much he is feared by the game birds one can discern from the fact that every wooing capercaillie or black-cock is instantaneously dumb when a lynx lets himself be heard.

Both immigrants and natives hold the hunting of the lynx to be right noble sport. This proud cat's rarity, caution, agility, and powers of defence raise the enthusiasm of every sportsman, and both skin and flesh are of no small value. The former is preferably

sent from West Siberia to China, where it fetches a good price; the latter, when roasted, is highly esteemed not only by the Mongolian peoples but also by most of the Russian settlers. The lynx is but seldom captured in the fall-traps, but he often renders them useless by walking along the beam and stepping on the lever; he is but rarely a victim to the spring-bow, and he usually leaps over the steel traps in his path. So there is only the rifle left. Only in winter can he be hunted, when the snow betrays his tracks and admits of the use of snow-shoes. The courageous dogs, having sighted their game, drive it with difficulty to a tree or bait it on the ground, but they often suffer cruelly, or may even be killed. The hunter himself runs a risk of being attacked by a furious lynx at bay.

The wild cat, which the lynx persecutes as pitilessly as the wolf does the fox, is absent from the forest-zone of West Siberia, but now and then the region is visited by the most perfect of all cats,—the tiger. Two which were killed in 1838 and 1848 at Baesk and Schlangenberg now stand stuffed in the museum of Barnaul; another, killed in the beginning of the seventies, is preserved in the school museum at Omsk. Towards the end of the sixties a tiger terrified the inhabitants of the Tschelaba district (on the European boundary of the Ural) by attacking, without provocation, a number of peasants, from whom it was only frightened off when one of the men threw his red cap in its face. In the steppe-mountains of Turkestan, and throughout the south of East Siberia, the “king of beasts”, as the Daurs call the tiger, is found everywhere and permanently in suitable localities, and from both sides it may pass, oftener than can be proved, to the western forest-zone, remaining perhaps for some time unobserved

and retiring unnoticed. Yet on the whole it occurs so rarely and irregularly that we cannot do more than name it, without reckoning it among the beasts of this region.

It is far otherwise with the most precious of the furred beasts, the various species of marten. Their decrease is more lamented than that of all other beasts of the chase, but most of them are still regularly caught, if not everywhere, at any rate in certain parts of the forest region. Only the sable has in the last few decennia become really rare. Old huntsmen of the middle Ural remember having caught sable every winter in the vicinity of Tagilsk; nowadays, at this latitude of the mountain-land, only an occasional stray specimen is to be met with. A great forest fire in the central part of East Ural is said to have driven off the highly-prized and much-hunted creature. We hear the same story in the forest villages of the lower Ob, where the hunting of the sable is still pursued, and yields, for instance, at the Yelisaroff market, about a score of skins every winter.

In all the forests of West Siberia the pine-marten is notably more abundant than the sable. In the fairly extensive hunting-ground around the already-mentioned town of Tagilsk from thirty to eighty are still captured every winter. It is said that the pine-marten, much more than the sable, is associated with the squirrel, and that the two appear and disappear together. But the greedy marten is by no means content with making the beautiful squirrel its prey; indeed it kills every creature which it can master, and is an especially dangerous foe of black-cock and capercaillie. Even in summer a clever spring often enables him to capture the watchful bird; while in

winter the habit the black game birds have of sleeping in holes in the snow greatly facilitates his stealthy operations. Sneaking almost noiselessly from branch to branch, he comes within springing distance of the buried bird, and springs on it from above, crushing down the snowy roof by the force of his bound, and seizing the sleeper by the neck before it has any chance to escape. The stone-marten also occurs everywhere in the mountain forests, but it is rarer than its relative. Polecat, ermine, and weasel are also widely distributed and locally very abundant; the mink is confined to the western side of the Ural, and is also absent from its tributaries, the Irtish and Ob, which harbour the otter in considerable numbers; the badger is hardly ever mentioned in West Siberia; and the universally distributed glutton is less thought of than any other of the martens, being hunted not so much for his skin as because of his thefts from the traps.



Fig. 24.—Sable and Hazel-grouse in a Siberian Forest.

Although the west of Siberia is regarded as altogether over-shot, the forest-folk prepare every

year to hunt for sable and other martens. Some huntsmen undertake expeditions and explorations, which compare with those of the North American trappers. Of course, they do not confine their attention to martens, but are prepared to bag all kinds of game; the main objects of their quest, however, are martens and squirrels. According to the time of colour-change in the latter the huntsmen arrange their departure from the village home, for the change of colour in the squirrels is regarded as an indication of the approaching winter, whether it is to be early or late, severe or mild.

Armed and equipped as we have already described, the sable-hunters set out, after the first snowfall, in companies of three to five. Besides gun and ammunition each of them carries a sack on his back, snow-shoes and a hatchet on his shoulders, and a whip in his girdle. The sack contains the indispensable provisions:—bread, meal, bacon, and "brick-tea",[36] also a few utensils, such as a pan, tea-kettle, drinking-vessel, spoons, and the like, and less frequently a flask of spirits. The whip is used to drive out the squirrels and to bring them into sight. Four to six dogs, which offend the eye of every German sportsman, join the company.

Guided by the sun, which, however, is often hidden for days, and by the known stars, the weather-beaten huntsmen traverse the inhospitable wilds, camping out at night, feeding themselves and their dogs on the flesh of the game they shoot, and sparing their small store of provisions as carefully as possible. The ungainly but clever and wide-awake dogs not only scent the tracks of game, but, spying unfailingly the martens or squirrels hidden on the trees, bark at them and keep them in sight till the huntsman is on

the spot. He approaches with the imperturbable quietness of all forest sportsmen, rests his long musket carefully on a branch, or, if need be, on the fork fastened to the barrel, takes a slow aim, and fires. At the outset of the hunt, the squirrels and even the pine-martens are so much disturbed by the dogs that they allow the sportsman to approach to within a few yards; soon, however, they become wiser, and a sure and steady aim becomes difficult. If the huntsman gets this, and succeeds in sending a ball through the animal's eye, then he is well-pleased, for not only has he secured an undamaged skin, but he can recover his precious leaden shot. As soon as he has got possession of his fallen booty he skins it, in the case of martens and squirrels forcing the viscera through the mouth opening. The skull is broken open to recover the shot, and skin and body, separated from one another, are consigned to the bag.

When squirrels are plentiful, the hunt is as profitable as it is entertaining. Everyone utilizes the short day to the utmost; one shot quickly follows another; and the pile of skins rapidly grows. Loading the gun is a tedious matter, but the skinning is done all the more quickly; and every huntsman faithfully does his utmost. Without resting, without eating, without even smoking, the huntsmen go forward while they may. As the dogs call, the comrades draw together or separate; the sharp report of their guns and the cheerful barking of the dogs is to them a stimulating entertainment. They count the shots, and welcome or envy their neighbours' luck. But if the winter's yield be a poor one, if the oft-repeated cracking of the whip calls forth no squirrel, if there be no tracks of sable or noble marten, of elk or reindeer to be seen, huntsmen and dogs trudge silently and moodily through the forest, and short commons put the

finishing touch to their ill-humour.

When night comes on, our sportsmen have to think of preparing their beds. From under an old, thick, fallen tree each shovels out the snow, makes a trough the size of a man, and kindles a strong fire in it. One of them then clears the snow from a circular patch as nearly as possible in the middle of all the hollows, and under the shelter of thick firs or pines; another gathers fuel; a third heaps up in the clearing a still stronger fire, and a fourth prepares supper. So many squirrels have been shot that there is no lack of strong meat soup with which to give a relish to the porridge and bread. The sportsmen have their supper and go shares with the dogs, refresh themselves with tea and a pipe made of twisted paper and then, after the fashion of their kind, discuss the exploits and experiences of the day. Meantime the fire in each hole has melted the snow, dried up the moisture, caught hold of the old tree-trunk above, and thus thoroughly warmed the chamber. Carefully each sleepy hunter pushes the still glowing fragments of wood to one end of the hole, and into this, avoiding the side-wall of snow, he creeps, calling his dogs after him that they too may share the warm bed, and soon he is asleep. It is true that glowing sparks from the smouldering tree-trunk fall throughout the night alike on the hunter and his dogs, but a Siberian's fur hunting-coat can stand as much as a Siberian dog's skin; and it is evident that a log like this will give much more heat than a much larger free fire. It is to the hole what the stove is to the room; it alone makes it possible for the sportsman to camp out in the forest.

In the gray dawn the huntsmen arise refreshed, have breakfast, and go on their way. If they reach a good

hunting-ground, which is visited every winter, they stay as long as they think fit. Here and there they find a log-hut built in previous years and still serviceable for shelter; in any case there are old and new fall-traps, which have to be put in order and visited every morning. This takes time, for the traps are often distributed over a wide range, and so it may be that the company stay a week or more in one part of the forest, and hunt it thoroughly, before they continue their wanderings.

On these hunting expeditions many Siberians pass the greater part of the winter in the forest. Before he sets out, the huntsman usually makes a bargain with a merchant. He promises the merchant all the skins he gets at a certain average price, provided the merchant will buy all without selection. If the hunter has good luck he may, even nowadays, make enough out of it to keep him alive, or at least to defray the expenses of the winter; usually, however, he has little recompense for his hardships and privations, and no one less modest in his demands than the Siberian huntsman could make it a means of livelihood.

Hunting the bear is regarded by the West Siberians as the most honourable and the most arduous kind of sport. For in this region Bruin is by no means the good-natured, simple creature he still is here and there in East Siberia; he is rather, as in most regions, a rough, uncouth fellow, who usually runs away from man, but who, when wounded or driven into a corner, will show fight savagely and prove himself exceedingly formidable. In spite of all persecution, he is still far from extermination; his occurrence may be spoken of as frequent, or, at any rate, as not uncommon. Always and everywhere, however, he

goes his own way, and does not too often cross man's path. Not that he is shy of human settlements, for he often stations himself not far from these, and sometimes falls upon domestic animals under the very eyes of their possessors; but he shows himself so sporadically that many Siberians have never seen him face to face, nor met him in the forest. It seems likely that he goes a-touring all the summer. He traverses the woods with a disregard of paths, but keeps to more or less beaten tracks when he ascends to the heights of the mountains in late summer, or returns to lower ground at the beginning of winter. When the corn is ripe, he stations himself in the fringes of the forest that he may steal comfortably from the adjacent fields; sometimes he leaves the wood entirely and visits the steppes, or the mountain-sides with steppe characters; he will stay a long time in one district and hurry through another without stopping, always and everywhere keeping a sharp look-out for the constantly recurring opportunities of securing his favourite foods. In most districts he is emphatically a vegetarian; here and there he becomes a formidable carnivore; in other places he seeks after carrion. In spring he is on short commons, and takes what he can get; he sneaks stealthily on the herds grazing in the woodland, makes a sudden bound on a victim, or pursues it with surprising rapidity, seizes it, drags it to the ground, kills it, and, after satiating himself, buries the remainder for a future meal. When a cattle plague rages, he visits the burial-places in order to secure the carcasses, and he is even accused of being a body-snatcher. In summer he plunders the fields of rye, wheat, and oats, robs bee-hives, and the nests of wild-bees and wasps, destroys ant-hills for the sake of the pupæ, rolls old trunks over to get at the

beetles and grubs beneath, and even breaks up mouldering trees to capture the larvæ which live in rotting wood. In autumn he lives almost exclusively on berries of all sorts, and even on those fruits which he can gather from such trees as the bird-cherry; when the cembra-cones are ripe he goes after these, climbing lofty trees, and breaking off not only branches but the very tops; nor can he refrain from persistently prowling round the stores in which the cones are temporarily collected, or from trying to find his way in. Moreover, at all seasons he tries his hand at fishing, and not unfrequently with success. From man he usually runs away, but sometimes he will attack him without further ado, not hesitating even at superior force. According to the weather he times his winter-sleep. For his bed he selects a suitable place under a fallen giant tree; there he scrapes out a shallow hole, covers the floor with fine pine-twigs and moss a foot and a half deep, cushions the side-walls with the same material, covers the outside with branches and pieces of stem, creeps into the interior, and allows himself to be snowed up. If the first snowfall surprise him on the mountains, he does not always descend, but hides in a rock-cave which he furnishes as best he can, or else expands a marmot's burrow till it is just big enough to hold him, and there sleeps through the winter. Once sunk into deep sleep, he lies dormant so obstinately that many efforts are often necessary to rouse him; he bites savagely at the poles with which the huntsman tries to poke him up, he growls and roars, and only surrenders when rockets or fire-brands are thrown on his refuge. Then, if he be not wounded, he rushes forth like a startled boar, and seeks safety in rapid flight. According to the consistent evidence of all experienced huntsmen, the she-bear brings forth

young only every second winter, and does not awake from her deep sleep until a short time before the birth; she licks her cubs clean and dry, sets them to suck, and continues her sleep in snatches. At the end of May or in June she seeks out her older children, of two or even four years' growth, and compels them to do service as nurses.[37]

Although the flesh of the bear is by no means unpalatable, it is but little esteemed in West Siberia, where bear-hams are served up rather in obedience to fashion than from appreciation of the dish. Nevertheless, the bear-hunt brings in rich gain. The skin is in great demand for sledge-rugs and fetches a high price; teeth and claws serve not only among the Ostiaks and Samoyedes, but also among the West Siberian peasants, as potent charms; even the bones are now and then used. The canine of a bear slain in honourable combat brings to the Ostiak hunter, so he believes, supernatural gifts, especially courage, strength, and even invulnerability. A claw, especially the fourth of the right fore-foot, which corresponds to the ring finger, is prized by the love-lorn maiden of the Ural, for the youth whom she secretly scratches with it is bound to return her love ardently. Teeth and claws have, therefore, a high value, and have more effect in inciting the huntsman to pursue the most formidable carnivore of the forest, than any damage which Bruin does. But the chase is neither easy nor without danger. Traps do not seem to be of any avail. The hunter must seek out the bear, and, weapon in hand, helped by his practised dogs, must do battle. During the summer the restless habits of the bear make the chase very difficult; during winter there is the chance of finding a lair and of killing the sleeper in or near it. The poor peasant who discovers a lair sells the bear *in situ* to any well-to-do

sportsman, who, on a suitable day, goes with him and the requisite associates and surrounds the sleeper with sure marksmen. Beaters rouse the creature from his slumbers and bring him into view, and the huntsman shoots from the nearest possible distance. It is thus that the great majority of the bears are secured, and to good shots there is little danger. In summer and autumn they track the bear with small dogs, and while these bait him on all sides, the sportsman seizes a good opportunity for a telling shot. Or he may use the bear-spear, as the bold Ostiaks do, and charge the animal. Or else he may wind birch-bark several times round his left arm, and, holding this as a shield against the angry bear, may plunge a long, broad knife into his heart as he snaps at the bark. In these modes of attack accidents do, indeed, often happen; but in the course of time some hunters become so expert and cold-blooded that they prefer the spear or knife to any other weapon. Indeed, a peasant girl in the village of Morschowa is famous all over West Siberia for having killed more than thirty bears with the knife.

Of undesired encounters with bears many stories are told. A hunter, armed only with a pea-rifle, came across a large bear in the forest, but did not dare to shoot, knowing that his weapon was too small for such big game. He therefore remained still, so as not to irritate the bear. But Bruin came along, raised himself, snuffed at the huntsman’s face, and then gave him a blow which stretched him senseless on the ground. Thereupon the bear ran away as quickly as possible, just as if he thought that he had played a naughty trick. Two Swedes, Aberg and Erland, were hunting hazel-grouse on the Urals. The former approached a bramble bush in the hope of raising a bird, when to his surprise a huge bear jumped up

and made for him at once. As flight was impossible, Aberg raised his fowling-piece to his shoulder, aimed at the bear's eye, fired, and was fortunate enough to blind him. Maddened with the pain, the bear covered the bleeding eye with his paw, roared loudly, and rushed on at the undismayed huntsman. But the latter coolly took aim at the other eye and fired again with equal effect. Then he called for his comrade, and they fired alternately at the blinded bear until he was dead.

But the merriest tale had its scene in the village of Tomski Sawod in the district of Salair. One of the peasants was leading a load of cembra-cones through the forest, and did not notice that the cones were falling out of one of his sacks. A bear, who was wandering through the forest in the rear of the cart, crossed the road, and finding some of the cones looked for more, and followed the track unnoticed. After a time the peasant left the horse and cart standing, and diverged into the wood to fetch another sack which he had left filled with cones. But before he returned with his burden, the bear, still gathering cones, had reached the cart and climbed into it, there to feast to his heart's content. With no little dismay the peasant perceived as he drew near what passenger had taken possession, and not daring to dispute his right, left him with the horse and cart. The horse, becoming uneasy, looked back, recognized the bear, and forthwith trotted off as fast as he could go. But the undesired jolting frightened the bear and prevented him from leaping off. He was forced to sit still and hold on, venting his increasing discontent in loud roars. The roaring only served to increase the pace; the more the bear stormed, the faster the horse hastened to the village. Now the village-folk had been for several hours expecting a

visit from the bishop, and were standing at their doors in holiday attire, ready to greet his reverence when he appeared. Already sharp-eyed boys had been posted on the outlook on the church-tower, with instructions to toll the bells when the bishop's company came in sight. In the distance was seen a whirling cloud of dust; the boys sprang to the bells, men and women arranged themselves in rows, the priest appeared with incense before the door of the church, every soul stood ready to give a worthy reception to the dignitary of the church. On came the rattling cart, and right through the festive village tore horse and driver, the former covered with dust, sweating and panting, the latter roaring and snorting, their mad career only ending when they reached the peasant's yard. Instead of the beautiful Russian psalm, the terrified cries of half-senseless women rang out through the air, and the men, instead of doing dutiful reverence, rushed about astonished and affrighted. Only the church bells continued to peal. Before these had ceased, the men had recovered presence of mind and got hold of their weapons. The cart was followed, and the bear, who seemed to have lost all his wits, was soon stretched dead on the throne which he had himself chosen.

Those who know the ways of bears will allow that all might have happened as I have described, though we may be inclined to regard the humorous story as one of the sportsman's budget. For even the most serious and honourable forest-folk sometimes mingle truth and fancy when they tell of the forests and woodcraft of Siberia.

THE STEPPES OF INNER AFRICA.

The north of Africa is desert, must be desert, and will be desert for ever. For between the Red Sea and the Atlantic, the land-area exposed to the scorching sun is so extensive that the surrounding seas have not their usual climatic importance. The Red Sea is out of account altogether; even the Mediterranean is too small to have great influence, and the Atlantic Ocean affects only a narrow belt along the west coast. Over regions so vast and so hot, every cloud is dispersed without moistening or fertilizing the parched ground. Only when we go much further south, near the equator, do the conditions change. On the one side, the Atlantic Ocean sweeps in with a great curve; on the other side, the Indian Ocean washes the African shores, the two oceans, as it were, stretching their hands across the continent. Here, moreover, at certain times, thunder-storms bring downpours of rain so heavy that the desert has to give way to the more living steppe, and the year is divided into two essentially different seasons—of life and of death, of rain and of drought, whereas in the barren desert only the periodic winds bear tidings of the seasonal changes in progress elsewhere.

In order to understand the steppe-lands it is necessary to give a rapid sketch of their seasons. For every country reflects its dominant climate, and the general aspect of a region is in great part an expression of the conflicting forces of its seasons, apart from which it cannot be understood.

Almost as soon as the rains are over, the season of destruction and death begins—the long and terrible winter of the African interior—a winter which brings about by heat the same dire effects as are wrought in the North by cold. Before the sky, hitherto often clouded, has become quite clear, some of the trees, which had become green in spring, throw off their foliage, and with the wind-swept leaves go the wandering birds. These had brooded here in the spring, but now they seek other fields. The stems of the cereals turn yellow before the rains have ceased; the low grasses wither and dry. The intermittent water-courses cease to have any flow; the rain-filled pools are dried up; and not only the reptiles and amphibians, but even the fishes peculiar to them, are forced to burrow and seek winter-quarters in the damp clay. The seeds of plants, and the eggs or larvæ of insects are also hidden away in the earth.

As the sun travels to the north, the winter sets in rapidly. Autumn lasts but for a few days. It causes no withering nor gradual death of leaves, no glow of red and gold such as we see at home, but exercises, through its hot winds, such a destructive power that the leaves are dried up like mown grass under the sun's rays, and either fall to the ground green, or crumble away on the stalk, so that the trees, with few exceptions, assume their winter aspect with extreme suddenness. Over the plains, on which, a few days before, the tall grass still waved in the wind, dust clouds now whirl; in the partially or wholly dried up water-courses and water-basins the ground gapes in deep cracks. Everything that is pleasing vanishes; everything that is unpleasing becomes painfully obtrusive: leaves and flowers, birds and butterflies fade away, or migrate, or die; thorns, spines, and burs are left; snakes, scorpions,

and “tarantulas” have their heyday. Indescribable heat by day and enervating sultriness by night make this season almost unbearable, and against neither heat nor sultriness is there any remedy. The torments are inconceivable to those who know nothing of such weather, when the thermometer registers up to 122° Fahr. in the shade;[38] when one is in a constant sweat, yet without being conscious of it, so drying is the heat; when one cloud of dust after another whirls up to heaven, or parching thirst weighs on one like lead. Nor can anyone who has not groaned through these nights, when one tosses on the couch, prevented by the sultriness from resting or sleeping, adequately sympathize with the torments to which men and animals are subjected at this season. Even the sky exchanges its hitherto but rarely clouded blue for a dun colour, for the vapour often hides the sun for half a day at a time, yet without diminishing the oppressive heat; indeed the sultriness seems to increase when the horizon is obscured by such mists. One day follows another without any refreshing of body or soul. No cooling breeze from the north fans the forehead; and the soul is not refreshed by any fragrance of flowers, or song of birds, or enchanting pictures with bright colour and deep shade, such as the flooding light of heaven elsewhere paints in the equatorial regions. Everything living, everything coloured, everything poetical, is gone, sunk into death-like sleep—too dismal to awaken any fancy. Men and beasts seem to wither as the grass and leaves withered; and like them many a man and many a beast sinks down for ever. In vain does manly courage endeavour to bear up under the burden of these days: the most resolute will give way to sighs and moans. Every piece of work fatigues, even the lightest covering is too heavy, every

movement is an effort, every wound becomes a virulent sore.

But even this winter must at length yield to spring, yet the incoming of this season also is terrible. For the same wind, which, in the desert, becomes the simoom, raises its wings as herald of the spring. It rages through the fissures in the ground, sweeps out more dust, whirls it aloft in thick masses, and builds it into wall-like clouds, which it drives roaring and howling through the land, and forces through the latticed windows of the comfortable town-houses as well as through the low doorways of the native huts, adding a new plague to the existing torments. At last the wind gains complete mastery and exerts its force without restraint, as though it would annihilate everything that still resisted; but it is this same wind that, farther south, piles up the clouds heavy with rain, and sweeps them towards the scorched land. Soon it seems as if the sultriness began to grow less oppressive as the wind gathered strength; it seems even as if it sometimes blew no longer hotly but refreshingly. And this is no deception; the spring is preparing for its coming, and on the wings of the storm the rain-clouds are borne. In a short time, in the south, they darken the dome of heaven; in a few days quivering flashes lighten the dull cloud-banks; in a few weeks the distant thunder heralds the life-giving rain.

Then all the streams from the south rise and surge and overflow. They are scarcely yet turbid, but they have life now; they continue to rise, and through all the deeper rents and fissures of their muddy banks the life-giving moisture is diffused into the adjacent country. The birds of passage begin to appear, and day by day their numbers increase. To the lands of

the Upper Nile the storks return to take possession of their old nests on the conical straw huts of the natives, and with them comes the sacred ibis to perform to-day the duty which has been his for thousands of years,—to be the messenger and herald assuring all that the old Nile-god will again open the fountain of his mercy, and pour forth his horn of blessing on the lands which own his sway.

At length the first thunder-storm draws near. Sultriness more painful than ever oppresses the dead, scorched land. An eerie stillness fills man and beast with uneasiness. Every song, nay, almost every voice of birds is hushed, and they hide themselves amid the thickest foliage of the evergreens. In the camp of the nomad herdsmen, in the village, in the town, all life seems as if under a spell. The dogs, usually so lively, slink quietly away to some safe hiding-place; the other domestic animals become uneasy or else wild, the horses have to be hobbled, and the cattle are driven into the pen. In town, the merchant closes his stall, the artisan his workshop, the officials their divan; everyone takes refuge at home. And yet not a breeze stirs the air; there is not a rustle among the leaves of the few trees which still have foliage. But everyone knows that the storm is gathering and is drawing near.

In the south is built up a great wall of cloud, dark and at the same time lurid, like the fire-cloud over a burning town or over a forest in flames. Fiery red, purple, dark red, and brown, dull yellow, deep blue, and black seem to move in a dance of colour; they mingle and separate; they fade into the darkness and appear again in vivid prominence. The great cloud-bank rests upon the earth and reaches up to the heavens; now it seems to stand still, and now it

rushes on like a tempest; from minute to minute it narrows the range of vision; more and more completely it throws an impenetrable shroud over all. A whistling, hissing sound issues from it, but around the observer all is still, quiet, and noiseless.

Then suddenly a brief and violent blast of wind bursts forth. Strong trees bend before it like weak reeds; the slender palms bow down their crowns. With ever-increasing rapidity one blast follows another; the wind becomes a tempest, and the tempest a hurricane, raging with unexampled fury. Its noise is so terrible that the spoken word does not reach the speaker's ear; every other sound is drowned and lost. It rages and roars, blusters and hisses, pipes and howls, rumbles and rattles, in the air, along the ground, among the tops of the trees, as if all the elements were in battle, as if the heavens were falling, as if the very foundations of the earth itself were being shattered. The irresistible storm dashes against the trees, and tears off half of the leaves, if there are any left; while stems as thick as a man's waist are snapped like brittle glass. Breaking off the crowns, the hurricane whirls them like light balls over the plain, and buries them head downwards in the loose earth or sand, with the miserable fragment of trunk sticking up, a prey to the destructive termites.[39] Hungrily the wind rushes through the clefts and fissures of the earth, sweeps out dust, sand, and gravel, hurls this even into the clouds, and bears it onwards with such force that it recoils stinging and rattling from hard surfaces. With this dust the tempest hides the heavens and covers the earth, and turns the day into dread night, while the anxious inhabitants in their dust-filled houses light lanterns to gain what encouragement and consolation they may from the

sight of living flame.

But even the roaring hurricane may be out-roared. The crashing, rumbling thunder is yet more mighty; it drowns the howling and bellowing of the wind. The clouds of dust are still too thick to allow the lightning flashes to be seen; but soon to the confusion of sounds and noises a hitherto unheard rattling is added, and the unnatural night begins to be relieved by gleams of light. It seems as if heavy hailstones were rattling down, but they are only raindrops which bear with them in falling the up-whirled dust and sand. Now the flashes are seen. One follows so quickly upon another that we are forced to close our dazzled, well-nigh blinded, eyes, and to follow the storm only by listening to the uninterrupted roll of the thunder. The downpour becomes a cloudburst; from the hills the water rushes down everywhere in streams; in the hollows it forms lakes; in the valleys there are rivers in flood. For hours the downpour continues, but with the coming of the rain the tempest abates, and a fresh cooling breeze refreshes man and beast and plant. Gradually the flashes become fewer and the peals of thunder less violent, the rain-spout becomes a shower, and this ends in a gentle drizzle; the sky clears, the clouds scatter, and the sun breaks forth in splendour. Mirthfully the brown children, naked as they were born, run out from the houses and huts to bathe in the pools which the spring rain has filled; and not less gladly do the reptiles, amphibians, and fishes rise from their muddy beds. Even the first night after the rain one hears everywhere the clear, loud voice of a little frog, of whom one saw nothing before, for he, like some of the crocodiles, many turtles, and all the fishes, had sought winter-quarters deep in the mud bottom of the periodically dried-up lakes, and

had just been awakened by the first spring rain.[40]

Everywhere the newly-awakened life arises in strength. The thirsty earth eagerly sucks in the moisture which has been bestowed upon her; but after a few days the heavens again open their flood-gates and a fresh supply of rain awakens any germs which are still slumbering. A second thunder-storm causes the buds to burst on all the trees which shed their leaves, and liberates the sprouting grasses from the ground. A third downpour of rain calls forth blossoms and flowers, and clothes the whole land in luxuriant green. Magical as spring's coming is the subsequent rush of life. What with us requires a month here completes its life-cycle in a week; what develops but slowly in temperate zones here unfolds itself in days and hours.

But within a few weeks the spring is once more past; the hardly distinguishable summer follows in the annual pageant; and is as rapidly succeeded by the short autumn; so that, strictly speaking, all three—spring, summer, and autumn—make but one season. Again the destructive winter is at the doors, and prevents that continuous germinating, growing, and flourishing which is possible in other equatorial countries where the water-supply is more abundant. Here, however, the rainfall is at least sufficient to keep the barren desert from gaining the mastery, and to spread a more or less rich carpet of vegetation over the ground—in other words, to produce steppe-land instead of desert.

I use the word steppe to designate those lands peculiar to the interior of Africa which the Arabs call "Chala", which means "lands bearing fresh green plants". It is true that the chala is as little like the steppes of South Russia and Central Asia as the

prairies of North America, or the pampas or llanos of South America, yet in certain important respects it does resemble the first-named, so that I need scarcely make any excuse for preferring a known to an unknown term. The steppe extends over the whole interior of Africa, from the Sahara to the Karroo,[41] from east coast to west, surrounding all the high mountains and enclosing all the extensive virgin forests which stretch on their slopes, or occupy in greater luxuriance the low grounds where water is plentiful. In fact it includes all the lands in the heart of Africa, beginning a few hundred paces beyond the last house of the towns, and directly behind the last houses of the villages; it includes the fields of the settlers, and supports the flocks of the nomads. Where the desert ends to the south, where the forest ceases, where the mountain flattens, there is steppe-land; where the forest is destroyed by fire, the steppe first gains possession of the clearing; where men abandon a village the steppe encroaches, and in a few years destroys every trace of habitation; where the farmer relinquishes his fields the steppe impresses its character upon them in the space of a year or two.

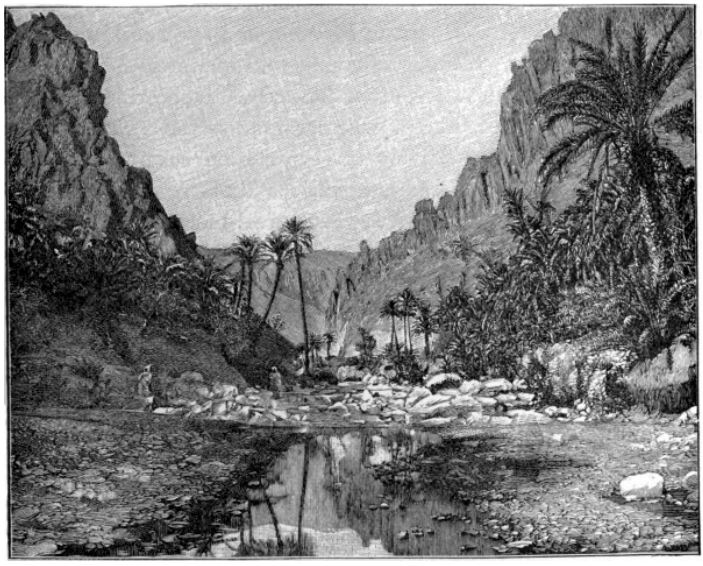


Fig. 25.—The Bed of an Intermittent River, Central Africa.

Inhospitable and monotonous the steppe seems to one who sees it for the first time. A wide, often immeasurable plain stretches before his eye; only exceptionally is this interrupted by isolated conical hills, yet more rarely do these unite to form mountain ranges. More frequently, low, undulating hills alternate with flat valleys; or sometimes they combine in a strange mazy network of ranges which enclose deep-sunk basins, where pools, ponds, and lakes are formed during the rainy season, while during winter the clayey soil is rent with thousands of fissures. In the deepest and longest depressions there is, instead of standing water, a “Chôr” or rain-torrent, that is to say, a water-course which even in the spring is only occasionally in flow, but which, under specially favourable circumstances, may be flooded to the brim in a few hours, and does not merely flow, but rushes—a moving wall of water—hissing and thundering down the valley, often,

however, disappearing before it reaches a true river. Except where there are these water-basins and water-courses, a relatively rich vegetation covers the whole surface of the steppe. Grasses of various kinds, from lowly plants which creep along the ground to great cereal-like stems as tall as a man, form the basis of the vegetation. Trees and shrubs, especially mimosas, baobabs, doum-palms, and christ-thorns, combine here and there, especially near the water, to form thickets or groves, but elsewhere they are but sparsely scattered amid the grasses which so uniformly cover the flats, and it is only at a few spots that they form even a thin wood. Never do the trees show vigour of growth like that seen in the valleys with true river courses, where the blessings of spring are always retained; on the contrary, they are often stunted, usually low and with scraggy crowns with rarely even a twiner struggling upwards. They all suffer from the severity of the long torrid winter, which hardly allows them to gain subsistence, and keeps off almost all parasitic plants. It is different with the grasses which, in the short but abundantly moist spring, shoot up luxuriantly, bloom, and ripen their seeds, and in fact attain to a thoroughly vigorous life. To them the monotonous aspect of the steppe is in great part due, for, humble as they are, they obliterate many of the contrasts which would otherwise be apparent, and the uniformity of their colouring becomes oppressively wearisome. Not even man succeeds in introducing variety into this eternal sameness, for the fields which he tills in the midst of the grass-land seem from a distance so like their surroundings that one can scarce distinguish grain from grass. Even the round huts made of slender stakes, with conical roofs thatched with steppe-grass, are, in the dry season at least, so closely congruent

with the surrounding flats that one must come very near before one sees that they are there. Only the seasons can change the sameness of the picture, and even they do not remove much of its monotony.

Inhospitable, too, is the reception which awaits the traveller in the steppe. Perched on a camel he rides through the fields. Some game or other invites him to the chase, and induces him to penetrate into the grass-forest. Then he finds out that between the apparently smooth grasses there grow plants much more formidable than the thorny mimosas. On the ground flourishes the “tarba”, whose seed-capsules are so sharp that they cut through the soles of light riding-boots; above it grows the “essek”, whose burrs insinuate themselves almost inextricably into all clothing; and somewhat higher the “askanit” rises, most formidable of the three, for its fine prickles are loosened by the slightest touch, and, penetrating one’s clothes, bore into the skin and cause ulcerations small enough individually, but in their incomputable numbers most oppressive. These three plants make any prolonged sojourn or extensive exploration impossible, and are such a torture to man and beast that one can readily understand why the natives always carry, as an indispensable instrument, a fine pair of pincers. As among the monkeys, the greatest kindness which one man can do his neighbour is to pull out the fine, hardly-visible, needle-like spines from his skin. Apart from the three formidable antagonists which we have mentioned, most of the other steppe-plants, especially the trees and shrubs, are covered with more or less repellent thorns and spines, as one soon discovers if one tries to penetrate a thicket or even comes to close quarters with a tree.

Other even more unpleasant characteristics of the steppes make themselves felt at night. It is often necessary to ride for days without reaching a village, and one must therefore camp out on the plain. A suitable sandy place free from obnoxious plants is sought out, the beasts are unloaded and hobbled, a bed is made by spreading a mat on the ground, and a huge fire is lighted to scare off beasts of prey. The sun goes down, and a few minutes later the night falls on the steppes; only the fire lightens the camp. But by the fire and about the couch things soon become lively. Attracted by the light, noxious creatures come running and creeping, first one and then another, but soon in tens and in hundreds. First appear gigantic spiders, which, with their eight legs spread out, cover a surface as large as an outstretched hand. After the spiders, or sometimes along with them, the scorpions come hurrying. Both spiders and scorpions rush with sinister rapidity to the fire, clambering over carpet and coverlet, among the dishes of our simple supper, retreating when the radiating heat becomes too strong for them, turning back again under its mesmeric influence—in truth a fearsome invasion. For these spiders, with their dangerous, or at least painful bites, are not less dreaded than the scorpions, and they are as ready to bite as the scorpions are to sting. Angrily we seize another instrument which an experienced traveller had forewarned us was indispensable—a long-legged pair of tongs, and with these we grip as many of the intruders as possible, and throw them without mercy into the crackling fire. By the united efforts of the party most of the hellish brood are soon in the flames; their successors are similarly treated, until the invasion slackens, and we begin to breathe—but it is too soon! For new and more uncanny visitors

draw near the fire—venomous snakes, apparently fascinated like the spiders. Among them the naturalist recognizes as the most abundant species an exceedingly interesting creature well deserving his attention: it is the sandy-yellow horned viper, the famous or infamous Cerastes of the ancients, the Fi engraved on so many Egyptian monuments, the asp from whose fangs Cleopatra sought death.[42] It may be interesting to the zoologist, but the wearied traveller consigns it to the depths of hell. The whole company becomes lively when this visitor is announced; everyone seizes his tongs with much greater haste and anxiety than before. Whoever sees the snake approaches it cautiously, grips it behind the neck, presses the tongs firmly lest it escape, and throws it into the glowing fire. There its destruction is watched with no small satisfaction. In many parts of the steppe these vipers drive one almost to despair. Thanks to their scaly coat, whose markings correspond to a jot with the sandy soil, thanks also to their habit of burying themselves during the day, or during their resting hours, with only their short tactile horns protruding from the sand, one usually searches for them in vain during daylight. But as soon as night comes, and the camp-fire burns brightly, they are unmistakably on the spot, coiling and hissing all around. Sometimes they appear in terrifying numbers and keep the tired traveller awake till towards midnight, for all those which have been resting within the range of the fire, or have been attracted to it on their nocturnal rambles, come gliding towards the flames. At last, wearied out and heavy with sleep, we throw down the tongs and betake ourselves to bed, but we never know how many of the reptiles will come creeping over us in the night, and we often discover evidence of their

visits when the carpet is lifted in the morning. For under its folds one or more may be found lurking, or may be seen quickly disappearing into the sand. Little wonder that it was on this steppe-land that I first became impressed with the fact, which no one had at that time stated, that, with few exceptions, the venomous snakes, and certainly all the vipers and crotaline snakes, are nocturnal in habit.

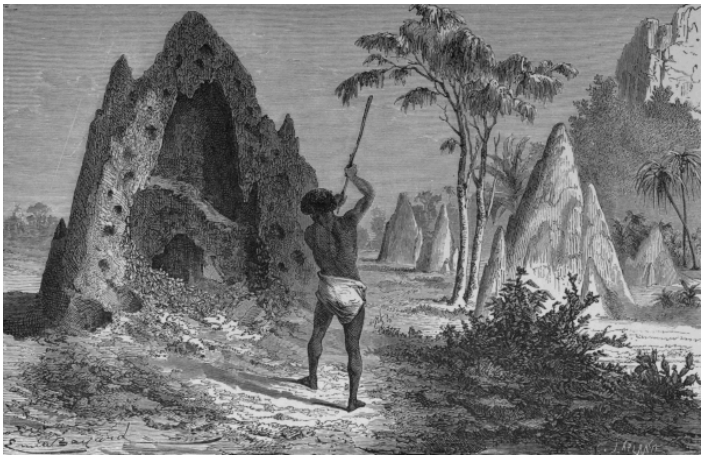


Fig. 26.—Hills of African Termites, or White Ants.

But the above-mentioned animals do not by any means complete the list of those which are troublesome in the steppe. There is one, among the smallest of all, which, though giving no direct cause for anxiety as far as life is concerned, is of immense importance in relation to the property of these who live or travel in this region. I mean the termite, a little insect not unlike an ant, which, in spite of its minuteness, does more damage than the voracious locust (still able to constitute a plague), and may work more destruction than a troop of elephants devastating the fields. It is one of the most omnipresent and persistent of injurious insects.

Whatever the vigour of plant life creates will fall before the sharp jaws of the termites, and they are not less unsparing of the products of human art and industry. High above the grass-forest of the steppe they rear their conical earthen towers; on the ground and on the trees they make their tunnels and passages. They begin and end their destructive work at night or in darkness. First they cover the object of their attack with a crust of earth which shuts out the light, and under this cover they go about their work, whose end and object is always destruction. Things lying on the ground or hung on mud walls are most likely to be attacked. The careless traveller, oppressed by the overpowering sultriness, throws one of his garments on the ground which forms his bed, and finds it in the morning perforated like a sieve and rendered quite useless! The naturalist who is unaware of the ways of the land shuts up his hard-won spoils in a wooden box, and neglects to place this on stones or the like so as to raise it off the ground; in a few days his treasures are gone! The sportsman hangs his rifle on a clay wall, and discovers to his disgust that the destructive insects have covered butt and barrel with their tunnels, and have already gnawed deep channels in the stock. The tree which they select is lost; the woodwork of houses in which they effect a settlement is doomed. From the ground to the highest branches they make their covered ways; they eat through stem, branches, and twigs, and leave but a dead honey-combed skeleton, which becomes the prey of the first storm, and is scattered abroad in dust. On the earth-walls or on the supporting beams of the houses the termites likewise ascend, riddling the woodwork, and in a short time making a wreck of everything. Even under the firmly stamped floors of the better-class houses

they form a maze of branched burrows whence they occasionally break forth in millions bent on destruction. In these and many other ways they work ruin, and are among the most troublesome plagues of the interior of Africa, and especially of the steppe-land.[43]

Did this region offer nought else, were it not one of the most thickly populated and most frequented of animal haunts, the naturalist would perhaps avoid it as carefully as does the mercantile traveller, who knows only its repellent aspects and none of its attractions.

But he who sojourns here for a time and really explores the region is soon reconciled. For the steppe abounds in life; it is not poor like the desert, but rather rich like the primitive forest. For it too shelters a fauna abounding alike in species and in individuals, and including many forms which are regarded as distinctive of this geographical region. Of some of these we shall give rapid sketches.

Among the most remarkable steppe animals are those fishes found in the water-courses and water-basins which are only periodically filled. Even Aristotle speaks of fishes which burrow in the mud when the pools are dried up, and though Seneca sought to throw ridicule on the statement by suggesting scoffingly that one should henceforth go a-fishing not with hook and line but with pick and shovel, Aristotle recorded a fact which is beyond either doubt or ridicule.

The mud-fish,[44] which lives in the steppe basins and streams in the interior of Africa, is an eel-like creature, about 3 feet in length, with a long dorsal fin continuous with that of the tail, with two narrow pectoral fins far forward, and two long pelvic fins far

back, and with this most important characteristic, that, besides the gills, there are also functional lung-sacs. This remarkable connecting link between fish and amphibian lives, even in the wet season, more in the mud than in the water, and likes to hide in holes which it seems to dig out for itself. When the supply of water threatens to disappear, the fish burrows deeply in the mud, rolls itself into the smallest possible bulk, and forms, apparently by frequent turning, an air-tight capsule, shut in on all sides, and lined internally with mucus. Within this the animal remains motionless throughout the winter. If we carefully dig out these capsules and pack them well, we can send the fish without risk where we please, and it may be readily recalled to life by placing the capsule in lukewarm water. As the reviving water soaks in, the creature still remains quiet, just as if it were heavy with sleep; but in the course of an hour or so it becomes quite lively, and in a few days its voracious hunger also awakes. For some months its behaviour remains unaltered, but at the season when it prepares in its native haunts for winter-sleep, it seeks to do the same in captivity, or at least becomes restless, and secretes an extraordinary quantity of mucus. If opportunity be afforded, it burrows; if not, it soon masters its inclination, and continues to thrive as before in the open water.

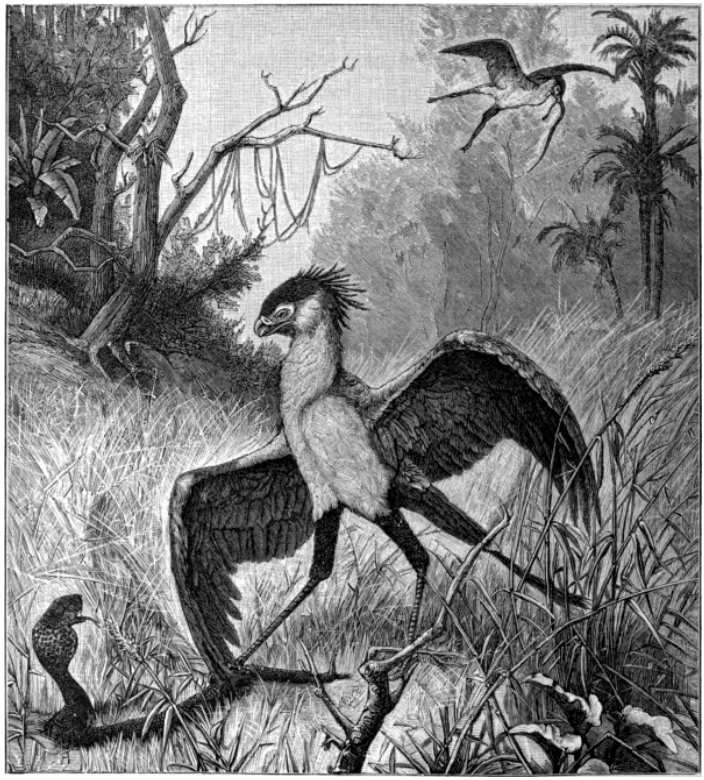


Fig. 27.—Secretary-bird and Aspis.

Sheat-fish or siluroids also pass the winter in the steppe as the mud-fish does. The amphibians too, along with some reptiles, especially water-turtles and crocodiles, burrow in the mud, and wile away the deadly winter in sleep. On the other hand, all the terrestrial reptiles are at their liveliest throughout the torrid season, and contribute not a little to enliven the dreary steppe which they inhabit in extraordinary numbers. Besides the vipers which we have already mentioned, there is another venomous snake of the steppe—the royal Aspis or Uräus—one of the deadliest of all.[45] It was with this creature, more famous or infamous than the horned viper, that

Moses juggled before Pharaoh, as the snake-charmers still do; the same, too, whose image in gold the ancient kings of Egypt wore as a diadem to express their irresistible power, and which they used in the punishment of criminals, or in executing revenge on enemies,—a creature in regard to which the old authors tell many gruesome, and not always untrue, tales. In contrast to other venomous snakes it is active during the day; when unexcited it looks very harmless, but it is extremely agile, irritable, and bold, and combines all the qualities which render venomous serpents dangerous. Usually unseen, for its colour closely resembles that of the sand and the withered grass, it glides, often with uncanny rapidity, through the grass-forest, conscious of its terrible weapons, and ready for attack whenever it fancies danger. In attitude of defence it raises the anterior fifth or sixth of its body, and expands the neck ribs so as to form a sort of shield, above which lies the small head, with lively sparkling eyes. It fastens its sharp gaze on its opponent, and prepares for the bite which is quick as lightning and almost without exception fatal. Then its appearance is dreadful but yet beautiful, bewildering and terrifying to man and beast. It is generally asserted that this snake may kill without biting, by spitting or shooting its venom at its enemy;[46] and it is at any rate true that the poison-glands secrete the dread juice so copiously that great drops trickle from the openings of the perforated fangs. Little wonder that both natives and Europeans are much more afraid of this asp than of the sluggish horned viper which visits their bed by night. Nor is it difficult to understand why the stranger fires at every snake, even the most harmless, which comes within his sight, or why every rustling in the grass or foliage gives one a

slight shock, or at least induces careful circumspection. But the rustling is continually to be heard in the steppe, for there are many other snakes no less common than the asp—many, from the huge python or hieroglyphic snake, sometimes nearly twenty feet in length, down to harmless grass-snakes of minute size. Besides these there is a countless host of lizards of all kinds.

Whoever has a horror of snakes may perhaps be reconciled to the class of reptiles by the agile, beautifully-coloured lizards, for creatures more attractive than these are not to be found in the steppe. They dart to and fro on the ground; they clamber on the branches of the shrubs and trees; they look down from the hills of the termites and from the roofs of the houses; they make their way even under the sand. Some species vie with the humming-birds in the brightness and glitter of their colours; others fascinate by the swiftness and grace of their movements; others attract by the quaintness of their forms. Even after the sun, in whose light they live and move, has set, and most of these active creatures have gone to rest, the geckos are still left to the naturalist. During the day these lizards remain quietly fixed to the tree-boles and the rafters, but as night sets in they begin their activity. With loud and musical calls (to which they owe their name “Gecko”) they hunt about without any fear of man. The ancients libelled them and placed them among the most venomous of animals, and even to-day this superstition lurks in the minds of the ignorant. They are nocturnal animals, and as such somewhat different from the diurnal members of the lizard race. Thus one of their peculiar characteristics is the cushion-like expansion of the fingers and toes, whose soles are furnished with numerous closely appressed

plaits of skin, which act like suckers and give the geckos extraordinary climbing powers. These plaited cushions were long ago erroneously interpreted as poison-secreting glands,—an idea which now seems absurd enough.[47] In truth the geckos are as harmless as they are attractive, and in a very short time they win the affection of every unprejudiced observer. Most valuable domestic pets they are, for they pursue with eagerness and success all kinds of troublesome insects. In every room of the mud and straw houses their nightly activity may be observed; they climb about with all but unfailing security, adhering by their plaited feet to almost anything; head up or head down they run on vertical or on horizontal surfaces, teasing and chasing one another in pleasant fashion, making one merry too with their musical notes; they give one nothing but pleasure and do nothing but good; what reasonable man can fail to become their friend?

But they are reptiles still, and must remain under the curse; they cannot vie with the children of the air—the birds. And one may perhaps say that the birds are the first creatures to make a thoroughly favourable impression on the visitor to the steppe, and to reconcile him to the forbidding aspects of other animals.

The bird-fauna of the steppes is rich alike in species and in individuals. Wherever we wander we are sure to hear and see birds. From the densest forest of grasses resounds the loud call of a bustard; from the thickets by the water-courses is heard the trumpeting of the guinea-fowl or the loud cry of the francolin; from the trees comes a medley of sound—the cooing and moaning of the doves, the shouts and hammering of the woodpecker, the melodious call of

the barbets, the simple music of various weaver-finches and thrush-like songsters. The high branches of trees or other prominent positions serve as watch-towers for serpent-eagles, chanting goshawks, rollers, drongos, and bee-eaters, which sit there on the outlook for prey. The secretary-bird, which the natives call the Bird of Fate, runs about among the tall grass stems or hovers above them; in higher strata of the air one sees the whirling swallows and other birds which catch their prey on the wing; higher still the eagles and vultures are circling. No spot is untenanted, in fact almost every place is thickly peopled; and when our winter begins to reign it sends hither many of our birds, especially kestrels and harriers, shrikes and rollers, quails and storks, who find in the steppe a hospitable refuge during the evil days in the north.

Few of the birds which live in the steppes can be regarded as distinctive, nor is the general character of the bird-fauna so clearly and sharply defined that one could at once recognize a steppe bird, as is possible with those of the desert. To some extent, however, the careful observer will notice that the birds of the steppe are congruent with their environment. The secretary-bird—a great bird of prey in the guise of a crane; the “snake-harrier”—a sluggish, slow-flying hawk clothed in rich, soft, large-feathered plumage; a straw-yellow night-jar, and another with decorative wing-feathers, a guinea-fowl or a francolin, a bustard or an ostrich: of these we might perhaps venture to say that they belong to the steppe, and are only there at home. It is not the case that the steppe is richer in colour than the desert, but it affords much more cover, and its tenants are therefore more freely coloured and marked. There are two colours to which it seems as if

a preference were given; the one is a more or less shaded straw-yellow, the other is a hardly definable gray-blue. Both appear on the plumage of birds of prey and game-birds alike, but without, of course, excluding other darker, lighter, or more vivid colours. It seems to me worthy of note that the greater freedom of colouring and marking is also observable on those birds whose near relations are characteristic of the desert.

We should like to give a more detailed description of some of the steppe birds which are most distinctive of the region, but selection is difficult, for almost every one of those which we have mentioned claims and merits close attention. But my limits force me to a choice, and it must suffice if I select a bird of the upper air, a bird of the ground, and a bird of the night, in order through them to add a few touches to our general picture of the steppe.

No one who stays for any length of time in the steppe-land can fail to observe a large bird of prey, whose appearance as he flies, owing to the beautiful contour of the long pointed wings and exceedingly short tail, mark him off from every other feathered robber, whose flight moreover surpasses that of all creatures which fly. High above the ground he flies, hovers, glides, tumbles, flutters, dances, and throws himself headlong. As large as an eagle, he expands his great wings, and remains for a moment in the same position without any movement; he beats them violently, raises them high above his body, twists them and whirls them; he closes them and is precipitated almost to the ground; he gives a few powerful strokes, and in a few minutes has ascended to immeasurable heights. As he approaches the ground we see his vividly contrasted colours—the

velvet black of the head, neck, breast, and belly, the silver white on the under surface of his wings, the light chestnut-brown of his tail; he throws himself headlong, and we notice the bright colour of the back resembling that of the tail and a broad light band on the wings; he comes still nearer, and we may perhaps detect the coral-red beak and cheeks and talons. If we question one of the nomad herdsmen observant of the animal life of the steppe in regard to this striking and altogether remarkable bird of prey, we may hear from his lips this significant and suggestive story. “To him,” he says, “the goodness of the All-merciful has given rich gifts, and, above all, high wisdom. For he is a physician among the birds of heaven, familiar with the diseases which visit the children of the Creator, and knowing all the herbs and roots with which to heal them. From far-off lands thou mayest see him bear the roots, but in vain dost thou seek to discover whither he is summoned to heal the sick. The working of his remedies is unfailing; to partake of them brings life, to reject them is to invite death; they are as the Hedijah written by the hand of God’s messenger, a precept of Mohammed, whom we reverence in humility. To the poor in the eyes of the Lord, to the sons of Adam, it is not forbidden to make use of them. Take note of where the physician-eagle has his dwelling, refrain from injuring his eggs, wait till the feathers of his young no longer draw any blood, and then go to his home and wound the body of one of his children. Thereupon shalt thou perceive the father fly towards morning in the direction in which thou turnest to pray. Be not discouraged in waiting for his return, have patience! He will appear bearing with him a root; frighten him so that he may leave it to thee, take it without fear; for it comes from the

Lord, in whose hand are the issues of life, and it is free from all witchcraft. Then hasten to heal thy sick; they shall all recover, for so it is appointed to them by the Father of Mercies."

The bird which forms the subject of this poetic legend is the bateleur or short-tailed African eagle—the "Heaven's ape" of the Abyssinians. The roots which, according to the legend, it carries, are snakes, which it picks up. Seldom does one see the bird rest; usually it flies, as has been described, until the sight of a snake induces it to hurl itself downwards and to engage in battle. Like all the snake-eating birds of prey, it is well protected against the venomous fangs by the thick horny plates on its talons and by its dense plumage; it is therefore unafraid of the most deadly snake, and is a true benefactor of the steppe-land. It is not this beneficence, however, but its marvellous flight that has won renown for the African eagle in the eyes of all the peoples among whom it has its home.

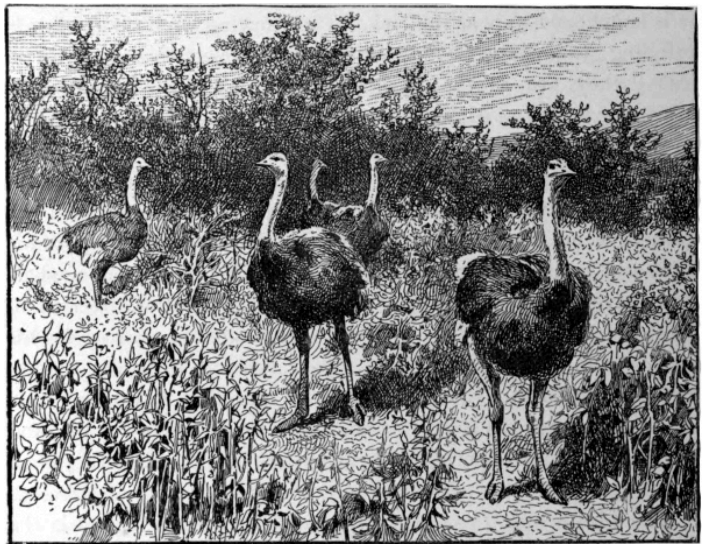


Fig. 28.—On an Ostrich Farm in South Africa.

The ostrich, which is bound to the earth, stands in striking contrast to the short-tailed eagle. He also is the hero of an Arabian legend, which, however, instead of glorifying him, brings him down to the dust; for the story is that the ostrich wished, in the exuberance of his vanity, to fly to the sun, but was in his attempt miserably burned, and hurled in his present form to the ground. To us his life is all the more worthy of consideration, that many false ideas still prevail both in regard to it and in regard to the bird himself.

Although occurring in those low grounds of the African and West Asiatic deserts which are richest in vegetation, the ostrich becomes abundant only in the steppe. Here one is almost continually crossing his unmistakable “spoor”, though it is but rarely that one sees the bird. He is tall enough to see over the lofty grasses which conceal him, he is far-sighted and shy, and can therefore usually conceal himself from the approaching traveller. If one succeeds in observing him from a distance, one sees that, except at the breeding season, he is fond of a comfortable and easy-going life. In the early morning, and in the evening, the troop feed busily; at noon they all lie resting and digesting on the ground; sometimes they go together to water or to bathe (even in the sea); later on, they amuse themselves with marvellous dances,[48] jumping round in a circle as if out of their senses, fanning with their wing-plumes as if they would attempt to fly; at sunset they betake themselves to rest, but without neglecting to secure their safety. If a formidable enemy threaten them they rush off in wild flight, and soon leave him far behind; if a weaker carnivore sneak upon them, they strike him to the ground with their extremely

powerful legs. Thus the course of their life runs smoothly, provided that there be no lack of food. Of this they require an enormous quantity. Their voracity is astounding, and not less is the capacity of their stomach to receive vast quantities of all sorts of things, which are either digested, or are retained without injury. Almost everything vegetable, from root-tubers to fruits, is accepted by their stomachs, which have now become proverbial; and so is it with small animals, both vertebrate and invertebrate. But such things by no means exhaust their menu. The ostrich swallows whatever can be swallowed, gulping down stones a pound in weight, and in captivity not disdaining pieces of tiles, oakum, rags, knives, single keys and bunches of keys, nails, pieces of glass and crockery, leaden balls, bells, and many other such things. Indeed, it may fall a victim to its indiscriminating appetite by devouring such stuff as unslaked lime. In the stomach of one which died in captivity there was found a heterogeneous mass weighing in all about nine pounds. In the poultry-yard the greedy bird swallows ducklings and chickens as if they were oysters; it dismantles walls to fill its gizzard with the loose mortar; in short, it will eat anything which is not a fixture. In proportion to the amount of food which it requires—and that is not out of proportion to its size and activity—so is its thirst. Thus it frequents those places where it finds not only abundance of nutritious plants, but also water-basins or springs. If both fail, the ostriches are forced to migrate, and in such cases they often cover great distances.

With the coming of spring the mating instinct awakens in the heart of the ostrich, and then it changes its habit of life in a remarkable manner. The

troops or herds break up into small groups, and the adult males begin their long-continued combats for mates. Excited to the highest pitch, as is outwardly indicated by the vivid reddening of neck and legs, two rivals stand opposed; they fan their wings so that the full splendour of their fluffy white plumes is displayed; they move their long necks in a scarce describable fashion, twisting and bending now forwards, now sideways; they utter deep and hoarse sounds, sometimes suggestive of a muffled drum, sometimes even of the roaring of lions; they stare at one another; they bend down on the soles of their feet, and move their necks and wings more rapidly and persistently than before; then they spring up again and rush at one another, seeking, in the swift encounter, to strike their opponent a powerful blow with the foot, and with the sharp-cutting toe-nail to make long, deep gashes on body and legs. The victor in the combat is not more gentle to the mate or mates which he has won, in fact he abuses them shamefully with bullying and blows. It is not at present perfectly certain whether a male keeps company with one female or with several;[49] it may be accepted as a fact, however, that several females often lay in the same nest, and it has been observed that the female does not undertake the whole responsibility of sitting on the eggs, but leaves much of this to the male, who, after about eight weeks' brooding, also leads about the young and tends them. In both brooding and tending, the female does assist, but the male always has the larger share, and in leading about the young brood he shows more carefulness and solicitude than does the mother-bird. The young ostriches, when hatched, are about the size of an average hen, and come into the world with a remarkable suit of feathers, more like the bristly

coat of a mammal than the customary down of young birds. As they exhibit the characteristic voracity of their race from the day of their birth, they grow quickly, and after two or three months they change their plumage and put on a garb resembling that of the female. At least three years must pass, however, before they are fully grown or ready for pairing.

Such, in briefest statement, are the essential facts in regard to the life-history of the giant bird of the steppe; all the stories which are inconsistent with my summary are more or less fabulous.

The bird of the night in regard to which I wish to say a few words is the night-jar or goat-sucker, whose race is represented at home by one species, but in the steppe by several somewhat remarkable forms. When the first star is seen in the evening sky these gayest and most charming of nocturnal birds begin to be active. During the day it is only by chance that we ever see one, and we scarce believe in its powers of enlivening the steppe-land. But, when night falls, at least one is sure to make its appearance. Attracted to the camp-fire like the scorpion and the viper, the softly-flying bird flits in ever-changing course around the watchers, alights near them for a moment, delivers a few strophes of its whirring night-song, which reminds one of a cat's purring, is off again into the dusk, only to reappear in a few minutes, and so on until morning. One species is especially fascinating, the flag-winged night-jar, or "four-winged bird" of the natives. Its decorative peculiarity consists of a long feather which grows out between the primaries and secondaries[50] of each wing, without any vane except at the broad tip, and far exceeding all the other feathers in length, being in

fact almost exactly half a yard in length. Eerily, like some ghost, this night-jar flies and flutters. It looks as if it were being constantly pursued by two others of smaller size, or as if it could divide itself into two or three birds, or as if it had indeed four wings. But it has all the charms of its race, and soon becomes a welcome visitor, contributing, like its fellows, not a little to alleviate most pleasantly the discomforts of the night.

Like the birds, the mammals of the steppe are rich alike in numbers and in species. The abundant vegetation supports not only countless herds of antelopes, which are justly regarded as most characteristic of this region, but also buffaloes and wild boars, zebras and wild asses, elephants and rhinoceroses, the “serafe”, or giraffes, as we call them, besides a host of rodents with which we have only a general acquaintance. Against this dense population of herbivores, the numerous carnivores of the steppe wage unceasing war, and this is probably even to the advantage of the former, since, without some such check, the ruminants and rodents would tend to multiply beyond the limits of subsistence afforded even by the rich vegetation of this region. The uniformity of the North African steppes and the relatively (though not really) frequent occurrence of standing and flowing water hinder the formation of those immense mobs of antelopes which are observed in the Karroo of South Africa; everywhere, however, we come across these elegant, fine-eyed ruminants, singly, in small herds, or in considerable companies, and they seem to keep to approximately the same spots in summer and winter. Zebras and wild asses, on the other hand, are only found on the dry heights; the giraffe lives exclusively in the thin woods, while the rhinoceros almost always seeks the

densest growths; the elephant entirely avoids broad open tracts, and the ill-tempered buffaloes cling to the moist low ground. On these last, as on the tame herds of cattle, the lion preys, while the cunning leopard and the nimble, untiring cheetah, are more given to stalking the antelopes; the jackals and steppe-wolves prefer the hares; the foxes, civets, and polecats seek the small rodents and those birds which live on the ground.

From this abundant fauna I must select some for special notice, but I shall withstand the temptation of choosing lion or cheetah, hyæna or ratel, zebra or other wild horse, giraffe or buffalo, elephant or rhinoceros, for there are some others which seem to me more truly distinctive of the steppe. Among these I place in the first rank the ant-eater, or aard-vark, and the pangolin—the old-world representatives of the Edentates—which have their head-quarters in the western hemisphere, and belong to an order whose golden age lies many ages behind us. Both aard-vark and pangolin are, in North Africa at least, distinctively steppe animals, for it is only there that the ant-hills and termitaries are sufficiently numerous to afford them comfortable maintenance. Like all ant-eaters they lie during the day rolled up almost in a ball, sleeping in deep burrows which they have dug out, and which one sees opening alike on the broad, treeless, grass plain and among the sparse trees and shrubs. Only when night has set in do they become lively; with clumsy gait they hobble and jump about in search of food, progressing chiefly by means of their powerful hind-limbs, resting on the great burrowing claws of their fore-limbs and on their heavy tail. Their food consists exclusively of small creatures of all kinds, but especially of the larvæ of ants and termites, and of worms.

Continually jerking its depressed nose and snuffing about, the ant-eater trots along, and, having discovered a pathway of the ants or termites, follows this home. Without much difficulty it makes an opening for its long snout, pushes this into the hole, and feels about with its tongue for the passages along which the insects hurry and scurry. Having stretched the tongue, which is viscid and thread-like, along one of the chief passages, it waits until it is covered with ants or termites, and then retracts it into the narrow mouth. So minute are the individual morsels that this may seem a somewhat miserable mode of making a meal, but the tongue is, in its way, just as effective as the powerful claws, and the ant-eater makes its way through life very comfortably. Nor are the animals by any means so helpless as they seem. The weak pangolin is protected more effectively by his armour, which is strong enough to turn a sword, than by the weapons on its feet; the aard-vark is able to use its claws most effectively, and can also give such smart side-blows with its heavy tail that it readily gets rid of an antagonist who is not of superior strength. But if a really formidable enemy draws near and is detected in time, the aard-vark burrows with the utmost rapidity, throwing out sand and dust with such force and in such quantities that an almost impenetrable, because blinding, veil saves it from attack until it is at a safe depth underground. Only to man with his far-reaching weapons does it fall an easy prey, for he stabs it asleep in its burrow, and kills it almost infallibly if the entrance to the hole be fairly straight and not too long. Thus, fate is too strong for even this old-world creature, and will sooner or later wipe out its name from the book of the living.

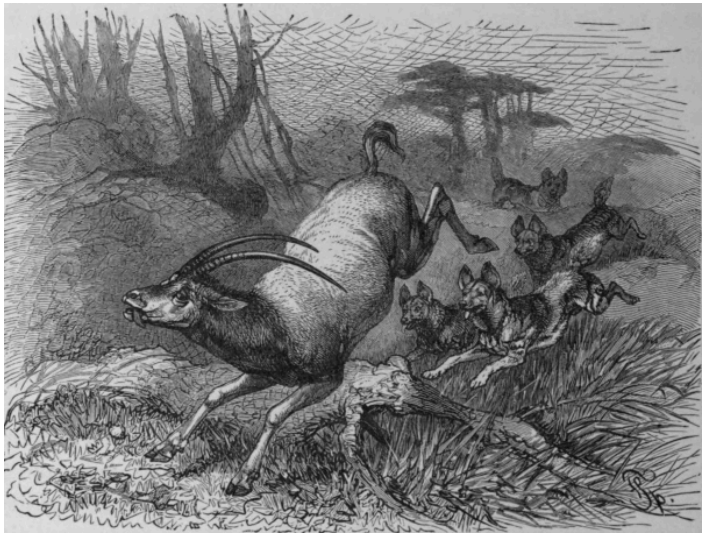


Fig. 29.—Hyæna-dogs pursuing Antelope.

Among the steppe beasts of prey one of the best known and most distinctive is a dog. A connecting link between the dogs and the hyænas, not only in form but to a certain extent in its markings, this animal—the hyæna-dog or Cape hunting-dog—is one of the most noteworthy figures in the steppe-picture, and also in its nature and habits one of the most interesting of all the carnivores of this region. Excepting certain monkeys, I know of no mammal so self-assertive, so wantonly aggressive, so emulous of exploits as this dog is, or, at any rate, seems to be. There is no limit to his ambition; no other mammal is quite secure from his attack. In large packs they traverse the broad steppe-land on eager outlook for booty. They ravage the sheep-flocks of the settlers and nomads; they follow persistently at the heels of the swiftest and most agile antelopes; audaciously they press in even upon men; fearlessly they dislodge, thanks perhaps to their noisy bravado, the other carnivores of the region which they frequent.

Behind the strongest and most formidable antelope a pack rushes in full cry, barking, howling, whining, and now and then uttering a clear note of triumph. The antelope exerts all its strength, but the murderous dogs lose no ground, they cut off corners and prevent it doubling back, they come nearer and nearer and force it to stand at bay. Conscious of its strength and of its powers of defence, the antelope uses its pointed horns with skill and good effect; one dog after another may be hurled to the ground fatally transfixed; but the others fix on its throat and body, and the noble creature's death-rattle soon puts an end to their howling. Without fear of man these dogs fall upon domestic animals of all kinds, tearing up the smaller sorts with the bloodthirstiness of martens, and mutilating those which are too large to be readily mastered. Nor are they afraid of domestic dogs, but fight with them to the death and leave them lifeless on the field. Thoroughly broken in and tamed, trained for several generations, they should become the most excellent of sporting-hounds; but the task of subjugation is certainly not an easy one. They do indeed become used to their master, and display some liking, even a certain fondness for him, but all in their own way. When called from their kennel, they jump up and down in the highest of spirits, fight with one another out of sheer joy, rush at their approaching master, leap up on him, try to show their gladness in the most extravagant ways, and are finally unable to express it except by biting him. A boisterous mischievousness and an uncontrollable impulse to bite are characteristic of almost all their doings. More excitable than almost any other creature, they move every member, they quiver in every fibre, when any novel occurrence attracts or occupies them; their mercurial vivacity is

expressed in exaggerated gaiety and next moment in savage wildness. For they bite whatever comes in their way, without any provocation, probably without any ill-will, simply for fun. They are the most marvellous creatures in all the steppes.

In those parts of the steppe which I have been more particularly considering—the Kordofan, Sennaar, and Taka regions—the animal life is not subject to destructive or disturbing influences to the same extent as in the south of Africa or in Central Asia. To those animals which do not migrate, or do not lie in death-like sleep for months, the winter may bring privations or even sharp want, but it does not involve the pangs of starvation or the torments of thirst; it does not force desperate creatures to leave an impoverished home, or seek for happier lands in mad flight. It is true that the animals of the North African steppes have their migrations and journeyings; but they do not flee in a panic as do those which inhabit other steppe-lands, and forsake them in hundreds of thousands before a threatened destruction. Of the immense herds of antelopes, such as crowd together in the south of Africa, one never hears in the north. All the gregarious mammals and birds gather together when the winter sets in, and disband when the spring draws near; all the migratory birds go and come about the same time; but all this takes place in an orderly, old-established fashion, not spasmodically nor without definite ends. There is, however, one power from whose influence the animal life of these steppe-lands is not exempt,—and that is fire.

Every year, at the time when the dark clouds in the south and the lightning which flashes from them announce the approach of spring, during days when

the south wind rages over the steppe, the nomad herdsman takes a firebrand and hurls it into the waving grass. Rapidly and beyond all stopping the fire catches. It spreads over broad stretches; smoke and steam by day, a lurid cloud by night, proclaim its destructive and yet eventually beneficial progress. Not unfrequently it reaches the primeval forest, and the flames send their forked tongues up the dry climbing-plants to the crowns of the trees, devouring the remaining leaves or charring the outer bark. Sometimes, though more rarely, the fire surrounds a village and showers its burning arrows on the straw huts, which flare up almost in a moment.

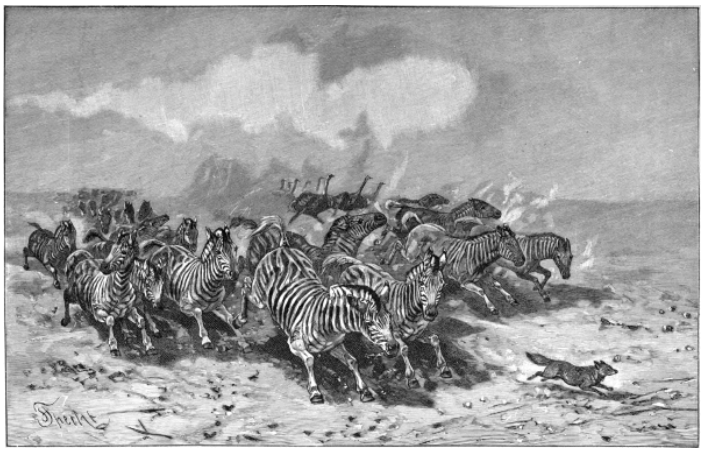


Fig. 30.—Zebras, Quaggas, and Ostriches flying before a Steppe-fire.

Although a steppe-fire, in spite of the abundance of combustible material, is rarely fatal to horsemen or to those who meet fire by fire, and just as rarely to the swift mammals, it exerts, nevertheless, a most exciting influence on the animal world, and puts to flight everything that lives hidden in the grass-forest. And sometimes the flight becomes a stampede, to hasten which the panic of the fugitives contributes

more than the steady advance of the flames. Antelopes, zebras, and ostriches speed across the plain more quickly than the wind; cheetahs and leopards follow them and mingle with them without thinking of booty; the hunting-dog forgets his lust for blood; and the lion succumbs to the terror which has conquered the others. Only those which live in burrows are undismayed, for they betake themselves to their safe retreats and let the sea of fire roll over them. Otherwise it fares hardly with everything that creeps or is fettered to the ground. Few snakes and hardly the most agile of the lizards are able to outrun the fire. Scorpions, tarantulas, and centipedes either fall victims to the flames, or become, like the affrighted swarms of insects, the prey of enemies which are able to defy the conflagration. For as soon as a cloud of smoke ascends to the sky and gradually grows in volume, the birds of prey hasten thither from all quarters, especially serpent-eagles, chanting goshawks, harriers, kestrels, storks, bee-eaters, and swifts. They come to capture the lizards, snakes, scorpions, spiders, beetles, and locusts, which are startled into flight before the flames. In front of the line the storks and the secretary-birds stalk about undaunted; above them amid the clouds of smoke sweep the light-winged falcons, bee-eaters, and swifts; and for all there is booty enough. These birds continue the chase as long as the steppe burns, and the flames find food as long as they are fanned by the storms. Only when the winds die down do the flames cease.

It is thus that the nomad clears his pasture of weeds and vermin, and prepares it for fresh growth. The ashes remain as manure, the life-giving rains carry this into the soil, and after the first thunder-storm all is covered with fresh green. All the former tenants,

driven away in fear, return to their old haunts, to enjoy, after the hardships of winter and the recent panic, the pleasures of ease and comfort.

THE PRIMEVAL FORESTS OF CENTRAL AFRICA.

Rich as the African steppe really is, incomparably rich as it seems when compared with the desert, it nowhere exhibits the full luxuriance of tropical vegetation. It indeed receives everywhere the blessing of life-giving water; but this lasts too short a time to have a permanent influence. With the cessation of the rains the power of growth comes to an end, and heat and drought destroy what the rains have produced. Therefore only those plants can flourish in the steppe the course of whose life is run within a few weeks; those which are capable of outlasting centuries never attain to full development. Only in the low grounds, traversed by streams which never dry up, and watered by these as well as by the rains, where sunlight and water, warmth and moisture, work together, does the magic wealth of tropical lands develop and endure. Here have arisen forests which, in magnificence and beauty, grandeur and luxuriance, are scarce inferior to those of the most favoured lands of lower latitudes. They are primeval forests in the true sense of the word, for they grow and disappear, become old and renew their youth without help of man; even to this day they are sufficient unto themselves, and they support an extraordinary wealth of animal life.

The storms of spring carry the rain-laden clouds from the south over the African countries lying north of the equator. Accordingly, these forests do not burst

suddenly on the eye of the traveller journeying from the north, but become gradually more characteristic the farther south he penetrates. The nearer he approaches to the equator the more brilliantly the lightning flashes, the louder and more continuously the thunder rolls, the more noisily the rain-torrents fall, so much the more luxuriantly do all plants thrive, so much the richer in forms does the fauna become; the earlier the rainy season sets in the longer it lasts, and so much the greater is the charm it works. In exact proportion to the increase of moisture, the forest becomes denser, loftier, and more extensive. From the banks of the streams the plant-growth spreads into the interior, and takes possession of every available space, from the thickly-covered ground to the tops of the highest trees. Trees which are only dwarfs elsewhere, become giants here; known species become the hosts of still unknown parasites, and between them a plant-world hitherto unseen struggles towards the light. Even here, however, at least in the northern belt of the forest, the heat and drought of winter have still so strong an influence that they periodically destroy the foliage of the trees and condemn at least most of them to some weeks of complete inactivity. But the awakening call of spring rings the more clearly through the sleeping wood; the life which the first rains of the fertilizing season call forth stirs the more powerfully after the rest of winter.

I shall select spring-time in these countries to depict the primeval forest as best I can. The south wind, herald and bearer of the rain-clouds, must still be in contest with the cooling breezes from the north if the forest is to reveal all its possible magnificence, and one must penetrate to its heart by one of its arteries, the rivers, if one wishes to see the fulness of its life.

Let us take the Azrek or “Blue Nile”, rising in the mountains of Habesh, as our highway; for with it are linked the most exquisite pictures which a long life of travel have won for me, and I may prove a better guide on it than on another. I very much doubt, however, whether I shall prove such an interpreter of the forest as I should like to be. For the primeval forest is a world full of splendour, and brilliance, and fairy-like beauty; a land of marvels whose wealth no man has been able fully to know, much less to carry away; a treasure-house which scatters infinitely more than one can gather; a paradise in which the creation seems to take shape anew day by day; an enchanted circle which unfolds before him who enters it pictures, grand and lovely, grave and gay, bright as daylight and sombre as night; a thousand integral parts making up a whole infinitely complex, yet unified and harmonious, which baffles all description.

One of the light little craft which one sees at Khartoum (the capital of the Eastern Soudan, lying at the junction of the two Nile streams) is transformed into a travelling boat, and bears us against the waves of the much-swollen Azrek. The gardens of the last houses of the capital disappear, and the steppe reaches down to the very bank of the river. Here and there we still see a village, or isolated huts lying prettily under mimosas and often surrounded by creeping and climbing plants which hang from the trees; nothing else is visible save the waving grass-forest and the few steppe trees and shrubs which rise from its midst. But after a short journey the forest takes possession of the bank, and spreads out its thorny or spine-covered branches even beyond it. Thenceforward our progress is slow. The wind blowing against us prevents sailing, the forest

renders towing impossible. With the boat-hook the crew pull the little craft foot by foot, yard by yard, farther up the stream, till one of their number espies a gap where he can gain a foothold in the thick hedge-wall of the bank, and, committing his mortal body to the care of Muhsa, the patron-saint of all sailors, and praying for protection from the crocodiles which are here abundant, he takes the towing-rope between his teeth, plunges into the water, swims to the desired spot, fastens the rope round the trunk of a tree, and lets his companions pull the boat up to it. Thus the boatmen toil from early morning till late in the evening, yet they only speed the traveller perhaps five, or at most ten miles on his way. Nevertheless the days fly past, and none who have learned to see and hear need suffer from weariness there. To the naturalist, as to every thoughtful observer, every day offers something new; to the collector, a wealth of material of every kind.

Every now and again one comes upon traces of human beings. If one follows them from the bank, along narrow paths hemmed in on either side by the dense undergrowth, one arrives at the abodes of a remarkable little tribe. They are the Hassanie who dwell there. Where the forest is less dense, and where the trees do not form a three-or four-fold roof with their crowns, but consist of tall, shady mimosas, Kigelias, tamarinds, and baobabs, these folk erect their most delightful tent- or booth-like huts, so different from all the other dwellings one sees in the Soudan. “Hassanie” means the descendants of Hassan, and Hassan means the Beautiful; and not without reason does this tribe bear this name. For the Hassanie are indisputably the handsomest people who dwell in the lower and middle regions of the river-basin, and the women in particular surpass

almost all other Soudanese in beauty of form, regularity of feature, and clearness of skin. Both men and women faithfully observe certain exceedingly singular customs, which among other people are, with reason, considered immoral. The Hassanie are therefore at once famous and notorious, sought out and avoided, praised and scoffed at, extolled and abused. To the unprejudiced traveller, eager to study manners and customs, they afford much delight, if not by their beauty at least by their desire for approbation, which must please even the least susceptible of men. This trait is much more conspicuous in them than even the self-consciousness which beauty gives: they must and will please. The preservation of their beauty is their highest aim, and counts for more than any other gain. To avoid sunburning, which would darken their clear brown skins, they live in the shade of the forest, contenting themselves with a few goats, their only domestic animals except dogs, and foregoing the wealth that numerous herds of cattle and camels afford their nomadic relatives. That their charms may be in no way spoiled, they strive above all to become possessed of female slaves, who relieve them of all hard work; to decorate face and cheeks they endure heroically, even as little girls, the pain inflicted by the mother as she cuts with a knife three deep, parallel, vertical wounds in the cheeks, that as many thick, swollen scars may be formed, or as she pricks forehead, temples, and chin with a needle and rubs indigo powder into the wounds, so producing blue spirals or other devices; to avoid injury to their dazzling white, almost sparkling teeth, they eat only lukewarm food; to preserve as long as possible their most elaborate coiffure, which consists of hundreds of fine braids, stiffened with gum arabic and richly

oiled, they use no pillow save a narrow, crescent-shaped, wooden stand, on which they rest their heads while sleeping. To satisfy their sense of beauty, or perhaps in order that they may be seen and admired by every inhabitant or visitor, they have thought out the singular construction of their huts.

These huts may be perhaps best compared to the booths to be seen at fairs. The floor, which consists of rods as thick as one's thumb bound closely together, rests upon a framework of stakes rising about a yard from the ground, thus making the dwelling difficult of access to creeping pests, and raising it from the damp ground. The walls consist of mats; the roof, overhanging on the north side, which is left open, is made of a waterproof stuff woven from goat's hair. Neatly plaited mats of palm-leaf strips cover the floor; prettily-wrought wicker-work, festoons of shells, water-tight plaited baskets, earthen vessels, drinking-cups made from half a bottle-gourd, gaily-coloured utensils also plaited, lids, and other such things decorate the walls. Each vessel is daintily wrought and cleanly kept; the order and cleanliness of the whole hut impress one the more that both are so uncommon.

In such a hut the Hassanie dreams away the day. Dressed in her best, her hair and skin oiled with perfumed ointment, a long, lightly-woven, and therefore translucent piece of cloth enveloping the upper part of her body, a piece of stuff hanging petticoat-like from the waist, her feet adorned with daintily-worked sandals, neck and bosom hung with chains and amulets, arms with bracelets of amber, her nose possibly decorated with a silver, or even a gold ring, she sits hidden in the shade and rejoices in her beauty. Her little hand is busy with a piece of

plaiting, some house utensil or article of dress, or perhaps it holds only her tooth-brush, a root teased out at both ends, and admirably adapted to its purpose. All the work of the house is done by her slave, all the labour of looking after the little flock by her obliging husband. The carefully thought-out and remarkable marriage-relations customary in the tribe, and adhered to in defiance of all the decrees and interference of the ruler of the land, guarantee her unheard-of rights. She is mistress in the most unlimited sense of the word, mistress also of her husband, at least as long as her charms remain; only when she is old and withered does she also learn the transitoriness of all earthly pleasure. Till then, she does what seems good in her eyes, her freedom bounded only by the limits which she has herself laid down. As long as the crowns of the trees do not afford complete shade around her hut she does not go out of doors, but offers every passer-by, particularly any stranger who calls upon her, a hearty welcome, and with or without her husband's aid, does the honours of the tribe with almost boundless hospitality. Yet it is only when the evening sets in that her real life begins. Even before the sun has set, there is a stir and bustle in the settlement. One friend visits her neighbour, others join them; drum and zither entice the rest, and soon slender, lithe, supple figures arrange themselves for a merry dance. Delicate hands dip the drinking-cups into the big-bellied urn, filled with Merieza or dhurra beer, that the hearts of the men also may be glad. Old and young are assembled, and they celebrate the evening festival the more joyfully that it is honoured by the presence of strangers. The hospitality of all the Soudanese is extraordinary, but in no other race is it so remarkable as among the Hassanie.

In the course of our journey we come upon other settlements of these forest-shepherds, sometimes also on the villages of other Soudanese, and at length, after travelling nearly a month, we reach the desired region. The dense forest on both banks of the river prevents our searching gaze from seeing farther into the country. In this region there are no settlements of men, neither fields nor villages, not even temporarily inhabited camps; the ring of the axe has not yet echoed through these forests, for man has not yet attempted to exploit them; in them there dwell, still almost unmolested, only wild beasts. Impenetrable hedges shut off the forests, and resist any attempt to force a way from the stream to the interior. Every shade of green combines to form an enchanting picture, which now reminds one of home, and again appears entirely foreign. Bright green mimosas form the groundwork, and with them contrast vividly the silver glittering palm-leaves, the dark green tamarinds, and the bright green Christ-thorn bushes; leaves of endless variety wave and tremble in the wind, exposing first one side and then the other, shimmering and glittering before the surfeited and dazzled eye, which seeks in vain to analyse the leafy maze, to distinguish any part from the whole. For miles both banks present the same appearance, the same denseness of forest, the same grandeur, everywhere equally uninterrupted and impenetrable.

At last we come upon a path, perhaps even on a broad road, which seems to lead into the depths of the forest. But we search in vain for any traces of human footprints. Man did not make this path; the beasts of the forest have cleared it. A herd of elephants tramped through the matted thicket from the dry heights of the bank to the stream. One after another in long procession the mighty beasts broke

through the undergrowth, intertwined a thousand-fold, letting nought save the strongest trees divert them from their course. If branches or stems as thick as a man's leg stood in the way they were snapped across, stripped of twigs and leaves, all that was eatable devoured, and the remainder thrown aside, the bushes which covered the ground so luxuriantly were torn up by the roots, and used or thrown aside in the same manner, grass and plants were trodden under foot. What the first comers left fell to those behind, and thus arose a passable road often stretching deep into the heart of the forest. Other animals have taken advantage of it, treading it down more thoroughly, and keeping it in passable condition. By it the hippopotamus makes his way at night when he tramps from the river to feed in the woods; the rhinoceros uses it as he comes from the forest to drink; by it the raging buffalo descends to the valley and returns to the heights; along it the lion strides through his territory; and there one may meet the leopard, the hyæna, and other wild beasts of the forest. We set foot on it, and press forwards.

After a few steps the magnificent forest surrounds us on all sides. But, here also, it seems in vain to attempt to unravel the confusion of stems and branches, twigs and shoots, tendrils and leaves. The forest hems in such a path on both sides like a wall. The ground is everywhere covered with thickly-matted bushes, which one cannot even see through; but, struggling through these, all sorts of grasses have sprung up, forming a second undergrowth; just above that, tall-stemmed bushes and low trees spread their branches on all sides; over these again rise taller trees, and above them all tower the giants of the forest. By far the greater number of bushes in the undergrowth are thickly covered with thorns, while

the mimosas towering above them are armed with long, hard, sharp spines, and even the grasses have burr-like seed-capsules covered with fine prickles, or ears set with sharp hooks, so that every attempt to penetrate the forest from the path is foiled by a thousand obstacles. The bird the huntsman's gun has brought down is lost to him because in falling it is caught in a bush which he cannot reach without an amount of exertion quite out of proportion to the object; the game which conceals itself in a shrub before our very eyes is saved because we can no longer perceive it; a crocodile about three yards long, which we startled in the wood, escapes us by withdrawing itself into an isolated bush so completely that we cannot see a scale of it, and accordingly cannot fire a shot to any purpose.

Still we continue striving vainly to master the wealth of impressions, to separate one picture from another, to see any one tree from the ground to its top, to distinguish the leaves of one from those of another. From the stream it had been possible to distinguish some of the fresh green tamarinds from the mimosas of various species surrounding them, to recognize the magnificent kigelias, reminding us slightly of our own elms, to delight in the palm-crowns towering over the rest of the trees: here, in the depths of the forest, all the individual parts are fused into an inseparable whole. All the senses are claimed at once. From the leafy dome which the eye attempts to penetrate is wafted the balsamic fragrance of some mimosas now in bloom; and hence also there rings continually in the ear a medley of the most varied sounds and notes, from the guttural cries of the monkeys or the screeching of parrots, to the modulated songs of birds and the buzzing of the insects flying about the blossoming trees. The sense

of touch is no less fully, if not quite agreeably stimulated by the innumerable thorns, while that of taste may regale itself with the few attainable, but more or less unpalatable fruits.

But at last we do come upon a distinct and definite picture. A tree, mighty in its whole structure, gigantic even in its minor branches, rises above the innumerable plants surrounding its base; like a giant it presses upwards and takes possession of space for its trunk and crown. It is the elephant, the pachyderm among the trees, the Adansonia, the *tabaldie* of the natives, the baobab. We stand in amazement to gaze on it; for the eye must become accustomed to the sight before it can take in the details. Picture a tree, the circumference of whose trunk, at a man's height from the ground, may measure a hundred and twenty feet, whose lower branches are thicker than the trunks of our largest trees; whose twigs are like strong branches, and whose youngest shoots are thicker than one's thumb; remember that this mighty giant of the plant-world rises to a height of about one hundred and thirty feet, and that its lowest branches spread out to almost sixty, and you will be able to form some idea of the impression it makes on the beholder. Of all the trees of the primeval forests in this region, the baobab is the first to lose its leaves, and it remains longest in its winter repose; during this season all its branches and twigs stretch out leafless into the air, while from most of them there hang, by long flexible stalks, fruits about the size of a melon, containing a mealy, slightly sour pulp between the seeds—the whole a sight which stamps itself ineffaceably on the memory. But, after the first rains of spring, great, five-lobed leaves unfold, enhancing the charm of this wondrous tree, and when, between the leaves, the

long-stalked buds disclose white flowers as large as roses, this incomparable giant is transformed, as if by magic, into an enormous rose-bush of indescribable beauty, the sight of which stirs the heart of even the most matter-of-fact of men with admiration.

No other tree in the forest can be compared with the baobab; even the duleb-palm, which raises its head above all the surrounding trees, cannot bear comparison with it in charm and impressiveness. Yet the duleb-palm is one of the most splendid trees found in the interior of Africa, and one of the finest palms in the world; its trunk is a pillar which no artist could have surpassed; its crown a capital worthy of such a pillar. The upright trunk thickens just above the ground, and thins in a remarkable manner to about half its height, then begins to bulge out, then again diminishes, and swells out once more just under the crown. This consists of broad, fan-like leaves, hardly less than a square yard in extent, whose stalks stand out straight on all sides round a middle point, thus giving the tree a most impressive individuality. The fruits attain to about the size of a child’s head, and the clusters hanging among the leaves greatly enhance the beauty of the crown, which is, indeed, an ornament to the whole forest.

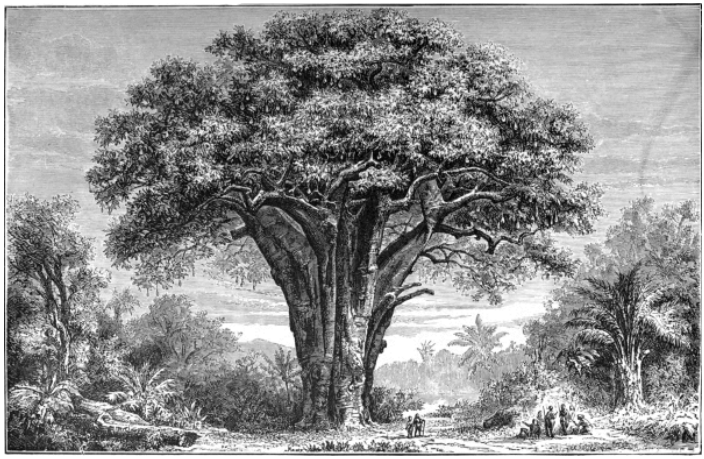


Fig. 31.—The Baobab Tree—Central Africa.

The legendary always clings about the gigantic; it lives on it, and takes form and meaning from it. This thought occurs to one when one sees, as frequently happens, the baobab overgrown with the tendrils of one of the climbing plants which beautify these forests in rich abundance. Climbing plants have always seemed to me a fitting emblem of the Arabian fairy tales. For as they appear to require no soil, although they have sprung from it, but to take their chief nourishment from the air; as they wind their flexible stems from tree to tree, attaching themselves firmly to each, yet struggling on, until, at length, they unfold on some flowerless tree-top, covering it with radiant, fragrant blossoms: so the fairy tale, though it may have been firmly rooted in fact, is not sustained by any real connection therewith, but reaches up to heaven for strength, and sends its poetry over all the world until it finds a heart which beats responsive. When I speak of climbing plants I do not mean any one species, but include under the term all those plants which here thickly cover a trunk with their tortuous coils, and there spread their

tendrils over a bare tree-top; which in one place link many trees together, and in another cover a single tree with wreaths of green; which in one part of the forest link branch to branch with bridges of naked tendrils, and in another region combine to render the way impassable; occurring in a hundred different forms, but always twining and climbing. Their beauty, the charm they exercise on the northerner may be felt but cannot be described, for words to begin or end a satisfactory description would be as difficult to find as the beginnings and ends of the climbers themselves. These climbing plants, though within reach of one's hand, yet do not allow of close observation; one follows the course of their tendrils admiringly, but without being able to say whence they come and whither they go; one revels in the sight of their flowers without being able to reach them, or often do more than guess to what plants they belong. These climbers, above all else, impress on the woodlands the stamp and seal of the primitive forest.

But they have other ornaments than the blossoms which they themselves unfold. Their tendrils are the favourite perches of many of the most beautiful birds of the forest, living flowers which far surpass those of the plant in beauty and charm. Sometimes it happens that a sudden flash, like a sun-ray reflected from a smooth, bright surface, catches the eye and guides it to the spot from which it emanated. The shimmer is indeed a sunbeam—a sunbeam reflected from the glossy plumage of a metallic starling, now in one direction, now in another, with every movement. Delighted by the wonderful beauty of this bird, one would gladly observe it carefully, and learn something of its life and habits; but one's attention is continually being claimed by new phenomena. For

here, too, picture crowds upon picture. Where the metallic starling sat a few moments before, there appears a no less brilliant golden cuckoo, a sun-bird or honey-sucker rivalling the humming-birds in beauty of plumage, a pair of charming bee-eaters, a roller displaying his brilliant feathers, a halcyon no less beautiful, a paradise fly-catcher, whose long, drooping, median tail-feathers give the little creature such a surprising splendour, a turaco unfolding his deep purple-red feathers at every stroke of his wings, a shrike whose flaming red breast excels even these wings in brightness, a quaintly-shaped hornbill, a golden weaver-bird, a vidua or "widow-bird", a wood-hoopoe with its metallic brilliance, a dainty woodpecker, a leaf-green dove, a flight of similarly coloured parrots, and many other feathered inhabitants of the forest. This is a specially favoured home of birds, affording food and shelter to many hundreds and thousands of different species, so that one sees them much sooner and much more frequently than any of the other creatures which have their home in the forest. Birds animate every part, from the ground to the tops of the tallest trees, from the most impenetrable bushes to the leafless branches of the baobab. Among the grasses and other plants growing luxuriantly on the ground the well-trodden paths of francolin and perhaps also guinea-fowl twine and intertwine in every direction; the leafy spaces just above the root-stocks of the bushes are occupied by little doves, the spreading portion of their tops by various beautiful birds, especially sun-birds and finches, while families of colies shoot down, like arrows from a bow, to where the bush-tops are so thickly matted and thoroughly interwoven that they seem quite impenetrable, and, by creeping and clinging, pushing through every

possible gap and opening, succeed in forcing their way into the centre, there to seek for food; wood-hoopoes, titmice, and woodpeckers hang or climb about, examining every crevice in the bark of the trunks which rise just above the bushes; delightful bee-eaters or rollers, paradise fly-catchers and drongos sit on the lower twigs of the second layer of tree-tops awaiting their flying prey; on the stronger branches of the third layer turacos hop about, small herons walk with dignity backwards and forwards, horned and other owls cling closely to the stems and sleep; parrots and barbets flit about among the thick foliage of the tallest trees, while eagles, falcons, and vultures have settled on their topmost boughs. Wherever one casts one's eye there is a bird.

As might be expected from this universal distribution, or indeed omnipresence, we hear continually the most varied bird-voices. They coax and call, pipe and whistle, chirp and twitter, trill and warble, coo and chatter, scream and crow, screech and cackle, cry and sing on all sides of us, above and beneath, early and late, and all day long. A hundred different voices sound together, now blending into a wonderful harmony, now into a bewildering maze of sounds which one seeks in vain to analyse, in which only long practice enables one to differentiate individual voices. With the exception of thrushes, bulbuls, several species of warblers, and drongos, there are no true songsters, but there are many pleasing babblers and delightful chatterers, and an endless number who scream, cackle, croak, and utter various more or less shrill sounds. Taken collectively, therefore, the bird-notes of the primitive forest cannot for a moment compare in tunefulness and sweetness with the spring songs of our own woods, but the individual voices are most remarkable. Wild

doves coo, moan, laugh, and call from the tree-tops and the thickest bushes, francolins and guinea-fowl cackle loudly from their midst, parrots screech, ravens croak, plantain-eaters succeed in most accurately mimicking the strange guttural cries of a troop of long-tailed monkeys, while the turacos utter sounds like those made by a ventriloquist; barbets whistle loudly in slurred notes, their voices together making a ringing song, so intricate, yet so full of expression that it must be reckoned one of the most distinctive sounds of the forest; the shimmering metallic starlings sing, and though they can only compass a few rough sounds, now croaking, now screeching, now squeaking, these are arranged, combined, blended, and allowed to die away in endless repetition; the magnificent screaming sea-eagle, resident beside all the water-courses and water-basins of the forest, justifies his name. High on a tree-top sits the “abu tok” (producer of the sound “tok”) of the natives, a small hornbill, calling his “tok” loudly and accompanying each sound with a nod of his head, weighted with its disproportionately large bill. Only this one sound does his unpliant voice produce, yet with it he expresses his love to the mate he is wooing, or has won, as intelligibly as the nightingale tells its tale in its bewitching song. The emotion swelling in his breast struggles for expression. The cries follow each other in more and more rapid succession, the appropriate movements become more and more rapid, until the heavy head is too tired to accompany any longer, and one phrase of this singular love-song comes to an end, to be begun and sung through again in precisely the same manner a few minutes later. From the unapproachable thicket sounds the voice of the *hagedash* or wood-ibis, and a slight shudder seizes

the listener. The song of this bird is a lamentation of the most pitiful kind; it sounds as if a little child were being painfully tortured, perhaps slowly roasted over a small fire, and were crying out in its anguish; for long-drawn plaintive sounds alternate with shrill cries, sudden shrieks with faint moanings. From the high-lying parts of the forest, where there are small bare patches, resound the far-reaching metallic trumpet-tones with which the crested crane accompanies his graceful, lively dances in honour of his mate, and these awaken an echo in the forest, as well as in the throat of every bird possessed, like himself, of a ringing voice, so that his cry is the signal for a simultaneous outburst of song from a large number of other birds. Thus incited, every bird with any voice at all gives utterance to it, and for a time a flood of varied sounds drowns the individual voices. But it is not only the different species of feathered inhabitants of the forest who thus take different parts in the piece; sometimes even the two sexes of one species each sing a different part. The babbling thrushes, plantain-eaters, francolins, and guinea-fowl scream together like the barbets already described, and thus evoke those strange complex phrases, which ring out distinctly from the general confusion of voices. But in a few species, particularly in the bush-shrikes, the male and female each sing a distinct part. In one species which I observed—the scarlet shrike—the male sings a short strophe, reminding one of the intricate whistle of our golden oriole. In another—the flute-shrike—the male utters three bell-like flute-notes, striking third, key-note, and octave. Immediately following comes the answer of the female, in both cases a disagreeable croaking not easily described, but as unfailingly correct in time as if the birds had been instructed by a

musician. Sometimes it happens that the female begins, and croaks four or five times before the answer comes; then the male strikes in again, and they alternate with their usual regularity. I have convinced myself experimentally as to this co-operation of the sexes, by shooting now the male and now the female, and in every case only the notes of the surviving sex could be heard. It must be allowed that these notes, enchanting as they are at first, lack the richness and variety, as the collective voices lack the tunefulness and harmony, of the bird songs in our woods at home; nevertheless it is a grand and impressive melody which one hears in the primitive forest in spring-time when hundreds and thousands of voices mingle together, millions of insects swarm with loud bumming and buzzing round the blossom-laden trees, countless lizards and snakes rustle through the dry foliage, and every now and then the shrill yet sonorous call of the eagle sounds down from above, the trumpet notes of the crested crane or the guinea-fowl are heard for the time above all other voices, immediately afterwards a warbler sings his charming song quite close to the listener's ear, and again, one of the screamers gives the key-note, which awakes an echo from a thousand throats.

If the naturalist succeeds in becoming more at home in the forest than he had at first ventured to hope, he gets many delightful glimpses of the domestic life of animals, and more particularly of birds. It is still spring-time, and love reigns in all hearts. The birds sing and caress, build their nests, and brood. Even from the boat one can observe the brooding colonies of some species.

On a perpendicular part of the river bank, at a safe distance above the high-water mark, the bee-eaters

have hollowed out their deep brooding burrows, narrow at the entrance, but widening out into an oven-like form at the inner end. The whole colony only covers a few square yards, though it consists of at least thirty, and more frequently from eighty to a hundred pairs. The circular openings to the various holes, measuring only from one and a half to two inches in diameter, are not more than six inches distant from each other. It is difficult to understand how each pair knows the entrance to its own hole; yet even when they come from a distance the delicately-winged active birds fly straight to the proper holes without hesitation or apparent consideration; their incomparably sharp eyes, which can detect a passing fly a hundred paces away, never mislead them. The bustling life about the colony is a fascinating sight. Every tree or bush in the neighbourhood is decorated with at least one pair of the beautiful, sociable birds; on every branch which affords an outlook sits a pair, and each mate takes a tender interest in all that concerns the other. In front of the nest-holes the bustle is like that about a bee-hive; some glide in, others glide out; some come, others go; many hover continually around the entrance to their brooding-places. Only when night draws on do they disappear into their holes; then all is quiet and still.

At a different part of the bank, where tall trees droop over the water, or are surrounded by it when it is very high, the golden weaver-birds have established a colony. They, too, brood in companies, but they build hanging nests cleverly plaited from stalks or fibres, and attached to the points of the outermost branches of the trees. No covetous monkey or other egg-robber, not even a snake, can approach these nests without running a risk of falling into the water.

At least thirty, but more frequently forty to sixty, weaver-birds build on a single tree, and their nests give it a most characteristic aspect; indeed, they have a striking effect on the whole landscape. Unlike other birds, it is in this case not the females but the males who build the nest, and they do it with such unstinted eagerness that they make work for themselves after they have finished what is really necessary. Carrying in their bills a stalk newly bitten off, or a teased-out fibre, they hang by their feet to a twig, or to the nest itself, keep themselves in position by fluttering their wings, and work in their material, singing all the while. When one nest is built and finished inside, they proceed to make a second and a third; indeed, they may even pull a finished work to pieces again to satisfy their love of building. Thus they go on until the female, who has meanwhile been brooding, claims their assistance in the rearing of the young ones. This activity animates the whole colony, and the golden-yellow, mobile, active birds sitting or hanging in the most varied positions, are an ornament to the tree already decorated with their nests.

On the mimosas, which are leafless just at the general brooding time, the cow-weaver birds have erected structures very large for the size of the birds, which are scarcely so large as our starlings. Their nests are placed among the thickest branches at the top of the thorny mimosas, and as they are made entirely of thorny twigs on the outside, they have much the appearance of a scrubbing-brush; they are often more than a yard long, half as high and broad, and enclose roomy brooding-chambers entered by winding tunnels corresponding to the size of the birds, and impassable to other animals. On these trees, and about these nests, too, there is much lively

and noisy bustle.

In the heart of the forest itself an attentive observer finds nests everywhere, though it is often difficult to recognize them. Little finches, for instance, build nests which are deceptively like heaps of dried grass blown together by the wind, but inside there is a soft, warm brooding-chamber lined with feathers; other birds choose building materials the colour of which is deceptively like that of the surroundings, while others do not build at all, but lay their earth-coloured eggs on the bare ground. Every cavity in the trees is now inhabited, and woodpeckers, barbets, and parrots are constantly at work making new chambers, or widening and adapting already existing cavities into brooding-holes, while the hornbills, on the other hand, busy themselves plastering up the too-wide entrances. The last-named birds are specially distinctive in their brooding habits, and deserve to be mentioned first.

When the hornbill by ardent wooing has won a mate, he helps her to seek out a suitable hole to serve as a nest. This found, he labours painfully with his clumsy bill to enlarge it to the required size. Then the female prepares to lay her eggs, and both mates plaster up the entrance, the female working from the inside, the male from the outside, until all is closed up save an opening large enough for the female to force her bill through. Shut off from the outer world in this isolated brooding-chamber, the female sits on her eggs, and the male has to feed not only his imprisoned mate, but later the quickly-growing ever hungry young ones, which remain in captivity until they are fully fledged. Then the mother breaks open the entrance from within, and the whole family emerges to the world fat and in good feather, thereby

relieving from further toil the husband and father, who is reduced to a skeleton with the labour and anxiety of filling so many mouths.[51]

Similar conjugal and paternal tenderness is exhibited by the umber-bird, a stork-like bird about the size of a raven, which leads a quiet, nocturnal life in the forest, and builds an enormous nest, one of the most remarkable built by any bird. These nests are usually placed at but a short distance from the ground, in forks of the trunk, or on any thick boughs of the lower part of the crown that are strong enough to bear them; for they exceed the nests of the largest birds of prey in circumference and weight, being often from one and a half to two yards in diameter and not much less in height, and consisting of fairly thick branches and twigs, which are neatly stuck together or mortared with clay. If one does not happen to notice how the umber-bird slips out and in one would never imagine that these structures were hollow, but would rather take them for the eyrie of a bird of prey, especially as eagles and horned owls frequently nest on the top of them. But when one has seen the real owner enter, and has inspected the nest closely, one finds that the interior is divided into three compartments, connected by holes which serve as doors, and further observation reveals that these three compartments answer the purpose of hall, reception or dining room, and brooding-chamber. This last room, the farthest back, is slightly higher than the rest, so that if any water should get in it can flow away; but the whole structure is so excellently built that even heavy and long-continuing showers of rain do very little damage. Within the brooding-chamber, on a soft cushion of sedge and other materials, lie the three, four, or five white eggs on which the female sits; in the middle chamber the

male meantime stores up all sorts of provisions, a bountiful supply of fish, frogs, lizards, and other dainties which he has caught, so that his mate can choose from these stores, and has only to reach forward to satisfy her hunger; in the entrance chamber the male stands or sits, whenever he is not busy hunting for food, to keep guard and to cheer his mate with his society, until the growing offspring take up the whole attention of both.[52]

The association of umber-bird and eagle or horned owl is not a solitary instance of friendly companionship on the part of birds belonging to different species and totally unlike in their habits. On the broad, fan-like leaves of the magnificent duleb-palm, which stand out horizontally from the trunk, the nests of the dwarf peregrine falcon and the guinea-dove often stand so close together that the falcon could easily grasp one of his neighbour's young ones. But he does not touch them, for he is only accustomed to attack birds on the wing, and thus the little doves grow up in safety beside the little falcons, and the parents of both often sit peacefully beside each other, near their respective nests.[53]

Another palm gave me an opportunity of observing birds whose brooding surprised and fascinated me greatly. Round a single tom-palm there flew, with constant cries, small-sized swifts, nearly related to our own swifts, and my attention was thus directed to the tree itself. On close observation I saw that the birds frequently repaired between the leaves, and I then discovered on the grooves of the leaf-stalks light points which I took to be nests. I climbed the tree, bent one of the leaves towards me, and saw that each nest, which was made chiefly of cotton, was

plastered firmly in the angle between the stalk and the midrib of the leaf, cemented by salivary secretion, after the method usually followed by swifts. But the hollow of the nest appeared to me so flat that I wondered how the two eggs could remain lying when the leaf was shaken by the wind. And it must have shaken with the slightest breath, not to speak of the storms which often raged here! Carefully I reached out my hand to take out the eggs; then I saw with astonishment that the mother had glued them firmly to the nest. And as I examined newly-hatched, tiny, helpless young birds, I saw, with increasing astonishment, that they, too, were attached to the nest in the same way, and were thus secured from falling out.

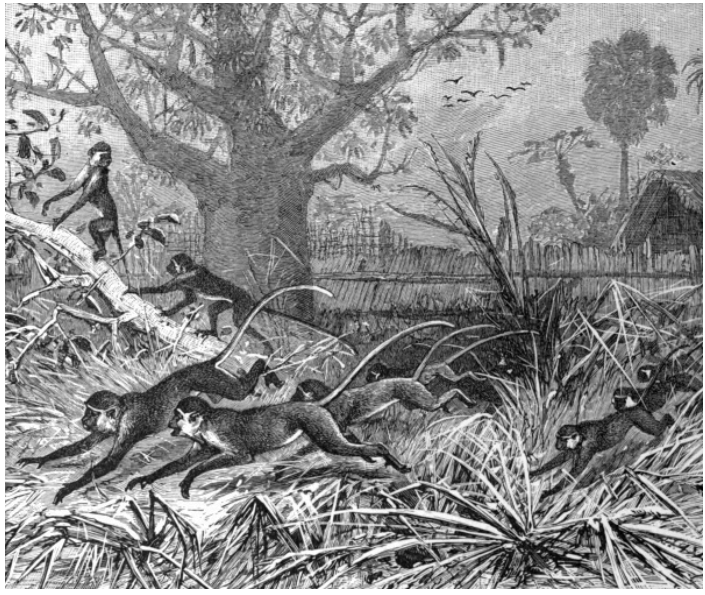


Fig. 32.—Long-tailed Monkeys.

Apart from the birds, which continually attract the naturalist's attention by their omnipresence, beauty, vivacity and nimbleness, as well as by their songs, or

rather cries; apart also from the very numerous lizards and snakes, or the abundant insects, even a careful observer can see very little of the other denizens of the primeval forest, and especially little of its mammals. But one can hardly fail to see a band of long-tailed monkeys, for the liveliness and restlessness characteristic of these and of all the African monkeys is sure to bring them sooner or later before the most unobservant eye, and their continual gurgling noises must reach the ear; yet one may pass within a few yards of most of the other mammals without having any idea that they are near. The great majority of the mammals inhabiting the primeval forest become active only after sundown, and return to their lairs before daybreak; but even those which are active and busy in full sunlight in the morning and evening are by no means so easily seen as might be imagined, for the thickness of the forest stands them in good stead. A European with whom I hunted in the primeval forest said to me: "Did you see that leopard that bounded from me towards you a few minutes ago? I could not shoot for I had not my gun in order; but you must have seen him." He was wrong; I had not seen the great beast, so dense was the undergrowth in the forest. Where it is less dense another fact has its importance: the colour-resemblance between the mammals and their surroundings. The grayish lemur, which sits or sleeps huddled up high up on a branch spun over with lichens, resembles a knob or protuberance so clearly and convincingly that its form is only made out when the sportsman, taught by former experience, uses his glass and observes it keenly; the bat, which hangs high up in the crown of another tree, also looks like an outgrowth or a withered leaf; even the spotted skin of the leopard may be a faithful mimicry of the

dry leaves and flowering euphorbias, and I myself once had to advance with cocked rifle to within fifteen paces of a bush in which a leopard had taken shelter before I could distinguish the animal from his surroundings. The same holds true of the forest antelopes, and indeed of all the mammals, and they know that this is so.[54] Not everywhere, but here and there throughout the forest, and then always abundantly, there lives a little antelope, the bush or Salt's antelope. It is one of the most charming of all ruminants, most gracefully built, not bigger than a fawn a few days old, and of a foxy, gray-blue colour. It lives with a mate in the thickest undergrowth of the forest, choosing for its lair or habitual resting-place a bush which is branched and leafy to the ground, and thence treading out narrow paths in all directions through the thicket. I have often shot the animal; but at first it escaped me as it escapes all the travellers and sportsmen who make its acquaintance. I could never see it except when, if startled, it flew past me like an arrow. "Look, sir, there, in front of you in the nearest bush is a little antelope; it is down there in the gap between the two thickly-leaved branches," whispered my native guide in my ear. I strained every nerve, penetrated every part of the bush with my gaze, and saw nothing but branches and leaves, for the graceful legs had become twigs, the head and body a leafy bough. But the sportsman's eye becomes accustomed in time even to the primeval forest. When one has become familiar with the dainty creature's habits, one learns to find it as well as the sharp-sighted natives do. Its acute hearing warns it of the approach of a man long before he can see any trace of its presence. Scared by the rustle of heavy human footsteps it starts up from its lair, takes a few steps forwards, and steps into

some gap from which to see what happens. Like a bronze statue it stands stiff and motionless, without even moving an ear or turning an eye, but looking and listening; the leg which was raised to step onwards remains in that position, not a sign betrays life. Now is the time for the sportsman to raise his gun quickly, take aim and shoot; a moment later the cunning antelope has gained the cover of a neighbouring bush at a single bound, or has bent slowly down and crept away so quietly that scarcely a leaf stirs, scarcely a blade of grass moves.



Fig. 33.—Salt's Antelope (*Antilope Saltiana*).

The primeval forest thus presents a succession of varied pictures to the traveller's eye. If one has learnt to see, and attempts to understand, one finds more in every part of the forest at every season than one can master. But one does not see the same things at every spot, and at every season. Here, where spring lasts only a few weeks, and summer and autumn are counted by days, the long reign of winter sets in directly after the rainy season, just as in the steppe, and the full, rich, overflowing life of animals and plants is crowded into a very short time. As soon as the birds have finished brooding they begin to migrate; as soon as the mammals have exhausted the food-supply in one part of the forest they betake themselves to another. Consequently one meets different animals in the same spot at different times, or at least one sees different aspects of animal life. The river, for instance, becomes animated in proportion as the forest becomes depopulated.

While the river is high, one does not see much of the animals which live in and about the water. All the islands are deeply buried under the water, the banks are likewise flooded, and the birds which usually inhabit them are crowded out for the time. And if a crocodile should raise his head and part of his scaly back above the water, he must be close to the boat if one sees him at all. Strictly speaking, there remain only the hippopotamuses, which are comparatively abundant in some parts, the birds flying about over the water, and perhaps a few diving-birds to prove that any higher vertebrates live in and about the river. But, when the rain has ceased, the river falls, and all the islands, sand-banks, and the river-banks themselves stand out once more. The scene is changed also as far as the animal world is concerned. The hippopotamuses retire to the deepest parts of the

river, associating in troops sometimes of considerable strength, and making themselves very conspicuous as they come to the surface to breathe, each breath being inhaled with a snort which can be heard a long way off. During the day they land on islands or sand-banks to rest or stretch themselves in the sun, and they can then be seen from a distance of more than half a mile. The crocodiles eagerly enjoy a pleasure they had to forego while the river was high, that of sunning themselves for hours in the heat of the day. To this end they creep out about mid-day on a flat, sandy island, fall heavily with an audible plump on the sand, open their formidably-toothed jaws wide, and sleep till evening; there may be ten, twenty, or thirty of them on a single sand-bank. Now the sand-banks, both river-banks, and the shores of the larger islands are covered with flocks of birds whose numerical strength is most impressive. For, by this time of year most of the native shore-birds and swimming-birds have ended their brooding labours, and frequent the shores of the river with their young to enjoy, while they are moulting, the abundant and easily-procured food. About the same time, too, the migratory birds from the north arrive to pass the winter here. The last-named are also to be found in every part of the primeval forest, but are not nearly so much in evidence there as by the river, whose banks and islands are covered by the largest and most conspicuous species. It may even happen that the available space by the river is too small, the rich supply of food insufficient for the number of claimants. Thus every space is more than fully occupied, every promising hunting-ground is visited by thousands, every sleeping-place even is fought over. For three days I sailed, in an excellent boat and with a very good wind, up the White Nile, and

during the whole long journey both banks were uninterruptedly covered with a gay and motley throng of littoral and aquatic birds. In the midst of the forests about the Blue Nile one can see a similar sight. Extensive sand-banks are completely covered by gray and demoiselle cranes, but they only serve these winter visitors as resting, sleeping, and moulting places, from whence they fly out every morning into the steppe in search of food, returning about mid-day to drink, bathe, dress their feathers, and to spend the night, though they are in continual danger from the crocodiles. Regularly about mid-day they are joined by several crowned cranes whose visit always causes lively excitement, for they are, if not better, at least more ardent dancers than the other cranes, and on their arrival they never fail to exhibit their skill, and thus to incite the others to rivalry. On the same sand-banks one may often see tantalus-ibises, magnificent stork-like birds, with rosy-white plumage and brilliant rose-red wings, which take possession of the extreme edge of the island or the neighbouring damp places. In a good light they literally glow, and they are at all times beautiful, contrasting wonderfully with the light gray cranes, and decorating the whole neighbourhood. Splendid giant or saddle-billed storks step proudly along the shores; ugly, but curiously-formed marabous walk up and down with an air of dignity; glittering, open-bill storks stand in large companies; giant and great white herons wade about in search of fish; and everywhere standing and lying, swimming and diving, grazing and grubbing, cackling and chattering are thousands of Spur-winged, Egyptian, and other geese, widow and pintail ducks, African darters, ibises, curlews, sandpipers, dunlins, redshanks, and many more, a motley throng which

decorates the stream even more than the tantalus ibises. But, in addition to all those mentioned, some of whom are constantly coming and going, there fly terns and gulls, sand-martins and bee-eaters, while splendid sea-eagles wheel in circles high up in the air.

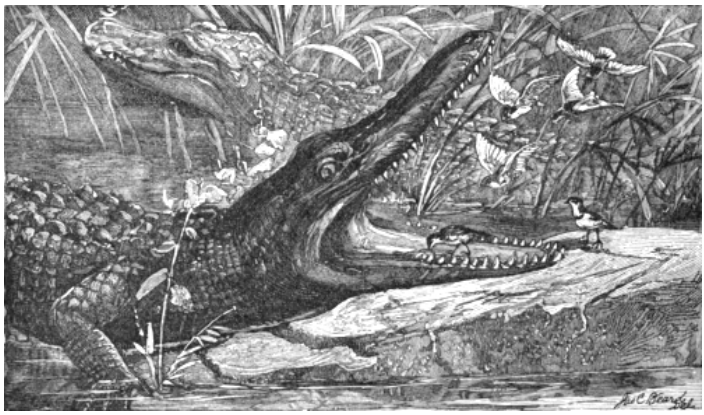


Fig. 34.—Crocodile and Crocodile-birds (*Pluxianus ægyptius*).

There are some members of this bird-fauna, so rich in every respect, who have to wait till the water is at its lowest before they can begin to brood, for, when the river is full, they are quite unable to find such nesting-places as they desire. Among these is a running bird, prettily and gaily coloured, clever and vivacious by nature, which was well known to the ancients as the Crocodile-bird or the Trochilus of Herodotus. Of it the old historian relates, as Pliny repeats on his authority, that it lives in true friendship with the crocodile. And this old story is no fable, as one might be inclined to suppose, but is based on solid facts, which I have myself been able to verify.[55] The crocodile-bird, whose image is so often represented on the ancient Egyptian monuments, and stands for U in the hieroglyphic alphabet, occurs in Egypt and Nubia, but nowadays

it seems to be only in the Soudan that it discharges, on the crocodile's behalf, those sentinel duties for which it was famous among the ancient peoples. But the service it renders is not to the crocodile alone, but to all other creatures who are willing to take advantage of its watchfulness. Observant, inquisitive, excitable, clamorous, and gifted with a far-reaching voice, it is well fitted to serve as watchman to all less careful creatures. No approach, whether of beast of prey or of man, escapes its suspicious observation; every sailing-boat or rowing-boat on the river attracts its attention; and it never fails to tell of its discovery in loud cries. Thus it brings under the notice of all the other creatures who share its home or resting-place the unusual occurrence, enabling them either to find out for themselves if there is really any danger, or to make good their escape on the strength of its warning. Thus it discharges the duties of a sentinel. Its friendly relations with the crocodile can hardly be called mutual, for to credit the crocodile with friendship is going rather far. Certainly the reptile treats the bird as a harmless creature, but this is not out of any benevolence, but simply because he has a thorough knowledge and a correct estimate of his partner. And as to the bird, it is at home on the sand-banks where the crocodile is wont to rest, and has been from its youth accustomed to the monster; it busies itself about him and associates itself with him, as if he were the master and itself the servant. Without hesitation it hops on his back as he rests; without apprehension it approaches his gaping jaws to see if there be perchance a leech sucking his lips, or if there be some morsel of food sticking between his teeth; and without misgiving it darts off with either. All this the crocodile quietly allows, for doubtless he has learned

by experience that he cannot get at the ever watchful, agile, and clever little rogue. I once saw a crocodile-bird having a meal along with a screaming sea-eagle off a fish, which the latter had caught and borne to a sand-bank. While the eagle, which held its booty firmly in its talons or stood upon it, was breaking off pieces of the flesh, the parasite at the lordly bird's table kept at a respectful distance; but as soon as the eagle raised its head to swallow, the crocodile-bird ran forward, seized one of the prepared fragments, and was off again to his old position, there to enjoy his stolen goods. Not less astonishing than this self-possessed audacity is the way in which the crocodile-bird hides its eggs from prying eyes. For long I searched in vain for the nest. When the brooding period set in was readily enough discovered by dissecting a specimen which I killed; and that the bird must nest on the sand-bank I was already convinced from my observation of its mode of life. But it was in vain that I searched their favourite spots; not a hint of a nest could I find. At last I observed a pair, one sitting on the ground, the other busying itself round about; I brought my field-glass to bear upon the sitting bird and made straight for it. As I came near it rose, hastily scraped some sand together, and flew off, uttering its usual cry, but without any other signs of excitement. I was not diverted from my purpose, but advanced carefully, keeping the exact spot always in view. But even when I reached the place I could see no nest, and it was not till I noticed a slight unevenness in the sand, and dug carefully with my fingers, that I found what I sought, two eggs most deceptively like the sand in their colour and markings. Had the mother-bird been allowed more time than I gave her, it is not likely that I should ever have noticed the slight unevenness

in the sand.

Even richer, if that be possible, than the fauna of the river, and at any rate more diverse, is that to be found at the proper season on the shores and surface of all the lakes and larger water-pools which lie within the forest and are filled either by the spring rains or by the full floods of the river. Surrounded by the forest, and not unfrequently so thickly hedged round that one cannot reach them without great difficulty, and more immediately fringed by a scarcely less rich vegetation of canes and reed-thickets, where the papyrus and the lotos still flourish, these rain-lakes, or *Fulat* as the natives call them, afford most excellent resting-stations and breeding-places for the most diverse kinds of beasts and birds.

Their safe seclusion pleases even the hippopotamus so well that it seeks them out as fit places where to bring forth and suckle, tend and rear its young, safe from dangerous intruders, and without trouble as to food, which the water supplies in abundance. Wild hogs and buffaloes are also attracted to the luxuriant fringe of vegetation and to the creeks which gradually pass into swamp and bog. To all the thirsty race of antelopes the quiet pools afford welcome supplies. On the surface thousands of pelicans gather in the evenings, and fish greedily before they go to roost on the tall trees near by; all day long the darters dive; many ducks and geese swim about, both native species and those which have come from the north to these comfortable winter-quarters; in the creeks and shallows the giant-herons and the beautiful little bush-herons secure rich booty at small cost of exertion; countless hosts of little birds are sheltered among the green, sappy herbage of the

shore, and many other shore-and water-birds find resting-places and build their nests on the overtowering trees of the forest.

It is no wonder, then, that these lakes should periodically swarm with birds; and it is likewise plain that such great wealth of booty must also attract all sorts of enemies. The smaller birds are followed by the falcons and owls, the larger birds by the eagle and horned owl, the mammals by the fox and jackal, the leopard and the lion. Sometimes, too, an army of voracious locusts coming in from the steppe falls upon the fresh green girdle around such a lake and ravages it in a few days, devouring all the leaves. Or one should rather say threatening to devour, for at such a time the assemblage of birds becomes even larger than before. From far and near they come flocking—falcons and owls, ravens and rollers, francolins and guinea-fowl, storks and ibises, coots and ducks. Every bird that ever eats insects now confines itself exclusively to the pertinacious visitors. Hundreds of kestrels and lesser kestrels, which are then in these winter-quarters, sweep over the invaded forest, and swoop down upon the locusts, seizing and devouring them, with scarce an interruption in their flight. Ravens, rollers, hornbills, ibises, and storks pick them off the branches of the trees and shake down hundreds which fall victims to the guinea-fowl, ducks, and other birds waiting underneath. Harriers and chanting hawks circle around the trees on which the “defoliating” insects soon take the place of the leaves that were. Even the sedate marabous and saddle-billed storks do not disdain to avail themselves of booty whose abundance compensates for the paltry size of the individual victims. All this bustle greatly enhances the liveliness of a scene which is at no time dull, and

makes the lake more than ever a rendezvous of the most diverse forms of life.

At one of these rain-lakes—very treasure-house of the forest's riches—we spent several days, hunting, observing, and collecting, almost wild with delight in, and admiration of the splendid flora and fauna. We amused ourselves with hunting hippopotamus, and executed justice on the crocodile; we enjoyed to the full the pleasures of exploration and of the chase, forgetful of everything else, even of the time we spent. But when the sun went down and tinged with gold the varied greens of the forest; when the chattering of the parrots was hushed and only the ecstatic song of a thrush floated down to us; when, over there on the opposite bank, the sea-eagle, which a moment ago had seemed like some wonderful blossom on the top of his green perch, drowsily drew his white head between his shoulders; when silence fell even on the guttural gossip of a band of long-tailed monkeys, who had gone to rest on the nearest lofty mimosa; when the night came on with its clear pleasant twilight, cool and mild, melodious and fragrant, as it always is at this season: then would all the wealth of colour, all the splendour and glamour of to-day's and yesterday's pictures fade away. Our thoughts flew homewards, and irresistible home-sickness filled our hearts, for in the Fatherland they were celebrating Christmas. We had prepared our punch and filled our pipes with the most precious of tobaccos; our Albanian companion sang his soft melancholy song; the beauty of the night soothed our hearts and senses; but the glasses remained unemptied, "the clouds of smoke did not bear the clouds of melancholy with them"; the songs awoke no responsive echo, and the night brought no solace. But it *must* bring us a Christmas gift, and it did!

Night in the primeval forest is always grand: the sky above may be illumined with flaming lightning, the thunder may roll, and the wind may rage through the trees; or it may be that the dark starless heaven is relieved only by the slender rays of far-distant suns, while no leaf or blade of grass is stirred. A few minutes after sunset, night descends upon the forest. What was clearly seen by day is now veiled by darkness, what was seen in its true proportions in the sunlight now becomes gigantic. Familiar trees become phantasms, the hedge-like bushes thicken to dark walls. The noise of a thousand voices is stilled, and for a few minutes a deep silence prevails. Then life begins to stir again, the river and the forest are again alive. Hundreds of cicadas raise their chirping, like the jingle of many badly-tuned little bells heard from a distance; thousands of restless beetles, some very large, whirr about the flowering trees with a deep humming, fit accompaniment to the cicadas' chirping. Frogs add their single note, surprisingly loud for their size, and their voices ring through the forest, like the sound of a slowly-beaten Chinese gong. A great owl greets the night with its dull hooting; a little screech-owl responds with shrill laughter; a goat-sucker spins off the single strophe of his rattling song. From the river come the plaintive cries of a nocturnal member of the gull family, the skimmer or shearwater, which begins to plough the waves, skimming along the surface of the water; from the islands and banks sound the somewhat screeching cries of the thickknee or stone-curlew, and the rich, melodious, song-like trills of the redshank or the plover; among the reeds and sedges of a neighbouring pool croaks a night-heron. Hundreds of glowworms sparkle among the bushes and the tree-tops; a gigantic crocodile, which had left

its sand-bank before sundown to bathe its heated coat of mail in the tepid water, is swimming half beneath and half above the surface of the water, and making long streaks of silver which shine in the moonlight, or at least glitter in the flickering light of the stars. Above the tallest trees float noiseless companies of horned and other owls; long-tailed night-jars fly with graceful curves along the river bank; bats describe their tortuous course among the trees; fox-bats and fruit-eating bats cross from bank to bank, sometimes in flocks. This is the time of activity among the other mammals too. A jackal utters its varied call, now plaintive, now merry, and continues with equal expressiveness and persistence; a dozen others join in at once, and strive in eager rivalry for the victor's crown; some hyænas who seem just to have been waiting for these unrivalled leaders to begin, join the chorus. They howl and laugh, moan piteously, and shout triumphantly; a panther grunts, a lion roars; even a hippopotamus in the river lifts up his paltry voice and grunts.

Thus does night reveal itself in the primeval forest; thus did it claim ear and eye on that never-to-be-forgotten day. Beetles and cicadas, owls and goat-suckers had begun: then a loud, rumbling noise, as of trumpets blown by unskilful mouths, resounded through the forest. At once the songs of our Albanian, and the chattering of our servants and sailors were hushed; all listened as we did. Once more came the trumpeting and rumbling from the opposite bank. "*El fiuhl, el fiuhl!*" called the natives; "Elephants, elephants!" we, too, exclaimed triumphantly. It was the first time that we had seen and heard the giant pachyderms, though we had constantly trodden their paths and followed their traces. From the opposite bank the great forms,

which could be plainly enough seen in the twilight, descended leisurely and confidently to the water, to drink and bathe. One after another dipped his supple trunk in the water, to fill it, and discharge it into his wide mouth, or over his back and shoulders; one after another descended into the river to refresh himself in the cooling flood. Then the noises became so great that it seemed as if the elephants' trumpeting had acted as an awakening call. Earlier than ever before, the king of the wilderness raised his thundering voice; a second and a third lion responded to the kingly greeting. The sleep-drunken monkeys and the timid antelopes cried out in terror. A hippopotamus reared his uncouth head quite close to our boat, and growled as if he would emulate the lion's roar; a leopard also made himself heard; jackals gave vent to the most varied song we had ever heard from them, the striped hyænas howled, the spotted ones uttered their hellish, blood-curdling laughter, and, careless of the uproar which the heralds and the king of the forest had conjured up, the frogs continued to utter their monotonous call, and the cicadas their bell-like chirping.

Thus was the "Hosanna in the Highest" sung in our ears by the primeval forest.

THE MIGRATIONS OF MAMMALS.

The love of travel, as we understand it, is not found among animals, not even among the birds, whose sublime powers of flight over land and sea so much excite our envy. For no animals wander, careless and free, like the travellers who go forth to study the manners and customs of other lands; they cling to the soil even more closely than we do, and they are bound to the place of their birth, by habit or indolence, more closely than we are by our love of home. When it does happen that they forsake their birthplace, it is in obedience to stern necessity,—to escape impending starvation. But want and misery are too often their lot in the joyless lands to which they migrate, and so they experience little but the pain and toil of travel.

This holds true of wandering fishes and of migrating birds, but more particularly of those mammals which undertake periodic migrations. Few of them do this with the same regularity, but all do it for the same reasons, as fishes and birds. They migrate to escape from scarcity of food, already felt or at least threatening, and their journeying is therefore rather a flight from destruction than a striving to reach happier fields.

By the migrations of mammals I mean neither the excursions which result in an extension of their range of distribution, nor the ordinary expeditions in search of food, but those journeys which lead certain mammals, at regular or irregular intervals, far

beyond the boundaries of their home, into countries where they are compelled to adopt a mode of life which is foreign to them, and which they will abandon as soon as it is possible, or seems possible to do so. Such journeys correspond closely to the regular migrations of fishes and birds, and a knowledge of the former helps us to an understanding of the latter.

Excursions beyond their actual place of sojourn are made by all mammals for various reasons. Males, particularly old males, are more inclined to roam about than the females and the young of their species, and forsake one district for another without apparent reason; the younger males among gregarious species are often driven out and forced to wander by the old leaders of the herd; mothers with their young are fond of rambling about the neighbourhood where the latter were born; and the two sexes wander about in search of one another. During such expeditions the animal chances to light on what seems to him a promising dwelling-place, a district rich in food, a sheltering thicket, or a safe hiding-hole. He stays there for some time, and, finally, it may be, settles down in this new Canaan. Experienced sportsmen know that a preserve in which all the game has been shot will sooner or later receive reinforcements from without, and, under favourable circumstances, will be peopled anew; and all must have noticed that a fox or badger burrow is not easily destroyed, for it finds new occupants again and again, however ruthless the persecution to which they may be subjected. As it is with game, whose coming and going, appearing and disappearing are noted by thousands, so is it with other mammals which are less eagerly watched. A constant emigration and immigration cannot be denied. In

consequence of this, the range of distribution of any species is constantly being extended, unless hindered by physical conditions, or by human and other enemies.



Fig. 35.—A Wild Duck defending her Brood from a Brown Rat.

Till the end of the first half of last century our forefathers shared their dwellings with the black rat, and knew the brown rat only by hearsay, if at all. The first was a rat with many, but not all the vices of its race. It lived in our houses, ate grain, fat, and all kinds of provisions, gnawed doors, boards, and furniture, racketed at night like a noisy ghost through old castles and other spook-favouring buildings, caused much annoyance, many a fright, strengthened superstition and the fear of ghosts in many a mind; but it was possible to live with it, one could manage to get along. A capable cat held it in check; a skilful rat-catcher was more than a match

for it. Then its most terrible enemy appeared, and its star began to wane. In 1727, swarms of brown rats, which seem to have come from India, either directly or by way of Persia, were seen to swim the Volga, and we soon learned what awaited Europe. Following canals and rivers, the brown rats reached villages and towns, entered, in spite of men and cats, the lower stories of our dwellings, filled vaults and cellars, ascended gradually to the garrets, ousted its relative after long and inexorable warfare, made itself master in our own houses, and showed us in a thousand ways what a rat could do. It possessed and exercised *all* the vices of its family, mocked at all our attempts to drive it away, and remained in possession of the field, which, up till now, we have tried to wrest from it with dogs and cats, by traps and snares, poison and shooting. Almost at the same time as it swam over the Volga, it reached Europe by another route, coming from the East Indies to England on board ship. Then began its world-wanderings. In East Prussia it appeared as early as 1750, in Paris three years later, Central Germany was conquered in 1780, and here, as everywhere else, the towns were first colonized, and the flat country round taken in by degrees. Villages not easily reached, that is to say, not lying on river-banks, were only invaded in the last decade of this century: in my boyhood it was still unknown in my native village, and the black rat, now being crowded out even there, held undisputed possession of many places where its rival now reigns supreme. Many isolated farms were only reached later, about the middle of the present century, but the victorious march still goes on. Not content with having discovered and conquered Europe, towards the end of last century the brown rat set out on new journeys. In the sea-

ports already colonized, the rats swam out to the ships, climbed on board by the anchor chains, cables, or any other available ladders, took possession of the dark, protecting hold, crossed all seas, landed on all coasts, and peopled every country and island, where its chosen protector and compulsory host—civilized man—has founded homesteads. Against our will we have helped it, or at any rate made it possible for it, to carry out a greater extension of range than has been attained by any other mammal not in subjection to man.[56]

Another remarkable illustration of wandering is afforded by the souslik, a destructive rodent about the size of a hamster, belonging to the family of squirrels and sub-family of marmots. Eastern Europe and Western Siberia are its head-quarters. Albertus Magnus observed it in the neighbourhood of Ratisbon, where it is now no longer found, though it has recently appeared in Silesia. Forty or fifty years ago it was unknown here, but, at the end of the forties or beginning of the fifties, it appeared no one could tell whence, and from that time it has pressed slowly westward. Its migrations, too, have been helped by man, for, though it is not confined to cultivated fields, these afford the habitat most suited to its taste.

The same holds true of many species of mice, which extend their territories as the soil is cultivated. On the other hand, man narrows the possible range of many mammals by deforesting, by draining marshes, and by otherwise changing the character of whole tracts of country. In this way, far more than by direct persecution, he does much to influence the migration of the mammals which have established themselves in these areas. For the fundamental law holds good

for mammals as for other creatures, that suitable districts, and these only, will be colonized sooner or later, notwithstanding the arbitrary and usually rough and cruel interference of man.

Quite different from such wanderings are the expeditions made by mammals to secure a temporary betterment. These are probably undertaken, if not by all species, at least by representatives of every family in the class; they vary in duration and distance, and may even have the character of true migrations, but they always come to an end after a certain time, and the wanderer ultimately returns to his original place of abode. The intention or hope of reaching better grazing or hunting grounds, the desire to profit by some casual opportunity for making life more comfortable, may be said to be the chief motive of such expeditions. They take place all the year round, in every latitude and longitude, even in districts where the conditions of life do not vary materially at different times. The mammal begins and ends them either alone or in bands, companies or herds, according as it is wont to live with its fellows; it follows the same routes with more or less regularity, and appears at certain places at approximately the same time, yet it is always guided by chance circumstances.

When the fruits of the sacred fig and other trees surrounding the temples of the Hindoos are beginning to ripen, the Brahmins who tend temple and trees await with unctuous devotion the arrival of their four-footed gods. And not in vain, for the two divinities, Hulman and Bunder, two species of monkey, unfailingly appear to strip the luscious fruits from the trees piously planted and tended for their benefit, and also to rob and plunder in the

neighbouring fields and gardens as long as it is worth while. Then they disappear again, to the sorrow of their worshippers and the joy of the other inhabitants of India, whose possessions they have ravaged, as they gathered in their spoils in their usual ruthless fashion. In Central Africa, when the chief cereal of that country, the dhurra or Kaffir-millet, comes to maturity, a dignified and inventive baboon, tried and experienced in all the critical situations of life, leads down the flock of which, as leader, he is justifiably proud, to see whether Cousin Man has been good enough to sow the nutritive grain for him this year also. Or, about the same time, a band of long-tailed monkeys, under not less excellent leadership, approaches the edge of the forest in order not to miss the right moment for a profitable, and, as far as possible, undisturbed ravaging of the fields. When the golden orange glows among the dark foliage in South American plantations, the capuchin monkeys make their appearance, often from a great distance, to share the fruit with the owner. Other plant-eaters too are led by the hope of gaining an easier livelihood into regions and districts which they usually avoid; insectivores periodically follow the insects when they are for the time abundant at this place or that, and large beasts of prey keep in the wake of herbivorous mammals, especially of the herds belonging to man. The lion journeys from place to place, following the wandering herdsmen on the steppes of Africa; Russian wolves followed close on the retreat of Napoleon’s defeated army, pursuing the unfortunate fugitives as far as the middle of Germany. Otters undertake land journeys to get from one river-basin to another; lynxes and wolves in winter often traverse very wide stretches of country. Such journeys bring about a change of residence, but

they do not constitute a migration in the true sense of the word. It is only exceptionally, too, that they are undertaken from real necessity, which we must look upon as the cause of all true migrations; in most cases they are undertaken simply to gratify a passing desire.

Quite otherwise is it with those mammals which, every year about the same time, leave their habitat for some other region often far distant, from which at a definite time they will return to their former abode. These migrate; for they do not seize a chance opportunity, but obey, consciously or unconsciously, a compelling necessity.

The fundamental cause of all true migration among mammals, is some very distinct and decided seasonal change. In countries of everlasting spring true migrations do not take place, for want is never imminent. Summer must contrast with winter, whether the latter bring frost and snow, or heat and drought; scarcity must alternate with superfluity before the sluggish mammal makes up its mind to migrate.

To a slight extent migrations take place among all mountain animals. The chamois, the steinbock, the Alpine hare, the marmot all migrate when the snow begins to melt, or a little later; they clamber over hillsides and glaciers to the heights above, where the pasturage, now laid bare, promises rich and abundant nourishment, and they return to the lower slopes of the mountain before winter sets in. The bear, by nature omnivorous, by habit a thief, undertakes a similar migration at the same season, and completes it before winter sets in,—at least so it is in the mountains of Siberia; the various wild cats and dogs which live among the mountains do the

same. Such changes of residence occur also on the mountains of southern countries, even of those lying within the tropics. In India and Africa certain species of monkey ascend and descend the mountains at regular intervals; elephants seek the high grounds on the approach of summer, the low grounds in winter; on the Andes in South America the guanacos flee before the snow into the valleys, and before the summer-heat to the shoulders of the mountains. All these migrations are confined by the mountains within comparatively narrow limits. They only involve a change of altitude of from three to nine thousand feet, or a journey which may be accomplished in a few hours, or, at most, in a few days. They have, however, the regularity characteristic of true migrations, especially in the precise periodicity of their occurrence, and not less in the constant choice of the same routes.

Highlands and plain, sea and air, offer a much wider field than the mountains, and therefore the migrations of the animals inhabiting, or temporarily traversing these can be more easily observed, and they are more appropriately termed migratory animals than the dwellers among the mountains. In the tundras of Russia and Siberia, the reindeer, which, in Scandinavia, never leaves the mountains, migrates to a great distance every autumn and returns the following spring to his former summer haunts.[57] About the same time it leaves Greenland, and, crossing the sea on a bridge of ice, reaches the continent of America, where it spends the whole winter, only returning to the hills of its native peninsula the following April. In both cases, dread of the approaching winter does not seem to be the sole cause of migration; there is at the same time a further incentive supplied by a plague much feared

in the far north. For the short summer on these expanses calls to life an insect-world poor in species, but endlessly rich in individuals, particularly an indescribable number of mosquitoes and bot-flies, which make life a burden to the reindeer, as well as to man. To escape these the reindeer forsakes the marshy tundra, over which dense clouds of mosquitoes hover during summer, and hies to where the scourge is less severely felt—to the Alpine heights, which, in the summer season afford their most fragrant pasturage. From inherited habit, the reindeer migrate not only at the same time, but along the same paths, thus forming tracks which may be distinctly traced, traversing the tundra for many miles, and crossing streams and rivers at definite places. At the beginning of the journey, the cows with their calves arrange themselves in herds of from ten to a hundred, and precede the young stags and hinds, which are followed again by the old stags. One troop follows directly behind another, and the observer can count thousands as they pass. All hurry incessantly on, turning aside neither for the mountains nor the broad streams which cross their path, and resting only when they have reached their winter-quarters. Packs of wolves, bears, and gluttons follow close on their heels and often pursue them no small part of the way. In spring, on the return journey, the animals keep to the same order, but the herds are much smaller, and they travel in a much more leisurely fashion, and keep less strictly to the paths by which they went.

Journeys still longer than those of the reindeer are taken by the American bison, the “buffalo” of the prairies.[58] What distance individual animals travel cannot be stated with certainty, but herds in course of migrating have been met from Canada to Mexico,

from the Missouri to the Rocky Mountains, and it may be assumed that a single herd traverses a considerable part of the country lying between these limits. The bisons have been seen in summer scattered over the boundless prairie, and in winter in the same places, but assembled in many thousands; their migrations have been observed, for they have been followed for hundreds of miles along the tracks —the so-called “buffalo-paths”, trodden out straight across plains and over mountains. We learn from eye-witnesses that a stream a mile wide is to them no barrier, scarcely even a hindrance, for they throw themselves into it like an irresistible avalanche, so that the water is covered with the dark, moving throng; that the animals associate and separate again, the herds increase and diminish; that old, surly, tyrannous, malevolent bulls avoid the other bisons, having perhaps been expelled from the herd, and compelled, probably only after protracted struggles, to live in hermit-fashion until the following summer; and that, during heavy snowfalls, the herds take shelter in the forests or on the slopes of the mountains. From July onwards they begin their migrations from the north towards the south. Small companies, which, till then, have been leading a comfortable summer life, combine with others and set out on the journey with them; other troops join the band, which grows as it presses on, until there is, at length, formed one of those extraordinary herds which, united till the next spring, moves and acts as if animated by one soul. When the winter is safely past, the army gradually breaks up, probably in exactly reverse order, into herds, and these divide more and more until at length only small companies are left. This breaking-up takes place during the course of the return journey. Both in going and

returning, one herd follows another at some distance, but more or less along the same paths. Specially favourable places, such as low grounds covered with rich grass, cause a temporary damming up of the living stream. In such places incalculable herds assemble together, spend days in the same spot, and break up only again when all the grass has been eaten, and hunger urges them to continue their journey. As they march the wolves and bears follow their track, while eagles and vultures, birds of ill omen, circle over their heads.

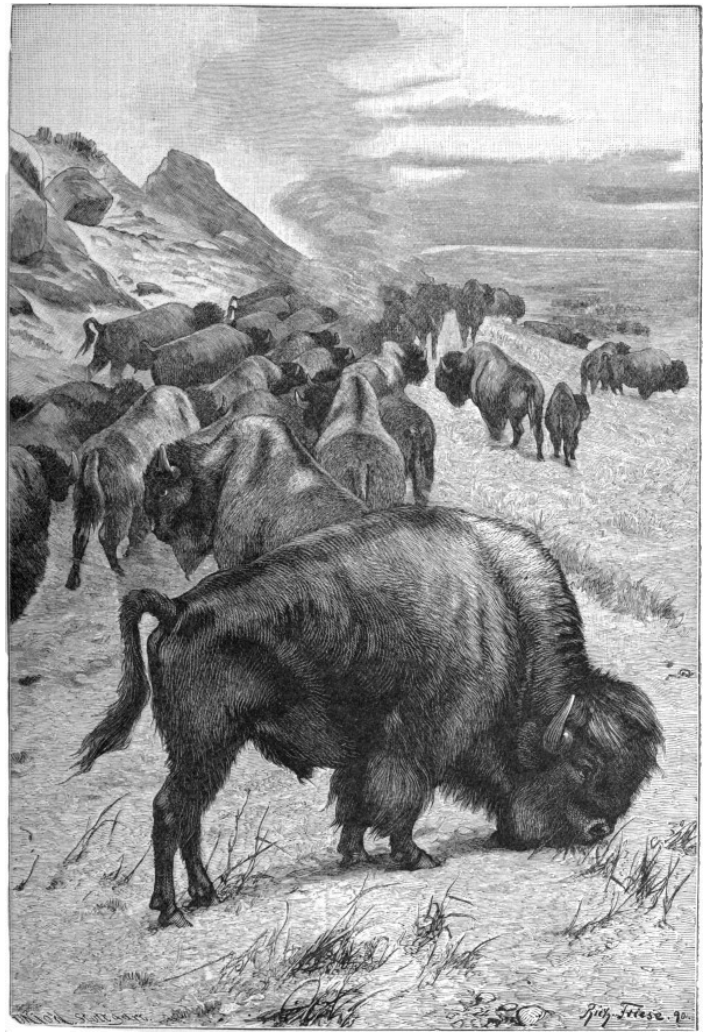


Fig. 36.—A Herd of American Bison or Buffalo.

Scarcity of water, as well as of food, is often a cause of regular migrations. When winter approaches in the south-east of Siberia, more particularly in the high Gobi steppe, all the non-hibernating mammals are compelled, by the peculiar circumstances of these

highlands, to seek refuge in lower-lying regions. The winter in these high grounds of Central Asia is not more severe than in districts lying further to the north or north-east, but it is usually almost snowless, and such pools of water as have been formed by the extremely slight fall of rain or snow, are covered with a thick sheet of ice. As soon as this sheet becomes so strong that the animals inhabiting the Gobi are unable to break it, they are obliged to change their quarters, and they travel not only to southern but to northern lands, whose only advantage is that they are covered with snow, for this affords ready refreshment to the parched tongues of the wanderers, and offers less resistance to their weak feet than the hard, unbreakable, and less easily melted ice. This is the explanation of the fact that the antelope, of which great numbers are found in the Gobi, forsakes a land which, save for the lack of snow and therefore of available water, is exactly the same as that which it chooses for its winter quarters. Not hunger, but thirst, drives it from its home. At the beginning of winter, the antelopes, at all times gregarious, assemble in herds of many thousands, spreading over all the low grounds around their native plateau; they often travel at the rate of fifty or sixty miles in a single night, and extend their wanderings many hundreds of miles beyond the boundaries of their proper habitat. The observer who follows them can detect their tracks everywhere, and in such numbers that it seems as though vast herds of sheep, far exceeding in number any ordinary flock, had just passed by.



Fig. 37.—Wild Horses crossing a River during a Storm.

Before the Chinese antelope begins its migration, restlessness seizes the kulan or dziggetai, probably the ancestor of our horse, and certainly the most beautiful and the proudest of all wild horses. The foals of the summer are by autumn strong enough to be able to endure a long journey with quick marches, and to bid defiance to all the accidents and dangers of a wandering life. The young stallions attain their full strength at the end of their fourth year, and towards the end of September they leave the parent-herd and press forward. Finally, the impulse to mate begins to animate the older stallions and mares, and with it comes unrest and the desire to wander. Thus

the fleet, enterprising animals begin their annual migration long before winter has set in, before even its approach has become at all apparent; and on this account their migrations at first lack steadiness and regularity, and have something of the character of journeys in search of adventure. With the intention of shaking off the burdensome yoke of the leader and absolute lord of the herd, and of becoming independent and in their turn equally despotic, the young stallions forsake the herd, and thenceforward traverse the sandy steppes singly. All the younger mares who are mature, and even many of the older ones, seem to be animated by the same feeling as the young stallions, and they attempt to escape from the rule of their tyrant and join his young rival, to fall immediately under his dominion. But not without a struggle does the new candidate for leadership gain his troop of mares; the old leader does not readily relinquish his rights. For hours together the stallion stands on the top of a hill or on the shoulder of a ridge, keenly scanning the country around. His eye wanders over the desert, his dilated nostrils are turned towards the wind, his ears are directed forwards on the alert. Eager for battle, he rushes at full gallop towards every herd which approaches, every adversary who shows himself; and a furious struggle takes place for the possession of the mares, who always attach themselves to the victor. Such combats and strife set the herd in motion, detach it from the place where the summer has been spent, and lead on to migrations which become gradually regular, prolonged, persistent, and almost uninterrupted. In the course of these, if not before the end of the combats just described, the kulan troops assemble in ever-growing numbers, until at length herds of more than a thousand head set out

together for fields which give promise of pasturage. They do not break up while in their winter quarters, and they are thus compelled to be continually on the move in order to find sufficient nourishment. The combined tread of the army, as they gallop on in their usual furious fashion, rings dully out, and more than once, in Russia, the sound has called the Cossacks of the military cordon to arms. No wolf ventures to attack such a herd, for the courageous wild horses know so well how to use their hoofs against him that he soon gives up any attempt; it is only the sick and exhausted horses which become his prey, as he follows the wandering herd. Even man can do them no great damage, for their caution and shyness render them difficult of approach. But winter, especially if much snow falls, brings them much suffering. The pasture, at all times scanty, is exhausted the more quickly the more numerous the herd which feeds on it. Then the animals devour indiscriminately all the vegetable substances they can find. For months together they have to maintain life on leafless shoots. Their bodies cease to be fat and plump, till at length they are like wandering skeletons. The mother, herself starving, is no longer able to nourish her foal, for the milk-yielding udder dries up in times of such need. Many a one whose tender youth is unable to endure the hard fare dies of starvation. Even the old horses suffer from the poverty and treachery of the winter. Snow-storms blowing over their feeding-ground for days at a time depress their usually cheerful courage, and increase the boldness of the wolves, which, even if they do not fall upon the already exhausted horses, persecute and annoy to the utmost those who are not yet worn out. But as soon as circumstances begin to improve, the wiry, weather-hardened, enduring creatures

recover their high spirits, and, when the snow begins to melt, they set out on the return journey, reaching their summer home in about a month's time. There they break up into single herds, recuperate among the luxuriantly sprouting, fragrant pasture, and, in a surprisingly short time, become fat and plump again. Soon the want and misery of the winter are forgotten.

Great as are the distances often traversed by all the mammals already mentioned, they can scarcely be compared with those covered by seals and whales. The water favours all the movements of animals adapted to aquatic life, and offers everywhere the same general conditions of life and the same amenities. Thus it renders the migrations of its inhabitants easier, less toilsome and hazardous than those of any other wanderers. Nevertheless it is somewhat surprising to learn that many sea-mammals, and particularly the whales, are among the most nomadic of all creatures; in fact that many, if not most of them, pass their whole life in travelling. Strictly speaking, no whale has a permanent place of sojourn for the whole year, but passes singly, in pairs, with its young, or in more or less numerous companies—the so-called schools—from one part of the ocean to another, visiting certain favourite haunts in regular order, and choosing different haunts in summer and in winter. The seas inhabited by the same species of whale in winter and in summer often lie farther apart than people seem to suppose, for some whales travel, twice a year, more than a quarter of the earth's circumference; they are to be found in summer among the ice-floes of the Arctic Ocean, and in winter on the other side of the Equator. The female whales, who are in the highest degree sociable, and

attached to their young with the tenderest, most devoted love, assemble together in surprising numbers, and under the guidance of a few males, traverse the ocean by definite routes and at definite times, some keeping to the open sea, others making their way along the coasts. Storms may force them to change their route, or delay in the appearance of the animals on which they feed, whose occurrence and disappearance is obviously the chief cause of their migration, may to some extent influence their course and the time of their visiting certain spots; but, as a general rule, their migrations are so systematic that on northern and southern coasts people look for the arrival of the whale on a particular day, and place watches so that they may be able to begin the long-desired chase without loss of time. Whales, which are recognized by the dwellers on the coast by some mark, such as mutilated fins, and which have been several times pursued in vain, have been known to appear several years in succession at the same time and at the same place; and the chase after these most valuable and therefore increasingly persecuted animals takes place with the same regularity as do hare-hunts on land, though at any other time of the year it would be vain to look for them. “After Twelfth Day,” says old Pontoppidan, “the Norwegians watch from all the hills for the whale, whose arrival is announced by the herring.” First appears the killer, then, three or four days, or at the most a fortnight later, the rorqual, though, apparently, one comes from Davis Straits and the other from Greenland. On the south coasts of the Faroë Islands, and especially in the Qualbenfjord, from three to six bottle-nose whales still appear every year about Michaelmas, as they did a hundred and ninety years ago. In a Scottish bay there

appeared twenty years in succession a rorqual, which was generally known by the name of “Hollie Pyke”, and was pursued every year and finally captured. On the coast of Iceland single whales choose the same bays for a temporary sojourn every year in the same months, and even weeks, so that the inhabitants have got to know them individually, and have given them special names. Certain well-known mother-whales visit the same bays every year to bring forth their young, and they themselves are spared, but they have to purchase their own lives, dearly enough, at the cost of that of their young ones, which are regularly taken captive. It is very unusual for the migrating whales to keep neither to time nor to route; in general, their journeys are as regular as if they were arranged according to the position of the stars, and as if they took place along laid-out paths bounded on both sides. No other mammal migrates more regularly; indeed, their wanderings may be compared with the migrations of birds.

The seals, like the whales, migrate every year, on the whole with great regularity, though not to such a distance. Those species which inhabit inland seas cannot, of course, leave these, but they traverse them every year in regular order, or at certain times ascend the rivers flowing into them; all the ocean species, on the other hand, set out every autumn and spring, by definite routes, to certain regions or localities. All the seals in the far north, as well as those in the seas about the South Pole, are forced to migrate by the extension of the ice in winter, and may travel with it towards temperate zones, returning towards the poles again as the ice melts. But they, like all other members of their order, are impelled to travel for another not less weighty reason; they require the mainland, or at least large,

spreading, fixed masses of ice, on which to bring forth and nurture their young, until these are able to follow them into the water, there to shift for themselves. Thus every year thousands and hundreds of thousands of seals appear on certain islands and ice-banks, covering some of these birth-places of their race in such crowds that every available spot must be utilized in order to secure space for all to bring forth their young. They pass weeks, even months, on land or on the ice without hunting, descending into the sea, or taking food; they suckle their young, then mate, and by degrees break up their great assemblage, distributing themselves over the wide ocean to resume their former manner of life, or setting out with their young, who still require training, on more or less extensive foraging expeditions.[59]

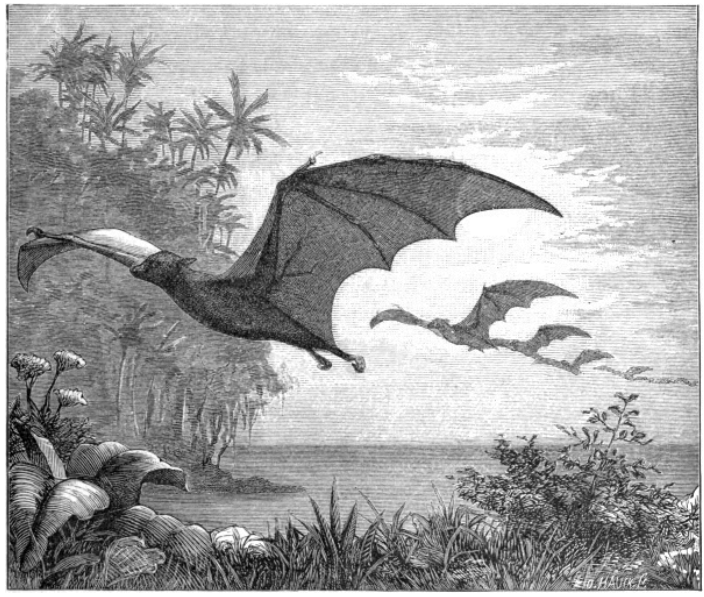


Fig. 38.—Flying Foxes.

As is well known, there are many mammals which

have the habit of hibernating, which pass the severe part of the year well protected in deep and carefully closed burrows, and are thus spared the necessity of leaving their haunts. Even among these, however, at least among those living in the temperate zones, there are some which migrate during their waking time, namely, the bats. Defective as the wing of a bat must appear when compared with that of a bird, it is nevertheless of such assistance in flight, that it makes journeys possible which seem out of all proportion to the size of the animal. Another fact makes travelling easier to the restless bat; it is not tied down by its offspring to any particular spot, for the young one attaches itself directly after birth to the breast of the mother, and is borne by her through the air till it is capable of independent life. The bat is thus one of the best-adapted of migratory mammals, and, under some circumstances, it makes full use of its advantages. As a general rule, the wanderings of the different species of bat are to be regarded simply as excursions made with a view to taking advantage of any district which is, for the time being, particularly rich in food; but they do sometimes become really long journeys, which lead some species to far distant lands, and they are then not without the regularity characteristic of all true migrations. The largest bats, the flying foxes, fly long distances every evening in search of the fruits on which they chiefly subsist; they do not hesitate to cross an arm of the sea fifty or sixty miles in breadth, and they must even have traversed the distance between Southern Asia and the East of Africa, as certain species occur in both these regions. The bats proper accomplish at least as much. Following the reappearance of the insects, which occurs at different times in regions of different altitude, they ascend from the plains to the mountain

heights, and descend in autumn to the low grounds again; they pursue the numerous flies which congregate about the wandering cattle-herds of Central Africa, and they migrate also from the south towards the north and return southwards again, or in reverse order. The boreal bat appears at the beginning of the bright nights in the north of Scandinavia and Russia, and leaves these districts, which may be considered its head-quarters, towards the end of summer, to spend the winter among the mountains of Central Germany and the Alps. The pond-bat is regularly seen on the plains of North Germany during summer, but only exceptionally at that period among the mountains of Central Germany, in whose caverns it spends the winter. That other species of bat occurring in Germany change their place of abode in a similar manner can scarcely be doubted.

In the cases cited, which have been selected from a mass of available material, I have given examples of those migrations of mammals which we may call voluntary, because of their regularity; but in so doing I have by no means completed my task. Hunger and thirst, the poverty and temporary inhospitableness of a particular region, sometimes press so severely on certain mammals that they endeavour, as if despairing, to save themselves by flight. Abundant nourishment and good weather favour the increase of all animals, and affect that of a few plant-eating mammals to such an extraordinary degree, that, even under propitious conditions, their habitat must be extended. But if one or more rich years—in some cases a few favourable months—be followed by a sudden reverse, the famine soon passes all bounds, and robs the creatures not only of the possibility of subsistence, but also of all hope, or at least of all

presence of mind.

It is under circumstances such as these that the field-voles of our own country, and the Siberian voles, assemble in enormous multitudes, leave their native haunts and migrate to other districts, turning back for no obstacles, avoiding the water as little as the forbidding mountains or the gloomy forest, fighting to the last against hunger and misery, but perishing hopelessly from diseases and epidemics which rage among them like plagues, reducing armies of millions to a few hundreds. Thus, too, the squirrels of Siberia, which, in ordinary years, undertake, at the most, only short excursions, assemble in vast armies, hurry in troops or companies from tree to tree, in compact masses from forest to forest, swim across rivers and streams, throng into towns and villages, lose their lives by thousands; but suffer no obstacle or hindrance—not even the most obvious dangers—to delay them or divert them from their path. The soles of their feet become worn and cracked, their nails ground down, the hairs of their usually smooth fur rough and matted. Through the forest lynxes and sables, in the open fields gluttons, foxes and wolves, eagles, falcons, owls and ravens follow them closely; pestilence claims more victims from their ranks than the teeth and claws of beast of prey or the guns and cudgels of men, yet they press on and on, apparently without hope of return. A Siberian sportsman of my acquaintance gave me a verbal account of the appearance of such an army of squirrels, in August 1869, in the town of Tapilsk, among the Ural Mountains. It was only one wing of a migrating army, of which the main body travelled through the forest about five miles farther north. Sometimes in single file, sometimes in companies of varying strength, but in unbroken succession, the animals

pressed on, crowding as densely through the town as through the neighbouring forest; used the streets, as well as the hedges, and the roofs of buildings as paths; filled every court-yard, thronged through windows and doors into the houses, and created quite an uproar among the inhabitants—much more among the dogs, which killed thousands of them, evincing an unbridled bloodthirstiness till then unsuspected. The squirrels, however, did not seem to concern themselves in the least about the innumerable victims falling in their midst; in fact, they took no notice of anything, and allowed nothing to divert them from their route. The procession lasted for three whole days, from early morning till late in the evening, and only after nightfall each day was there a break in the continuity of the stream. All travelled in exactly the same direction, from south to north, and those that came last took the same paths as their predecessors. The rushing Tchussoveia proved no obstacle, for all that reached the bank of that rapid mountain-river plunged without hesitation into its whirling and seething waters, and swam, deeply sunk and with their tails laid across their backs, to the opposite bank. My informant, who had been watching the procession with growing attention and sympathy, rowed out into the midst of the throng. The tired swimmers, to whom he stretched out an oar, climbed up by it into the boat, where, apparently exhausted, they sat quietly and confidingly, until it came alongside a larger vessel, when they climbed into that, and remained on it for some time as indifferent as before. As soon as the boat touched the bank they sprang ashore, and proceeded on their journey as unconcernedly as if it had suffered no interruption.

It must be similar circumstances which compel the

lemmings to the migrations which have been known for centuries. For many successive years the heights in the tundras of Scandinavia, North Russia, and the North of Siberia afford them comfortable quarters and abundant nourishment; for the broad ridges of the fjelds and the extensive plains between them, the highlands and the low grounds, offer room and maintenance for millions of them. But not every year do they enjoy the accustomed abundance for the whole summer. If a winter in which much snow falls, and which is therefore favourable to them, as they live safely below the snow, be followed by an early, warm, and agreeable spring, their extraordinary fertility and power of increase seem to have almost no bounds, and the tundra literally teems with lemmings. A fine warm summer increases their numbers past computing, but it also accelerates the life-course of all the plants on which they feed, and before it is over these are partly withered, partly devoured by the greedy teeth of the insatiable rodents. Scarcity of food begins to be felt, and their comfortable life comes to an end in panic. Their fearless, bold demeanour gives place to a general uneasiness, and soon a mad anxiety for the future takes possession of them. Then they assemble together and begin to migrate. The same impulse animates many simultaneously, and from them it spreads to others; the swarms become armies; they arrange themselves in ranks, and a living stream flows like running water from the heights to the low grounds. All hurry onwards in a definite direction, but this often changes according to locality and circumstances. Gradually long trains are formed in which lemming follows lemming so closely that the head of one seems to rest on the back of the one in front of it; and the continuous tread of the light, little

creatures hollows out paths deep enough to be visible from a long distance in the mossy carpet of the tundra. The longer the march lasts, the greater becomes the haste of the wandering lemmings. Eagerly they fall upon the plants on and about their path and devour whatever is edible; but their numbers impoverish even a fresh district within a few hours, and though a few in front may pick up a little food, nothing is left for those behind; the hunger increases every minute, and the speed of the march quickens in proportion; every obstacle seems surmountable, every danger trifling, and thousands rush on to death. If men come in their way they run between their legs; they face ravens and other powerful birds of prey defiantly; they gnaw through hay-stacks, climb over mountains and rocks, swim across rivers, and even across broad lakes, arms of the sea, and fjords. A hostile company, like that behind the migrating squirrels, follows in their wake: wolves and foxes, gluttons, martens and weasels, the ravenous dogs of the Lapps and Samoyedes, eagles, buzzards, and snowy owls, ravens and hooded crows fatten on the innumerable victims which they seize without trouble from the moving army; gulls and fishes feast on those which cross the water. Diseases and epidemics, too, are not awanting, and probably destroy more than all their enemies together. Thousands of carcasses lie rotting on the wayside, thousands are carried away by the waves; whether indeed any are left, and whether these return later to their native Alpine heights, or whether all, without exception, perish in the course of their journey, no one can say with certainty; but so much I know, that I have traversed great tracts of the tundra of Lapland where the paths and other traces of a great migrating army were to be seen almost everywhere, while not a

single lemming could be discovered. Such tracts, I have been told, remain thus for several successive years, and only after long periods become gradually repeopled with the busy little rodents.[60]

What hunger causes in the North is brought about by the tortures of thirst in the richer South. As the brackish pools which have afforded water to the zebras, quaggas, antelopes, buffaloes, ostriches, and other animals of the steppes, dry up more and more under the burning heat of a South African winter, all the animals whose necessities have hitherto been supplied by the steppes assemble about the pools which still contain a little water, and these become scenes of stirring, active life. But when these, too, evaporate, the animals which have congregated around them are compelled to migrate, and it may happen that despair takes possession of them, as it did of the little rodents already described, and that, collecting in herds like the wild horses and Chinese antelopes (dzieren) of the steppes of Central Asia, or the bisons of the North American prairies, they rush straight on for hundreds of miles, to escape the hardships of winter.

In the South, too, the wild horses are the first to turn their backs on the inhospitable country. Till the drought sets in, these beautifully-marked, strong, swift, self-confident children of the Karroo, the zebra, quagga, and dauw, wander careless and free through their vast domain, each herd going its own way under the guidance of an old, experienced, and battle-tried stallion. Then the cares of the winter season begin to make themselves felt. One water-pool after another disappears, and the herds which gather about those which remain become more and more numerous. The general distress makes even the

combative stallions forget to quarrel and fight. Instead of small companies, herds of more than a hundred head are formed, and these move and act collectively, and finally forsake the wintry region altogether before want has enfeebled their powers or broken their stubborn wills. Travellers describe with enthusiasm the spectacle presented by such a herd of wild horses on the march. Far into the distance stretches the sandy plain, its shimmering red ground-colour interrupted here and there by patches of sunburnt grass, its scanty shade supplied by a few feathery-leaved mimosas, and, as far away as the eye can reach, the horizon is bounded by the sharp lines of mountains quivering in a bluish haze. In the midst of this landscape appears a cloud of dust which, disturbed by no breath of air, ascends to the blue heavens like a pillar of smoke. Nearer and nearer the cloud approaches, until at length the eye can distinguish living creatures moving within it. Soon the brightly-coloured and strangely-marked animals present themselves clearly to the spectator's gaze; in densely thronged ranks, with heads and tails raised, neck and neck with the quaintly-shaped gnus and ostriches which have joined their company, they rush by on their way to a new, and possibly far-distant feeding-ground, and ere the onlooker has recovered himself, the wild army has passed by and is lost from view in the immeasurable steppe.



Fig. 39.—Springbok Antelopes.

The antelopes, which are also driven out by winter, do not always follow the same paths, but usually travel in the same direction. None is more numerous or more frequently seen than the springbok, one of the most graceful and beautiful gazelles with which we are acquainted. Its unusual beauty and agility strike everyone who sees it in its wild state, now walking with elastic step, now standing still to feed, now springing about in playful leaps, and thus disclosing its greatest ornament, a mane-like snow-white tuft of hair, which at a quieter pace is hidden in a longitudinal groove of the back. None of the other antelopes, when forced to migrate, assemble in such numerous herds as this one. Even the most vivid description cannot convey to one who has not seen a herd of springboks on their journey any adequate idea of the wonderful spectacle. After having congregated for weeks, perhaps waiting for the first

shower of rain, the springboks at last resolve to migrate. Hundreds of the species join other hundreds, thousands other thousands, and the more threatening the scarcity, the more torturing the thirst, the longer the distances which they cover; the flocks become herds, the herds armies, and these resemble the swarms of locusts which darken the sun. In the plains they cover square miles; in the passes between the mountains they throng together in a compact mass which no other creature can resist; over the low grounds they pour, like a stream which has overflowed its banks and carries all before it. Bewildering, intoxicating, and stupefying even the calmest of men, the throng surges past for hours, perhaps days together.[61] Like the greedy locusts, the famishing animals fall upon grass and leaves, grain, and other fruits of the field; where they have passed, not a blade is left. The man who comes in contact with them is at once thrown to the ground, and so sorely wounded by the tread of their hoofs, light indeed, but a thousand times repeated, that he may be glad if he escapes with his life; a herd of sheep feeding in the way is surrounded and carried off, never to be seen again; a lion, who thought to gain an easy prey, finds himself forced to relinquish his victim, and to travel with the stream. Unceasingly those behind press forward, and those in front yield slowly to the pressure; those cooped up in the middle strive continually to reach the wings, and their efforts are strenuously resisted. Above the clouds of dust raised by the rushing army the vultures circle; flanks and rear are attended by a funeral procession of various beasts of prey; in the passes lurk sportsmen, who send shot after shot into the throng. So the tortured animals travel for many miles, till at length spring sets in and their armies are

broken up.

Shall I go on to consider other compulsory migrations, such as those of the arctic foxes and polar bears when an ice-floe on which they were hunting is loosened and floated off by the waves till, under favourable circumstances, it touches some island? I think not, for journeys such as these are not migrations, they are simply passive driftings.

LOVE AND COURTSHIP AMONG BIRDS.

An irresistible instinct, an all-compelling law of nature, moves every living creature to seek a mate of its own species but of opposite sex, to unite a second existence with its own, to awaken responsive emotions through complete self-surrender, and thus to form the closest bond which links being to being, life to life. No power is strong enough to set aside this law, no command authoritative enough to influence it. Yielding to no hindrance this instinct overcomes every obstacle, and presses victorious to its goal.

The almighty power through which this law works we call Love, when we speak of its influence on man; we describe it as Instinct when we discuss its operation on the lower animals. But this is a mere play upon words, nothing more; unless by the former word we intend to imply that every natural instinct in man should by man himself be ennobled and moralized. If it be not so, it will be difficult to distinguish between the two. Man and beast are subject to the same law, but the beast yields it a more absolute obedience. The animal does not weigh or reflect, but gives itself up without resistance to the sway of love, which man often fondly imagines he can withstand or escape.

Of course, he who ventures at the outset to dispute man’s belonging to the animal world at all, sees in an animal nothing more than a machine which is moved

and guided, stimulated to action, incited to sue for the favour of the opposite sex, impelled to songs of rejoicing, provoked to combat with rivals, by forces outside of itself; and, naturally enough, he denies to such a machine all freedom and discretion, all conflict between opposing motives, all emotional and intellectual life. Without raising himself by thus claiming a monopoly of intelligent action, or at least of intellectual freedom, he degrades the lower animals to false creations of his own hollow vanity, suggesting that they lead a seeming rather than a real life, and that they are without any of the joys of existence.[62]

An exactly contrary position would be undoubtedly more just, as it certainly is more accurate. Indeed, it is scarcely too much to say that he who refuses to credit the lower animals with intelligence raises anxiety on the score of his own, and that he who denies them all emotional life has himself no experience of what emotional life is. Whoever observes without prejudice is sooner or later forced to admit that the mental activity of all animal beings, diverse as its expression may be, is based upon the same laws, and that every animal, within its own allotted life-circle and under the same circumstances, thinks, feels, and acts like any other, and is not, in contrast to man, impelled to quite definite actions by so-called higher laws. The causes of the actions of animals may perhaps be termed laws, but, if so, we must not forget that man is subject to the same. His intellect may enable him to make some of these laws of nature subservient to his purposes, to modify others, sometimes even to evade them, but never to break or annul them.

Let me attempt to prove the correctness of these

opinions by giving examples to show how essentially the expressions of life in man and in the lower animals may resemble each other, how both are alike all-powerfully influenced by the most important of the laws of nature, that which has for its aim, or its consequence, the continuance of the species. Man and bird: how wide the gulf which separates them and their lives! how vast the differences between their habits and behaviour! Is there a power which can bridge over this gulf? Are conditions conceivable which can incite them to essentially similar expressions of life? We shall see.

The birds are more unreservedly dependent on the rotation of the seasons than man is. “They sow not, neither do they reap, nor gather into barns”, and they must perforce adapt themselves to the seasons if they are to find sufficient food, if they are to live at all. Therefore they blossom in spring, bring forth their fruits in summer, conceal these and themselves in autumn, and rest in winter like the motherly earth. The chapters of their life-history are closely bound up with the seasonal progress of the year.

In this respect they are indeed governed by an iron law which, within a certain limit, renders anything like freedom and caprice impossible. But whither should spontaneity tend save to want and misery, to the imperilling of their own lives and those of their young? So they bow submissively to nature’s law, and enjoy, in consequence, a freedom which we men might envy them, and should envy them, were we not more capable of withdrawing ourselves from the influence of the seasons than they. But do not we also blossom in spring, and rest in winter? And must not we, too, bow before iron necessity?

If the birds are in bondage in certain respects, they

preserve their freedom and power of choice in others, and they exercise both more joyously and unrestrainedly than man himself.

No bird voluntarily renounces the joys of love; very few evade the bonds of marriage; but everyone seeks to attain to and enjoy love as early as possible. Before it has laid aside its youthful dress the young bird has learnt to recognize and respect the distinctions of sex; much earlier than that, the young male fights with his fellows as if in boyish wantonness; as soon as he is full-grown he woos ardently and persistently some female of his own species. No male bird condemns himself to bachelorhood, no female bird hardens her heart against a deserving suitor. For lack of a mate, the male wanders restlessly and aimlessly over land and sea; for a worthy mate the female forgets pain and oppressive grief, however deep these may have been; for the wooer who seems to her most worthy she breaks even her conjugal bonds.

Every female bird attains to the possession of a husband, but not every male readily succeeds in gaining a wife. Even among birds so great a good must be sought after and striven for. On an average, there are more males than females, and many males are obliged to suffer the severest misfortune which can befall them, and to live, at least temporarily, unmated. For the great majority of birds, celibacy is a state of torment from which they strive with all their strength to escape. So they traverse wide tracts in search of a mate, seeking diligently, and when they imagine they have found one, wooing with equal ardour, whether she be maid, wife, or widow. If these wanderings were usually fruitless, they would not take place so regularly as they do.

In wooing their mates, the males exhaust all the charms with which nature has endowed them. According to his species and capacity each brings his best gifts into play, each seeks to show his best side, to reveal all his amiability, to surpass in brilliance others of his kind. This desire increases with the hope of fulfilment; his love intoxicates him, throws him into ecstasies. The older he is the more remarkably does he conduct himself, the more self-confident does he appear, the more impetuously does he strive for the reward of love. The proverb, “There are no fools like old fools”, does not apply in his case, for it is but rarely that age condemns him to weakness and incapacity; on the contrary, it strengthens all his capabilities and increases his energy by mature experience. Little wonder then that at least the younger females prefer the older males, and that these woo, if not more ardently, at least more confidently than their younger rivals.

The means by which a male bird declares his love and conducts his courtship are very various, but, naturally, they always accord with his most prominent gifts. One woos with his song, another with his wings, this one with his bill, and that with his foot; one displays all the magnificence of his plumage, another some special decoration, and a third some otherwise unused accomplishment. Serious birds indulge in play and joke and dignified pranks; silent ones chatter, quiet ones become restless, gentle ones combative, timid ones bold, cautious ones careless: in short, all show themselves in an unwonted light. Their whole nature appears changed, for all their movements are more active, more excited than usual, and their conduct differs from their ordinary behaviour in every respect; they are possessed by an intoxication which increases the

elasticity of their nature to such a degree that no flagging is ever perceptible. They deprive themselves of sleep, or reduce it to a minimum without weariness, and while awake they exert all their powers to the utmost without fatigue.

All birds with a voice utter clear, articulate notes in their courtship, and their song is nothing more than a supplication or exultation of love. Our poet's words:

"Hushed is the nightingale's lay,
Which gladdened our hearts in spring;
'Tis only in love's heyday
That we hear its minstrels sing",

are literally true; for the song of the nightingale, and those of all other birds which delight us with their lays, begin with the first stirrings of love, and come to an end when the intoxication is past, and other emotions and cares have taken its place. Singing, the bird flies forth on his quest for a mate; in song he tells the female of his approach, and invites her to join him; in passionate song he gives expression to his delight when he has found her, and to his desires, and longings, and hopes; through his song he reveals his strength, and exalts his own bliss to the heavens; and through it, too, he challenges all other males of his species who would presume to disturb his happiness. Only so long as he is inspired by the intoxication of love is the bird's song full of fire and strength, and if he sing at other times, his lay is certainly a reminiscence of the great joy which once was his. Whoever maintains, as has really been maintained, that a bird sings without any personal feeling whatever, that it sings at a given time simply because it must, and that at another time it could not if it would, has never understood, or sought to

understand, the song of birds, but has simply given petulant expression to his own prejudice. A dispassionate observer must soon perceive that a bird's song, though it remains essentially the same, varies with every emotion, that it flows quietly on, ascends, bursts out triumphantly, and dies away again, according to the prevailing mood, and that it awakens an echo in the breast of other males. If the view referred to were correct, each bird would sing exactly like every other of the same species; it would pour forth its appointed lay as mechanically as a musical box emits the tunes plugged up in its rotating cylinder; none could change or improve his song, or strive to surpass his fellows. Our own view is exactly the opposite, for we are convinced that a bird sings with perfect consciousness, that in his song he lays bare his soul. He is a poet, who, within his own limits, invents, creates, and struggles for utterance; and the motive throughout is love for the opposite sex. Dominated by this love, the jay sings, whistles, and murmurs, the magpie chatters, the croaking raven transforms its rough sounds into gentle, soft notes, the usually silent grebe lets its voice be heard, the diver sings its wild yet tuneful ocean-song, the bittern dips its bill under water that the only cry at its command may become a dull, far-sounding booming. A bird does indeed sing only at a certain season, but it is not because it cannot do so at other times, but because it has then no inducement, no inclination to sing. It is silent when it no longer loves; to speak more prosaically, when the pairing-time is past. This is clearly proved in the case of the familiar cuckoo. Three-fourths of the year go by and its call is not once heard; spring comes round in the revolution of the seasons and it sounds forth almost incessantly from early morning till late in the

evening, as long as the pairing-time lasts. But it is silent sooner in the south than in the north, sooner in the plains than in the mountains, exactly corresponding to the brooding-time of the foster-parents, which begin their nest-building earlier, and finish the rearing of their young sooner in the south and in the plains than in the north and in the highlands.

During courtship many birds supplement their vocal efforts by pleasing movements, whether executed with the help of the wings or of the feet; others by peculiar attitudes in which they display themselves, or strut before the females; others, again, by special noises which they produce.

While a few falcons, and all owls, express their desires chiefly, if not exclusively, by means of loud cries, other birds of prey indulge, either alone or in company with their mates, in a magnificent play of wings, which is now a kind of round dance, and anon becomes a perfect frenzy. Eagles, buzzards, peregrine falcons, kestrels, and lesser kestrels circle round each other for hours at a time, ascend spirally to giddy heights, exercise, obviously to their mutual pleasure and satisfaction, all the arts of flight of which they are capable, utter shrill cries from time to time, spread out their plumage in the sunlight, and, finally, glide slowly down and assume a dignified sitting posture, there to resume their caressings. Kites, which behave in an essentially similar manner, let themselves suddenly down, with half-closed wings, from a very considerable height, until they are just over the ground, or a sheet of water, then begin, more quickly than usual, to describe a series of curves, remain hovering for some time over a particular spot, or execute other wonderful

movements, then slowly soar again to their former height. Harriers fly for some time with apparent indifference behind the desired mate, then begin to circle round her, describe with her a series of intersecting curves, and, suddenly leaving her, soar, with head directed upwards, almost perpendicularly up to a considerable height, increasing, at the same time, the speed of their ordinarily leisurely flight to a surprising rapidity; then, tumbling precipitately over, fall with almost closed wings to near the ground, circle there once, twice, or oftener, ascend again and proceed as before, till at last the female makes up her mind to follow their example. But all these which we have mentioned are surpassed by the bateleur, or mountebank, a harrier about the size of an eagle, living in the interior of Africa, and one of the most remarkable of birds of prey in form and behaviour (p. 188). Its marvellous flight is at all times likely to attract the attention of observers, but during the pairing-time this becomes an incomparable mountebank performance in the air, a bewildering acrobatic display, which seems to unite in itself all the arts of flight practised by the other birds of prey.

Many other birds which are not specially skilful in flight act in much the same way as the wooing birds of prey. That they call in the aid of their wings when they strive to win the love of a mate, or wish to express their delight in a possession already won, is intelligible enough after what has been related. The swallow, sitting beside his desired or chosen mate, eagerly warbles his melodious lay; but the emotion within his breast is much too strong to allow him to sit still during the progress of his song, so he flies upwards, singing in his flight, and hovers and circles about the female who has followed him. The

goatsucker sits for a time lengthwise on a bough, often at some distance from his mate, spins off his whirring strophes for some minutes, then rises, flies about his mate in graceful curves, flapping his wings, and calling to her such a tender “haït”, that one wonders how a sound so soft can possibly be produced by his rough throat. The bee-eater, whose voice is also unmelodious, sits for a long time on his perch, pressing closely to his mate, uttering scarcely a sound, sometimes none whatever, but apparently contenting himself with casting tender glances from his beautiful bright red eyes; but he, too, takes fire, moves his wings abruptly, rises high into the air, describes a circle, utters a jubilant cry, and returns to his mate, who has remained sitting where he left her. In the midst of its most ardent love-song—call it cooing, murmuring, moaning, or what you will—the dove breaks off suddenly as if inspired by its own music, then claps its wings loudly and sharply several times, soars aloft, spreads its wings and floats slowly down to a tree-top, there to begin its song anew. Tree-pipits and rock-pipits, white-throats, and garden warblers behave exactly like the doves; the wood-warblers precipitate themselves from their high perches without ceasing to sing, fly up again to another branch, where they finish their song, to begin it again a few minutes later, and bring it to a conclusion with a similar play of wings. Greenfinches, siskins, and common buntings, in the enthusiasm of love, tumble through the air as if they had no control over their wings; the larks soar to heaven singing their song of love; the serin behaves as if it had taken lessons from a bat.

A similar intoxication possesses those birds which declare their love by dancing. They, too, act contrary to all their usual habits during the dance, and fall

finally into a transport which makes them almost forget the outside world. Few birds dance silently, most of them utter peculiar sounds, never heard at other times, at the same time displaying all their adornments, and often bringing the performance to a close with a sort of round dance.

Particularly zealous dancers are the scratchers or fowls in the widest acceptation of the term. Our domestic cock contents himself with strutting proudly about, crowing and flapping his wings; his companions in the yard, the peacock and the turkey, do more, for they dance. Much more vigorous dancers than either of these are all the grouse-like birds and some pheasants. Whoever has watched the dance of the capercaillie in the grey morning hours, has listened to the liquid cooing of the black-grouse, has seen the willow-grouse dancing on the snowy plains of the tundra in the dusk of a northern spring, will agree with me that such homage as these cocks offer to the hens must be as irresistible as that paid by our own peacock when he transforms his chief ornament into a canopy for his desired mate. More remarkable than all the rest is the behaviour of the male tragopans or horned pheasants of Southern Asia, magnificently decorative birds, distinguished by two brightly-coloured horn-like tubes of skin on the sides of the head, and by brilliantly-coloured extensible wattles. After the cock has walked round the hen several times without appearing to pay any attention to her, he stands still at a particular spot, and begins to bow. More and more quickly the courtesies follow each other, the horns meantime swelling and tossing, the wattles dilating and collapsing again, till all are literally flying about the head of the love-crazed bird. Now he unfolds and spreads his wings, rounds and droops his tail, sinks

down with bent feet, and, spitting and hissing, lets his wings sweep along the ground. Suddenly every movement ceases. Bent low, his plumage ruffled, his wings and tail pressed against the ground, his eyes closed, his breathing audible, he remains for a while in motionless ecstasy. His fully-unfolded decorations gleam with dazzling brightness. Abruptly he rises again, spits and hisses, trembles, smooths his feathers, scratches, throws up his tail, flaps his wings, jerks himself up to his full height, rushes upon the female, and, suddenly checking his wild career, appears before her in olympic majesty, stands still for a moment, trembles, twitches, hisses, and all at once lets all his glory vanish, smooths his feathers, draws in his horns and wattles, and goes about his business as if nothing had happened.

With head slightly bent, with wings and tail spread out, the former moving tremulously, the wagtails trip with dainty steps about their chosen mates, bowing, advancing, and retreating again; the fire-finch looks like a brilliant flame of incense as he turns about, singing gaily and spreading his beautiful feathers in the sunlight, on the top of an ear of the Kaffir millet, among which he and his loved one have made their home; tenderly, with mouth pressed to mouth and breast to breast, like the children of men, the dove and his mate together execute a slow dance; the cranes dance passionately, with nimble leaps; not less ardently, even in sight of apparently admiring spectators, does the beautiful cock of the rock of Tropical America disport himself; even the condor, whose powers of flight are of the first order, who sails through the air thousands of feet above the highest peaks of the Andes, whom one would scarcely expect to conduct his wooing otherwise than with his wings, ventures on a little dance, and with

head sunk upon his breast, and with wings fully spread, circles slowly and with mincing steps around his mate, to an accompaniment of strange drumming, murmuring sounds.

Other birds, again, instead of dancing, spring impetuously up and down, and hop hither and thither among the branches, at the same time displaying whatever beauty they possess: thus, the male birds-of-paradise assemble in crowds on certain trees during the early morning hours, and with the aforesaid movements and tremulous quivering of their wings, display their wonderful plumage in honour of the other sex. Others even build bower-like structures, which they decorate with all kinds of coloured, shimmering, and glittering objects, and within which they perform their dances. Finally, a few birds with no special accomplishments either of voice or of flight or of dance, make use of their bills to produce singular sounds. Thus all the storks woo by quickly clapping the two halves of the bill together, so producing a clatter which makes up for their lack of voice; thus, too, the woodpeckers hammer so fast on a dry tree-top or branch that the wood flies about in splinters, and a drumming sound is caused which resounds throughout the forest.



Fig. 40.—The Strutting of the Tragopan in Pairing-time.

Although it cannot be said that the female coquettishly repels any advances and declarations of love, it is only in cases of necessity that she accepts a suitor without exercising selection. At first she listens to the tenderest love-songs apparently with the

greatest indifference, and looks on unconcernedly at all the play of wings, the dances executed in her honour, and all the beauty displayed to do her homage. For the most part she behaves as if all the display of fascinations on the part of the males had no relation to her at all. Leisurely, and seemingly quite uninterested in their doings, she goes about her daily business of seeking food. In many, though by no means in all cases, she is ultimately enticed by the song in her glorification, the dances to her praise, but by no action does she give a sign of complaisant response. Many female birds, especially the hens of all polygamous species, do not even come to the "playing" grounds of the cocks, though they are anything but coy, and often by their inviting cries inflame the strutting cocks to the height of passion. If a male becomes more importunate than is agreeable to the female she takes refuge in flight. In very rare cases this may perhaps be meant in earnest, but it is usually continued with such energy and persistence that it is not always easy to determine whether it takes place without any secondary intention or whether it is merely a pretence. If it aims at nothing, it certainly achieves something: a heightening of the desire, a straining to the utmost of all the powers and resources of the wooing male. More excited than ever, regardless of all considerations, and bent only on attaining his object, he pursues the flying female as if he meant to force her to grant his suit; he sings with more fire, struts, dances, and plays with more agility than ever, and exercises his arts of flight whenever the female stops to rest, and more eagerly than ever he follows her if she takes to fresh flight.

Probably the females would be more compliant than they generally are if one male were the only suitor.

But the fact that the males are in most species in the majority gives the female bird the boon of freedom of choice. Several males, sometimes even a considerable number of them, pay court to her at the same time, and thus justify her deliberation and selectiveness. Intentionally or unintentionally, she obeys the law of selection; among several she tries to pick out the best, the strongest, the healthiest, the most excellent in every respect.[63] She can afford to be fastidious. The reaction of her conduct on the males finds expression in boundless jealousy, which results, not unnaturally, in prolonged, often mortal, combat. Every bird, harmless as he may appear to us, is a hero in fighting for his loved one, and everyone understands so well how to use the weapons he is provided with, whether bill, claws, spurred feet, or even wings armed with horny spines, that the battle in many cases comes to an end only with the death of one of the combatants.

The combat takes place in the air, on the ground, among the branches, or in the water, according to the species of bird. Eagles and falcons fight their adversaries in the air with beak and talons. Magnificent curves, rival flights to attain to a height suitable for attack, swift thrust, brilliant parry, mutual persecution and courageous persistence are the chief features of such duels. If one of the kingly champions succeeds in seizing his foe, the latter strikes his talons into his opponent’s breast, and both, unable properly to use their wings, fall whirling through the air. When the ground is reached the fight is, of course, interrupted; but, as soon as one rises, the other follows him, and hostilities begin anew. If one becomes exhausted, perhaps in consequence of wounds received, he beats a retreat, and, hotly pursued by the victor, flies

hastily and without attempting resistance, beyond the limits of the domain which the female bird has chosen for herself; but, in spite of defeat, he does not finally relinquish the strife until she has declared decidedly in favour of the conqueror. Such duels sometimes, though not very often, have a fatal issue, for the eagle, whose jealousy is provoked by love and ambition, shows no mercy towards a conquered foe, but remorselessly kills the adversary who has been incapacitated for further combat or for flight. Even those apparently most harmless creatures, the swifts, occasionally kill their rivals, for in their struggles, which are precisely like those of the eagles and falcons, they strike their sharp claws into the breasts of their foes, and tear the flesh so that the death of the wounded one often results.

Among all birds with voices the combat is preceded by a definite challenge. Even the song of a singing bird is a weapon with which he may gain a bloodless victory; the pairing-cry, which so well expresses wooing, always excites jealousy. Whoever can imitate the call of the cuckoo may entice the usually cautious bird to the very tree under which he is standing. Whoever can adequately mimic the complex whistle of the golden oriole, the cooing of the wild pigeon and turtle-dove, the drumming of the woodpeckers—in a word, the wooing song or call-note of any bird—may achieve a similar result. When a second suitor appears on the scene he announces his arrival by calling or singing. But he soon proceeds to action; and thenceforward there rages between him and his rival a strife as violent as those already described. In mad fury, calling, screaming, and screeching, one chases the other hither and thither, high in mid-air or in lower strata of the atmosphere, between tree-tops or among the bushes,

and just as in the pursuit of the female, so in this chase one male provokes the other to passionate rage by challenging calls, and even by song, by displaying his decorations, and by other mocking behaviour. If the pursuer succeeds in catching his flying foe, he pecks him so hard with his bill that the feathers fly about; if he lets him go, the pursued one turns in a trice and renews the attack; if neither gives way they maul one another thoroughly, whether they are in the air, among the branches, or on the ground. Among them, too, the struggle is finally abandoned only when the female declares for one or other of the combatants.



Fig. 41.—Cock Chaffinches Fighting.

Ground-birds always fight on the ground, swimming-birds only in the water. How obstinately the gallinaceous birds may do battle is known to everyone who has watched two cocks fighting. Their duels, too, are a matter of life and death, though a fatal result does not often take place except when the natural weapons have been sharpened and the means of protection weakened by man's cruel interference. Rival ostriches fight with their strong legs, and, striking forwards, tear deep wounds with their sharp toe-nails in the breast, body, and legs of their opponent. Jealous bustards, after spending a long time challenging each other with throat inflated, wings and tail outspread, and much grumbling and hissing, make use of their bills with very considerable effect. Sandpipers and other shore-birds, particularly the fighting ruffs, which fight about everything, about a mate or about a fly, about sun and light, or about their standing-ground, run against each other with bills like poised lances, and receive the thrusts among their breast-feathers, which in the case of the ruffs are developed into what serves as a shield. Coots rush at each other on an unsteady surface of water-plants, and strike each other with their legs. Swans, geese, and ducks chase each other till one of the combatants succeeds in seizing the other by the head and holding him under water, till he is in danger of suffocating, or at least until he is so much exhausted that he is unable to continue the struggle. Swans, like spur-winged birds, seem also to use the hard, sharp, thorn-like horny quills at the angle of the wing to give effective strokes.

As long as the female has not decided for either of the combatants, she takes no part in such struggles,

does not appear even to be interested, though she must observe them closely, as she usually declares for the winner, or at least accepts his suit. How her decision or declaration is actually brought about I cannot say, I cannot even guess. While the battles described are in progress she makes her choice, and from thenceforward she gives herself unreservedly to the favoured male, follows him wherever he goes, accepts his demonstrations of affection with obvious pleasure, and returns his caresses with the most self-forgetting tenderness. She calls longingly after him, greets him joyously, and submits unresistingly to his desires and fondlings. Parrot pairs sit with their bodies closely pressed together, though hundreds may have settled on the same tree; the most complete unison is observable in all their doings; they are as if guided by one will. Does the husband take food, the wife takes it too; does he seek a new perch, she follows him; does he utter a cry, she joins her voice to his. Caressingly they nestle in each other's plumage, and the passive female willingly offers head and neck to the eager male, thus to receive proofs of his tenderness. Every other female bird receives the caresses of her mate with similar, if somewhat less obvious devotion. She knows neither moods nor vexatious humours, neither sulking nor anger, neither scolding nor upbraiding, neither displeasure nor discontent—nothing but love, tenderness, and devotion, while the male thinks of nothing but his happiness in his newly-acquired treasure, and has no desire but to retain it. While he sometimes arranges or decides for her, he yields to the wishes of his mate; when she rises, he, too, leaves his perch; when she wanders abroad, he follows her; when she returns, he also comes back to the home of his youth. Little wonder that the

wedlock of birds is happy and blameless. If the birds united for life grow old themselves, their love does not grow old with them, but remains ever young; and every spring-time fresh oil is poured upon the flame; their mutual tenderness does not diminish during the longest wedded life. Both mates faithfully take their share of the domestic cares at the time of nest-building, hatching the eggs, and bringing up the young. The male devotedly assists the female in all the labours required by their brood; he defends her courageously, and will unhesitatingly rush into obvious danger, even to death, to rescue her. In a word, from the beginning of their union they share each other's joys and sorrows, and, except in unusual circumstances, this intimate bond lasts throughout life. There is no lack of direct evidence in proof of this. Keen-eyed naturalists, who have observed certain birds for many successive years, and have at length come to know them so well that they could not confuse them with others of the same species, have given us their guarantee for the birds' devotion, and all of us who have given special attention to the birds which have come under our notice must be led to the same conclusion. A pair of storks on the roof of a house give the owner so many opportunities for observing them and distinguishing them from other storks that error is almost out of the question; and whoever watches his storks will find that the same pair occupy the nest every year as long as both live. And every naturalist or sportsman, who carefully notes wandering bird-pairs, or shoots them if the differences of sex are not readily distinguishable, will find that they are really male and female. In the course of my travels in Africa I often saw pairs of migrating birds which there, too, lived in the close fellowship so characteristic of bird-wedlock, and

were as inseparable as in the thicket at home, doing all and enduring all in common. Pairs of booted eagles were easily recognizable as mates even when they travelled or took shelter in company with others of their species; the whistling swans which I saw on the Menzaleh Lake in Egypt appeared in pairs and flew away again in pairs; all the other united pairs which I observed on my way illustrated the same habit. That they share misfortunes as well as pleasures together, I learned from a pair of storks I observed on a pool in South Nubia, to whom my attention was attracted because they were there at a time long after all others of their species had sought a refuge in the interior of Africa. To discover the cause of this prolonged stay I had them shot, and I found that the female had a broken wing which prevented her travelling farther, and that the male, himself thoroughly sound, had remained, for love of her, in a region where all the conditions of comfortable wintering were awanting. The close and faithful bond between pairing birds is severed only by death.

This is the rule, but it is subject to exceptions. Even among monogamous birds unfaithfulness occurs sometimes, though rarely. Firmly as the females are wont to keep faith with their mates, and little as they are inclined to cast furtive glances at other males, or even to accept them as friends when they obtrude themselves, the specially brilliant gifts of some stranger may exercise a seductive influence. A master-singer who far surpasses the husband in song, an eagle who excels in all or at least in many respects the one selected by a female, may seriously disturb the happiness of a nightingale or eagle marriage, may perhaps even entice the female away from her rightful spouse. This is evidenced by the

bachelors who fly about before and during the brooding-time, intruding audaciously into the domain of a wedded pair and boldly sueing for the favour of the female, and by the jealous fights which begin at once between the lawful husband and the intruder, and which are usually fought out without the aid of the female. The conduct of a suddenly widowed female, who not only immediately consoles herself by pairing again, but sometimes even accepts the assassin of her first mate, points, at least to a certain extent, in the same direction. On the roof of the manor of Ebensee, near Erfürt, there brooded for years a pair of storks who, though they lived in complete harmony, were never without contests, suffering perpetually from the intrusion of strangers, who attempted to get possession of nest and female. One spring there came upon the scene a male who far surpassed all previous suitors in assertiveness and persistence, and forced the paterfamilias to be always fighting, or at least to be constantly on the watch. One day, wearied with his struggles, he sat upon the nest apparently asleep, with his head under his wing, when suddenly the intruder swooped down upon him, transfixed him with his bill, and hurled him lifeless from the roof. And the widow? She did not drive the infamous assassin from her, but unhesitatingly allowed him to fill his victim's place, and went on with her brooding as if nothing had happened.

This and the facts already mentioned are not to the credit of the females, but I should like to emphasize that they are so much outweighed by the evidence on the other side, that they must be considered as exceptions which prove the rule. And if the females should be judged apparently or actually guilty, it must not be forgotten that the males, with far more

reason to be faithful than the less numerous females, sometimes forget their conjugal ties. Whoever thoroughly knows pigeons, which are erroneously regarded as the type of all conceivable virtues, is aware that they are far from deserving the reputation which has been handed down in the legends of the ancients. Their tenderness is captivating, but it is not constant; their faithfulness to wife and children is extolled, but it does not stand a test. Quite apart from their unfatherliness, the male pigeons are only too often guilty of transgressions against the inviolable laws of marriage, and not seldom employ the time in which their mates are brooding in dallying with other females. Drakes are even more blamable, and the male red-legged partridges are no better. As soon as the ducks have settled down to brood, the drakes assemble and pass the time together as best they can, leaving their mates to toil, and worry, and undertake all the cares for the coming generation, and only returning to the ducks, perhaps not to their own mates, when the young have grown big and self-reliant and no longer need their help. But the red-legged partridges, and probably our partridges also, during the pairing-time, put in an appearance wherever another cock announces himself in order to fight a round with him, and they are often allured and killed by the Spaniards, with the help of tame cocks of their own species. Later, however, when brooding has begun and they have no longer any inclination to fight, they respond to the call of the hens, if possible, more readily than before.

But, as has been said, such cases form exceptions to the rule, and cannot be compared in any way with what occurs among polygamous birds. Many have tried in vain to explain the polygamy of cowbirds,

cuckoos, pheasants, woodcocks, turkeys, quails, peacocks, and ruffs, but as yet no satisfactory explanation has been offered. To say that the cuckoo and its nearest relations do not brood nor live in wedlock and rear their own offspring because they must always be ready to direct their flight towards a caterpillar horde, wherever that may appear, is to talk at large, not to explain—for the cowbirds, too, intrust their brood to the care of foster-parents; and with regard to the supposition that polygamy, occurring among a few exceptionally persecuted species of fowl, is a provision of Nature for securing to these a numerous progeny, it is difficult to see why that end might not have been attained in the same way as among other fowls, which, though monogamous, are not less prolific.[64]

While employing the expression polygamy, I am quite aware that it is usual to speak of plurality of wives among birds. Such a state is unknown to me, and its existence, to my knowledge, is not corroborated by any observations of indisputable accuracy. For the passion is mutual, and the longing of the females is as boundless as that of the males. The female cuckoo mates with one male to-day and another to-morrow, may indeed bestow her affections on several in the course of an hour, and the hen yields herself to one cock as readily as to another. It is simply out of the question to talk of mating among them at all. The males only concern themselves temporarily about the females, and the females about the males; each sex goes its own way, even separating entirely from the other, and taking no interest in its lot beyond the limits of the pairing-time. Boundless desire, and consequently excessive jealousy, imperious demands submissively acceded to, mad wooing readily accepted, and thereafter

complete indifference towards each other, are the main characteristics of the intercourse between the sexes of these birds. These explain, too, the fact that among them much oftener than among other birds crossing takes place, and mongrels or hybrids are produced, which lead a miserable existence, and either pine away without progeny, or, by mating with the true offspring of the race, lead back to the type again. Cross-pairing does indeed occur among other, that is monogamous, birds, but only when the absence of a mate of their own species impels them to seek one of another; whereas among polygamous birds chance and tempting opportunity seem as determinative as such a dilemma.

It may be necessity, the absolute necessity of providing for the brood just hatched or still slumbering within the egg, which compels the female of monogamous birds to change her widowhood for a new alliance more quickly than the male can console himself for the loss of his wife. Whether her grief is really less than the widower's may be doubted, emphatically against her though appearances are. Other female birds act exactly like the stork on the Ebensee. A pair of magpies brooding in our garden were to be killed because we feared for the safety of the numerous singing-birds which we protected and encouraged in the same garden. At seven o'clock in the morning the male bird was shot, and barely two hours later the female had taken another mate; in an hour he too fell a victim; at eleven o'clock the female had contracted a third alliance. The same thing would have occurred again, but that the alarmed female, with her last-annexed mate, flew away from the garden. One spring my father shot a cock partridge; the hen flew up, but soon alighted and was immediately wooed by another cock, whom she

accepted without more ado. Tchusi-Schmidthofen took away no fewer than twenty males from the nest of a black redstart within eight days, and only then left the twenty-times widowed and just as often consoled bird to the undisturbed enjoyment of her connubial bliss.

Exactly the opposite of such apparent inconstancy is seen in the case of a male bird that has lost his mate. Screaming loudly, complaining piteously, demonstrating his grief by voice and actions, he flies about the corpse of his loved one, touches it perhaps with his bill as though he would move it to rise and fly away with him, raises anew his heart-rending cries, which are intelligible even to man; wanders within his range from place to place, pausing awhile, calling, coaxing, and complaining, now in one favourite spot, now in another; neglects to take food, throws himself angrily on other males of his species as if he envied them their happiness and would make them share his own misfortune; finds no rest anywhere, begins without finishing, and acts without knowing what he does. So he goes on for days, perhaps weeks, in succession, and often he remains as long as possible on the scene of his misfortune, without making any expeditions in search of a fresh mate.[65] Certain species, by no means only those parrots so appropriately named “inseparables”, but finches and others, even horned owls, after such a severe blow lose all joy in life, mourn quietly, and literally pine away until released by death.

One of the chief causes, if not the sole cause, of such deep grief may be the great difficulty, sometimes the impossibility, of finding and winning another mate. The female has often no time for grief, for, sooner or later, sometimes immediately, new suitors appear

and so overwhelm her with attention and tenderness that she must let herself be consoled whether she will or not. And if, in addition, anxiety about her brood fills her motherly heart, all other thoughts give place to that, and no room is left for enduring grief. But if she, too, has a difficulty in replacing her loss, she expresses her sorrow no less distinctly than the male. But sometimes she does even more, for she may voluntarily forego a new alliance. A sparrow widow, carefully observed by my father, though she had eggs to hatch, and, later, young ones to rear, accepted none of her suitors but remained unmated, and fed her clamouring brood alone with indescribable toil. Another touching incident proving the grief of widowed birds is vouched for by Eugen von Homeyer. The wedded bliss of a pair of storks, nesting on the roof of that experienced naturalist's house, was brought to a sudden end by one of those detestable bird-shooters or would-be sportsmen who killed the male. The sorrowing widow fulfilled her maternal duties without choosing another mate, and migrated in autumn to Africa with her brood and others of her species. The following spring she reappeared on the old nest, unmated as she had left. She was much wooed, but drove all suitors away with vicious digs of her bill; she mended her nest busily, but only to preserve her right to occupy it. In autumn she migrated with the rest, returning in spring, and proceeding as before. This occurred eleven years in succession. In the twelfth, another pair attempted to take forcible possession of her nest; she fought bravely for her property, but did not attempt to secure it by taking another mate. The nest was seized, and she remained single. The interlopers retained and made use of the nest, and the rightful owner was seen no more, but, as afterwards

transpired, she passed the whole summer alone in a district about ten miles distant. Scarcely had the other storks departed, when she returned to her nest, spent a few days in it, and then set out on her journey. She was known throughout the whole district as “the solitary”, and her misfortune and behaviour won for her the friendly sympathy of all kind-hearted men.

And such behaviour is only the movement of a machine obedient to some external guiding force? All these expressions of a warm and living emotion which we have depicted occur without consciousness? Believe that who can, maintain it who will. We believe and maintain the opposite; the conscious happiness of the love and wedded life of birds appears to us worthy of our envy.

APES AND MONKEYS.

Sheikh Kemal el Din Demiri, a learned Arab, who died at Damascus about the year 1405, according to our reckoning, relates in his book, *Heiat el Heivan*; or, *The Life of Animals*, the following wonderful story, which is based on one of the Prophet's utterances:—

> "Long before Mohammed, the Prophet and Messenger of God the All-merciful, had kindled the light of Faith, before Issa or Jesus of Nazareth had lived and taught, the town Aila, on the Red Sea, was inhabited by a numerous population who professed the Jewish faith. But they were sinners and unrighteous in the eyes of the Lord, for they desecrated continually the sacred day of the All-merciful, the Sabbath. In vain did pious and wise men warn the sinful inhabitants of the godless city; they disregarded the command of the Almighty as before. Then those who had warned them forsook the unholy place, shook the dust off their feet, and resolved to serve Elohim elsewhere. But, after three days had passed, the longing for home and friends drove them back to Aila. There a wonderful sight met their gaze. The gates of the town were shut, but the battlements of the walls were unguarded, so that they were not hindered from climbing over them. But the streets and market-place of the unhappy town were deserted. Where formerly the restless sea of human life had

> surged and swelled, where buyers and sellers, priests and officials, artisans and fishermen, had mingled in a motley throng, gigantic baboons now sat and crouched, ran and climbed; and from the windows and recesses, the terraces and roofs, where dark-eyed women had tarried, she-baboons now looked down upon the streets. And all the giant monkeys and their comely mates were sad and downcast, and they gazed with troubled eyes on the returned pilgrims, pressing closely to them with complaining moans and prayerful cries. With surprise and sadness the pious pilgrims gazed upon the strange sight, until to one of them came the comfortless thought that these might be their former relatives degraded to monkeys. To make certain, the wise man went straight to his own house. In the door of it, likewise, there sat a baboon; but this one, when he saw the righteous man, cast his eyes with pain and shame to the ground. 'Tell me, by Allah the All-merciful, O Baboon,' said the wise man, 'art thou my son-in-law Ibrahim?' And sadly the baboon answered, 'Eva, Eva' (I am). Then all doubt vanished from the mind of the pious man, and he recognized that, by God's heavy judgment, the impious Sabbath-breakers had been transformed into 'monkeys'."

Sheikh Kemal el Din does not indeed venture to call this miracle in question, but as a thinking man he cannot refrain from expressing the opinion that perhaps the baboons may have existed before there were any Jews.

We, for our part, prettily imagined and related as the story is, accept this interpretation the more readily, that the apes with which the pious zealots of Aila may have had to do are old acquaintances of ours. For in Arabia there occur only the Hamadryas or sacred baboons; and we find the same excellently depicted on very ancient Egyptian monuments. It was the arrangement of their hair which appeared to the ancient Egyptians so remarkable that they chose it as a model for their sphinxes; while to this day it serves as a pattern for the coiffure of the dusky beauties of the Eastern Soudan. The sacred baboon holds a very important place in ancient Egyptian theology, as we learn, among other things, from Horapollon, interpreter of hieroglyphs. According to him the monkey was kept in the temples and embalmed after death. He was considered the inventor of writing, and was therefore not only sacred to Thoth or Mercury, the founder of all science, but a near relative of the Egyptian priests, and, on his ceremonious entrance into the sanctuary, he was subjected to an examination, in which the priest thrust a writing tablet, ink, and pen into his hand, and called upon him to write, that they might see whether he were worthy to be received or not. It was also maintained that he stood in secret relations with the moon, and that the latter exercised an extraordinary influence over him; and, finally, he was credited with the faculty of dividing time in so obvious a manner, that Trismegistus took his actions as the model after which he constructed his water-clock, which, like the monkey, divided day and night into twelve equal parts.

It is worthy of note that, while the ancient Egyptians regarded a relationship with the monkeys as probable, they did not deem it possible that they

should be descended from a monkey stock. Such a view of the degree of relationship between man and monkey is first met with among the Indians. From very ancient times until the present day there has prevailed among them a belief that at least a few royal families are descended from one of the sacred monkeys, the Hanumân or Entellus, which, in India, is held as sacred, in a certain sense even as divine, and that the souls of departed kings return to the bodies of these monkeys. One of the reigning families, in particular, shows its pride in this descent through its adopted title of honour—"tailed Rana". [66]

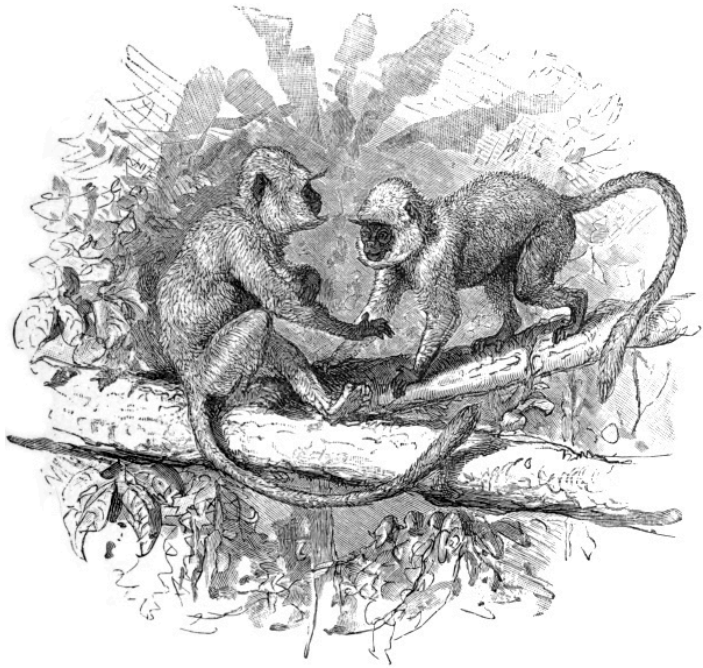


Fig. 42.—Entellus Monkeys (*Semnopithecus Entellus*).

Similar views to those prevailing among the Indians have come into vogue among ourselves in recent times, and the monkey question, which I should like

to discuss shortly, yet so as to be generally understood, has raised much dust. A scientific question, of little general interest to the laity, has not only fanned pious anger to blazing flames, but has divided serious naturalists into two different parties who defend their respective positions with excited warmth. Circles, altogether alien to scientific investigation, have taken up the strife, without knowing or suspecting its real import and bearing, have even carried it into realms where it could only be productive of mischief, and have thereby caused a confusion which will not readily be cleared up. To discuss monkeys at all has therefore become a bold undertaking, for, in speaking of them, one runs a risk either of degrading the reputed ancestor, or, through him, of offending the supposed descendants—to say nothing of the inevitable abuse of the most pitiable kind which ill-mannered fanatics, blindly struggling against the spirit of the age, hurl at him who ventures to utter the word monkey. Nevertheless, the monkey question will not readily disappear from the order of the day; for these animals, so evidently our nearest relatives in the animal kingdom, are much too deserving of our sympathy, to allow of our being deterred by sentimental considerations from investigating their life and habits and comparing them with our own, that we may so enlarge our knowledge at once of monkeys and of men.

The following is a contribution to such knowledge:-

A general life-picture such as I wish to sketch is not easily condensed into few words, since the different species of monkeys vary so widely. There are about four hundred, or, at any rate, considerably more than three hundred species, and they inhabit every part of the world with the single exception of Australia; but

they are found chiefly in the countries within the tropics. In America their range extends from twenty-eight degrees of southern latitude to the Caribbean Sea; in Africa it stretches from thirty-five degrees southern latitude to the Straits of Gibraltar; in Europe their occurrence is limited to the Rock of Gibraltar, where, from time immemorial, a troop of about twenty magots or Barbary macaques have existed, and are now protected and preserved by the garrison of the Fort.[67] Forests and rocky mountains, which they ascend to a height of more than 8000 feet, are their favourite habitats. In such places they remain, with the exception of a few species, year in year out, giving heed to the rotation of the seasons only to the extent of undertaking more or less extensive expeditions through the forest in search of ripening fruits, or ascending the mountains at the beginning of the warm season, and descending again before cold weather sets in; for, though they may be met with even in snow-covered regions, they are as fond of warmth as they are of abundant and varied diet. Something to bite and crack there must be if they are to remain permanently or for any length of time in a place; failing that, they shift their quarters. Woods in the neighbourhood of human settlements are to them a paradise; the forbidden tree therein troubles them not at all. Maize and sugar-cane fields, orchards, banana, plantain, and melon plantations they regard as their rightful and peculiar feeding-grounds, and districts where they are protected by the piety of the inhabitants they also consider very agreeable places of abode.

All monkeys, with perhaps the exception of the so-called anthropoid apes, live in bands of considerable strength under the leadership of an old male. The occupant of this post of dignity rises to it by

recognized all-round ability; the strongest arms and longest teeth decide the matter. While among those mammals which are led by a female member of the herd the rest obey willingly, the monkey-leader is an absolute despot of the worst type, who compels his subjects to unconditional obedience. If anyone refuses submission, he is brought to a sense of his duty by bites, pinchings, and blows. The monkey-leader requires the most slavish submission from all the monkeys of his herd, females as well as males. He shows no chivalry towards the weaker sex—"In Sturm erringt er der Minne Sold".

His discipline is strict, his will unbending. No young monkey dare presume to make love to one of the females of his herd; no female may venture to show favour to any male except himself. He rules despotically over his harem, and his seed, like that of Abraham, Isaac, and Jacob, is like the sand of the sea-shore for multitude. If the herd becomes too large, a troop separates itself, under the leadership of a full-grown male, to form a new community. Till then the leader is obeyed by all, and is as much honoured as feared. Old experienced mothers, as well as young scarcely grown-up females, strive to flatter him; exerting themselves especially to show him continually that highest favour one monkey can render to another—cleansing his hairy coat from all things not appertaining thereto. He, on his part, accepts such homage with the demeanour of a pasha whose favourite slave tickles his feet. The esteem which he has been able to evoke gives him confidence and dignity of bearing; the battles in which he has constantly to take part give him watchfulness, courage, and self-control; the necessity of maintaining his authority develops circumspection, astuteness, and cunning. These

qualities are certainly used in the first place for his own advantage, but the rest of the community also benefit by them, and his unchallenged supremacy thus receives some justification and stability. Ruled and guided by him, the herd, though violent storms may rage within it, leads on the whole a very secure, and therefore a comfortable life.

All monkeys, except the few nocturnal species, are active by day and rest at night. Some time after sunrise they awake from sleep. Their first business is to sun and clean themselves. If the night is cold and inhospitable, they attempt to improve their comfortless couch by thronging together in a heap, or rather a cluster; but are still so cold in the morning that a long sun-bath seems absolutely necessary. As soon as the dew is dry, they leave their sleeping-places, climb to the tree-top or to the highest point of the rock, select a sunny seat, and leisurely turn themselves about on it till every part of their bodies has been exposed to the sun. When the fur is dried and thoroughly warm it is ready for cleaning, and each monkey sets to work eagerly and carefully, or requests and receives from one of his fellows the service which he, in his turn, is always ready to do to others.

When the fur has been cleaned, and, if necessary, brushed into sleekness, the monkeys begin to think of breakfast. This presents no difficulty, for they refuse nothing that is edible, and a tax is levied on the animal and the vegetable kingdom alike. Forest and mountainous districts afford fruits, leaf and flower buds, birds' nests with eggs or young, snails and grubs; gardens yield fruit and vegetables, fields supply cereals and pulses. Here a ripening ear is broken off, there a juicy fruit is gathered, in the tree

a bird's nest is plundered, on the ground a stone is turned over, in a settlement a garden is stripped or a field robbed, and something is carried away from all. If he has time, every single monkey destroys ten times as much as he eats, and can therefore very materially damage the produce of the farmer, gardener, or fruit-grower. At the beginning of an expedition each monkey, in his anxiety to secure himself a meal whatever may happen, devours almost indiscriminately whatever he can reach; then, if he possesses cheek-pouches, he stuffs these as full as possible; but as soon as his most pressing necessities are relieved, he selects and criticises every bite, carefully examining and smelling every fruit he plucks, every ear he breaks, before eating it, and indeed in most cases simply throwing one thing after another carelessly away to seize something different, which as often as not is rejected in its turn. "We sow, and the monkeys reap," the inhabitants of the Eastern Soudan complained to me, and with justice. Against thieves like these, neither fence nor wall, lock nor bolt, are sufficient protection; they climb the first, and open the last; and what they cannot eat they carry away. It is at once amusing and painful to watch them feeding, for then, as at all times, their behaviour is a mixture of boldness and artfulness, bravado and cunning, love of enjoyment and caution, and indeed also of trickery and spitefulness, impudence and malevolence. All their skill and dexterity is brought into play when an undertaking seems dangerous. They run, climb, leap, if need be even swim to overcome obstacles; but in no case do they forget their care for their individual safety. The commander always leads the way, and coaxes, calls, chides, warns, cries, scolds, and punishes as seems to him good; the herd follows and

obeys, but without ever entirely trusting him. In danger every member of the herd looks out for its own safety, rejoining the leader after that is assured; the mothers with a young one at their breasts, or on their backs, are an exception, for they are, or seem to be, less concerned about their own safety than that of their child.

When their expeditions are not attended with danger they often rest, and give the young ones opportunity to amuse themselves together; but when there is any danger they finish their expedition and then enjoy a period of rest and relaxation, during which they often indulge in a siesta to help their digestion. In the afternoon they set out on another foraging expedition; towards sundown they repair to their usual sleeping-place, which is as far as possible out of the reach of beasts of prey, and, after prolonged wrangling and disputing, scolding and brawling, they seek their well-earned rest.

Apart from occasional compulsory or apparently profitable migrations, the order of the day above described suffers little change. Reproduction, which brings about such marked changes in the lives of other animals, has very little influence on that of the monkeys, for it is limited to no special time, and the mothers carry their young ones with them wherever they go. The young ones, of which most species produce only one at a birth, come into the world as well-developed creatures, with open eyes, but according to our ideas they are extremely ugly, and, notwithstanding their comparatively advanced development, very helpless creatures.[68] They appear ugly because their wrinkled faces and wide open, lively eyes give them the expression of an old man, and their short hair makes their long fore limbs

look longer than they really are; they show themselves helpless in that they can make no use of these limbs except to attach themselves to their mother's breast. Here they hang, with arms and hands round her neck, legs and feet round her hips, without seeming to move anything but their heads for weeks together, and the mother is therefore able, without being appreciably burdened, to go about her ordinary affairs, and wanders as usual along the most breakneck paths, or indulges in the boldest leaps. After some time, rarely within a month, the little ones begin to attempt some movements, but perform them so awkwardly that they excite pity rather than laughter. Perhaps because of this very helplessness, the little monsters are watched and handled by their mothers with such tenderness that the expression "monkey-love" is fully justified. Every monkey mother finds constant occupation in looking after her baby. Now she licks it, now cleans its coat, now lays it to her breast, now holds it in both hands as if she wished to feast her eyes on it, and now she rocks it as if to lull it to sleep. If she sees that she is watched she turns away, as if she grudged anyone else a sight of her darling. When it is older and able to move about it is sometimes allowed to leave its mother's breast for a little, and to play with others like itself, but it remains meanwhile under strict control, and, if it does not obey instantly, is punished with slaps and pinches. The maternal care extends even to the food. Greedy as the mother generally is, she divides every bite with her young one, yet she does not allow it to hurt itself by too hasty or immoderate eating, but interferes, in such a case, with motherly prudence. But there is rarely any necessity for such interference or for severe punishment, for the monkey-child is obedient enough to be held up as an example to

many a human one. Very touching is the conduct of the mother when her little one is obviously suffering; if it dies she is in despair. For hours, even days, she carries the little corpse about with her, refuses all nourishment, sits indifferently in the same spot, and often literally pines to death.[69] The young monkey itself is incapable of such deep grief, and it is also better taken care of than most other animals if it loses its mother. For the next best member of the band, whether male or female, possessed by that love of mothering something, which is strong in all monkeys, takes charge of the little orphan and caresses it warmly. Unfortunately, however, the foster-parent is often at war with its better self about its beloved food, and it may leave a young one, not old enough to help itself, to pine with hunger, perhaps even to die of starvation.

It is difficult, if not impossible, to say anything of general application about the talents of monkeys, because these vary as widely as the animals themselves. Some traits are indeed common to all, but most of their characteristics vary considerably in the different species. A disposition which in one is scarcely observable is pronounced in another, a trait which is prominent here is sought for in vain there. But if we compare the different families, groups, and species together, we shall observe a surprising, because unsuspected gradation of talents and abilities. It is instructive to proceed in this way.



Fig. 43.—Common Marmoset or Ouistiti (*Hapale Jacchus*).

We must regard the graceful, little, clawed monkeys or marmosets of South and Central America as the least developed members of the monkey order. They have the same dentition as the higher monkeys, but they have flat nails only on the large toe, while on all the other toes and the fingers they have narrow claw-like nails, which place their hands and feet, or the former at any rate, on the level of paws. These outward features correspond to their mental

endowments. Monkeyhood, we may say, has not reached its full development in the family of marmosets. Not only in form and colour, but in their carriage, in their whole character and behaviour, even in their voice, they remind us of the rodents. They seldom sit upright, and at the best are rather like squirrels than like other monkeys; they prefer to stand on all-fours with the body horizontal; they do not climb easily and freely, with hands and feet clasping the branch, like others of their order, but, sticking their claws into it, they press close to it and glide along, not of course slowly or unskilfully, but rather as rodents than as monkeys. Their voice, too, is quite different from that of all the higher monkeys; it is a whistling in high notes which now reminds one of the chirping of a bird, now of the squeaking of rats and mice, but perhaps most of all of the sound made by the guinea-pig. Their behaviour generally is decidedly rodent-like. They exhibit the uneasiness and restlessness, the curiosity, shyness, and timidity, the inconstancy of squirrels. Their little heads only remain a few seconds in one position, and their dark eyes are directed now towards this object now towards that, but always hastily, and obviously without comprehension, although they seem to look out on the world intelligently enough. Every action they perform shows their slight power of judgment. As if without will, they act on the suggestion of the moment; they forget what they have just been doing as soon as their attention is diverted, and they prove just as fickle in the expression of their contentment as of their displeasure. At one moment they are good-humoured, apparently quite satisfied with their lot, perhaps grateful for caresses from a friendly hand, the next they are snarling at their keeper just as if their lives were in danger, showing their teeth,

and trying to bite. As irritable and excitable as all monkeys and rodents, they yet lack the individuality which every higher monkey exhibits, for one acts exactly like another, without originality and always in a somewhat commonplace fashion. They have all the attributes of cowards—the complaining voice, the reluctance to adapt themselves to the inevitable, the whining acceptance of all circumstances, the morbidly suspicious habit of finding in every action of another creature some hostility to themselves, the desire to swagger while in reality they carefully keep out of the way of every real or supposed danger, and an incapacity either to make resolutions or to carry them out. Just because there is so little of the true monkey about them they are preferred by women and despised by men.

On a decidedly higher level stand the Broad-nosed or New-World monkeys, which also inhabit America, though even in these, the full character of the true monkey is not attained. The dentition numbers a molar more on each side of the jaws than in the higher apes, thus there are thirty-six teeth instead of thirty-two; all the fingers and toes have flat nails; the body seems more slender than it is, because the limbs are very long; the tail is used, in many cases, as a powerful grasping-organ. The one-sidedness of their development is very characteristic. Exclusively arboreal like the marmosets, they are awkward, even clumsy when away from the branches of the trees. On the ground their gait is extremely ungainly, uncertain, and tottering, particularly in those species which have a prehensile tail, but even their climbing does not come at all near that of the Old-World monkeys. For increase of the number of organs of locomotion does not necessarily result in increased power, still less in greater variety of movement; on

the contrary, it often means one-sidedness, and it certainly does so in the case of the New-World monkeys. Their prehensile tail is not to them a fifth, but a first hand, used in hanging or fixing the body, in lifting things or dragging them along, and so on; but it does not make their movements more rapid or free, it adds to safety but not to agility. Thanks to the constant use of the tail, its owner never runs a risk of falling from the lofty branches—safe because high—to the dangerous ground beneath, but neither is he able to make any free or daring movement. Slowly he sends his prehensile tail in advance of every step, always catching hold with it first, and only then letting go with hands or feet. Thus he binds himself to the branch rather than climbs upon it, and never thinks of attempting a leap whose success is in the least doubtful. In this constant carefulness for his own precious person the broad-nosed monkey impresses one not so much with his prudence as with his slowness, and it is noteworthy that the whole character of the New-World monkeys bears this out. Their voice is not quite so monotonous as that of the marmosets, but it is unpleasant, not to say tiresome. It runs through many grades, from a whine to a roar, but it has, invariably, a mournful character, and the whole demeanour of the animal, when it cries, is pessimistic. After a cool, dewy night, the morning sun shines warm and golden through the trees, and a thousand-toned song of joy and greeting leaps forth in welcome from a million throats. The howlers prepare to offer their tribute of praise also. But how? They have climbed to the dry top branches of a giant tree which rises high above its fellows, have fastened themselves securely by their tails, and are warming themselves comfortably in the sunshine. Then a feeling of well-being moves them to raise their

voices. One of them, distinguished, it is said, by a specially high, shrill voice, acts as leader, and, looking fixedly at his companions, begins to chant. The rest look at him with the same motionless vacant stare and join in; and frightfully their song resounds through the forest, now grunting, now howling, now snarling, now rattling, as if all the beasts of the forest were waging deadly warfare. The astounding performance begins with a bellowing solo; these bellowings become louder, follow each other more rapidly as the excitement of the singer—which is probably present though not apparent—increases and spreads to other members of the community; then they change into howling and roaring, and they end as they began. If one looks at the long-bearded, serious singers one can scarcely keep from smiling; but soon the indescribable discords they produce become as wearisome as their monotonous climbing, or rather creeping movements. What one does another imitates, but whatever they may do, howsoever they may act, their behaviour is always monotonous. Very much like these, or not essentially different, are all the monkeys with prehensile tails; though a few prominent members of the family, the Capuchin monkeys for instance, are rather more free and independent. In general, they are as heavy mentally as physically—usually very gentle, good-natured, and confiding, but stupid, peevish, fretful, and some of them obstinate, malicious, and spiteful. They thus stand considerably higher than the marmosets, but far below the Old-World monkeys. Probably it would hardly be doing them injustice to say that they possess the bad qualities without the good qualities of their Old-World cousins. Their gentleness and good-nature—apart from the fact that these are not found in all the species, do not in the

least make up for their general lack of enterprise, boldness, cheerfulness, liveliness, and decision, circumspection and ingenuity—qualities which place the Old-World monkeys so high—while their everlasting whining and complaining counterbalance, in our eyes, all the qualities which might attract us to them.

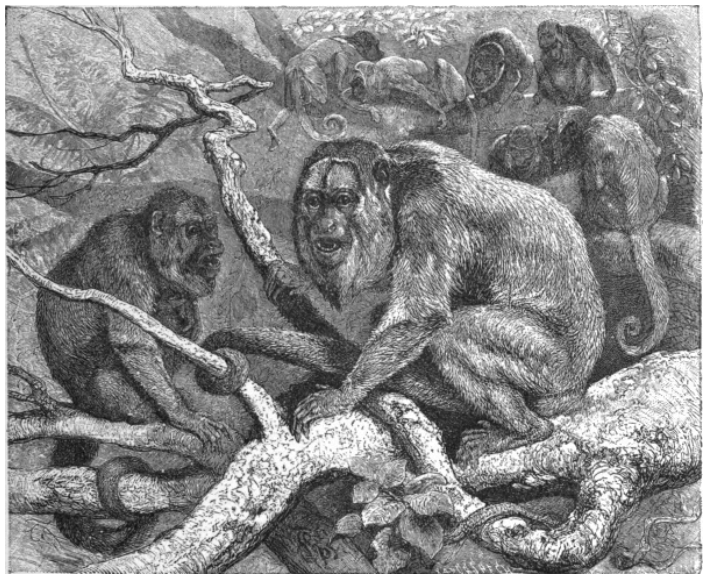


Fig. 44.—Red Howling Monkeys (*Mycetes seniculus*).

The monkeys of the Old World, like those of the New, fall into two groups to which the rank of families may perhaps be granted, although the dentition is essentially alike in both. We call the one type Dog-like, the other Man-like, and we may go the length of saying that the former teach us what monkeyhood really is, while the latter rise above it. For the first group especially, my opening remarks hold good. Among them we find monkeys beautiful and ugly, attractive and repulsive, lively and serious, good-natured and malicious. Really misshapen

monkeys there are none, for we must admit that even those which appear to us ugly are symmetrical in form. Yet some of them are, in many respects, odd-looking creatures. Their chief external characteristics are, the more or less protruding muzzle, reminding one of a dog's, the proportionately short arms, the tail, always present though often shortened to a mere stump, the more or less developed ischial callosities, and the cheek-pouches present in most species. The dentition includes the usual number of thirty-two teeth arranged in an unbroken series. They occur in all three continents of the Old World, and are most numerous in Africa.

Their endowments and characteristics place them far above the marmosets and New-World monkeys. They usually walk very well, though some of them hobble along in a comical fashion; they are able, without difficulty, to stand on their legs alone, thus raising themselves to their full height, and in that position they can walk more or less easily. They climb well under all circumstances, though some do so only among trees, others among the rocks; some of them are also excellent swimmers. The climbing of the arboreal species is almost like flight, if I may so speak—for their skill among the branches surpasses all expectation. Leaps of from eight to ten yards are to them quite possible achievements. From the topmost boughs of a tree they leap to a lower one, which is forcibly bent downwards by the shock, from this at the moment of rebound they give themselves a strong impetus, and, stretching tail and hind-legs out behind them to steer their course, shoot like an arrow through the air. The branch of a tree, even if it be covered with the sharpest thorns, is to them a well-made road, a climbing plant is a path or a ladder according to its position. They climb forwards

or backwards, on the under or upper side of a branch; in leaping or falling they catch a thin twig with one hand, and remain hanging as long as they please in every imaginable position; then they climb leisurely on the branch, and proceed on their way as coolly as if they were on level ground. If the hand misses the desired twig it is caught by the foot; if it breaks under the sudden shock they catch in falling at a second, a third, and if all break they spring to the ground, no matter the distance, and climb up again by the first available trunk or climbing-plant. Compared with the clinging and creeping of their relatives in the New World theirs appears, and really is, a free, unfettered motion which surmounts all obstacles. The former are blunderers, the latter finished artists; the former slaves of the trees, the latter lords of the branches.

Their voice is as highly developed as their power of movement. Theirs is no chirping or whistling, no whining or howling; on the contrary, they utter many different sounds expressing the mood of the moment, and quite intelligible even to us. Comfort or discomfort, desire or satisfaction, good-will or ill-will, love or hate, indifference or anger, joy or pain, confidence or mistrust, attraction or repugnance, affection or dislike, submissiveness or defiance, but above all any sudden emotion, such as fear or horror, find adequate expression, comparatively limited though the voice may be.[70]

What we may call their mental endowments correspond to their physical powers. It may be well to emphasize that the hand, which among them first attains to full development, gives them a considerable advantage over other animals, and makes some of their actions appear more remarkable

than they really are; for instance, it renders them capable of many skilful devices which would be impossible to a dog and to any of those animals which we are wont to reckon among the cleverest of mammals. A high degree of deliberateness must be conceded to them. Their excellent memory treasures up the most various impressions, and their discriminating intelligence makes these a store of experiences, which are turned to good account as opportunity offers. Thus they act with full consciousness of what they are doing, according to circumstances, and not as impotent slaves of a power outside themselves, but with independence, freedom, and variety, cunningly seizing every advantage, and making use of every expedient which they believe will further their end. They distinguish between cause and effect, and attempt to achieve or nullify the latter by applying or removing the former. They not only recognize what benefits or injures them, but they know whether they do right or wrong, judging either from the standard of some loved one, or that of some master.[71] It is not blind chance, but a recognition of what is profitable that regulates and guides their actions, makes them submit to the judgment of the most capable, moves them to live and act together, teaches them to form communities for the weal or woe of the individual, to share joy and sorrow, good fortune and misfortune, safety and danger, plenty and scarcity,—in other words, to form an alliance based on reciprocity—which teaches them to employ powers and means not theirs by inheritance, and, finally, presses into their hands weapons with which Nature did not supply them. Passions of all kinds, it is true, often gain a victory over their circumspection; but these very passions are proof of the liveliness of their sensations, or,

what comes to the same thing, of their mental activity. They are as susceptible as children, as irritable as weak-minded men, and thus very sensitive to every kind of treatment they may receive; to love and dislike, to encouraging praise and chilling blame, to pleasant flattery and wounding ridicule, to caresses and chastisement. Nevertheless they are not so easily managed, still less so easily trained to anything, as a dog or any other clever domestic animal, for they are self-willed in a high degree, and almost as conceited as human beings. They learn without difficulty, but only when they wish to, and by no means always when they ought to, for their self-conceit rebels against any submission which they do not see to be to their own advantage. They are quite aware that they are liable to be punished, and may loudly express their disapprobation of the expected chastisement beforehand, yet still refuse to do what is required of them; while, on the other hand, they will execute it willingly and with the liveliest expressions of understanding, when the task happens to suit their humour. Whoever ventures to doubt their self-esteem has only to watch their way of treating other animals. Unless terrified by their strength and dangerousness, they invariably regard other animals as playthings, whether they tease them and play tricks upon them, or fondle them and load them with caresses.

Some examples, for which I myself can vouch, or which I know to be thoroughly authentic, may strengthen the assertions I have just made.

As I was travelling in Bogosland, on my first ride into the mountains I fell in with a large band of the Hamadryas baboons, referred to by Sheikh Kemal el

Din Demiri in his narrative. Drying their streaming hair in the sunshine, they sat picturesquely grouped on the highest points of a cliff, and, on being greeted with rifle bullets, they beat an organized retreat and fled. Continuing my journey through the narrow, winding, rocky valley of the Mensa, I came upon them some time later, this time in the valley itself, just as they were preparing to ascend the rocky wall of the other side to seek safety from such annoying disturbances. A considerable number had already crossed the valley; the majority were in the act of crossing. Our dogs, beautiful, slender greyhounds, accustomed to fight successfully with hyænas and other beasts of prey, rushed towards the baboons, which, from a distance, looked more like beasts of prey than monkeys, and drove them hastily up the precipices to right and left. But only the females took to flight; the males, on the other hand, turned to face the dogs, growled, beat the ground fiercely with their hands, opened their mouths wide and showed their glittering teeth, and looked at their adversaries so furiously and maliciously that the hounds, usually bold and battle-hardened, shrank back discomfited, and almost timidly sought safety beside us. Before we had succeeded in stirring them up to show fight, the position of the monkeys had changed considerably, and when the dogs charged a second time nearly all the herd were in safety. But one little monkey about half a year old had been left behind. It shrieked loudly as the dogs rushed towards it, but succeeded in gaining the top of a rock before they had arrived. Our dogs placed themselves cleverly, so as to cut off its retreat, and we hoped that we might be able to catch it. But that was not to be. Proudly and with dignity, without hurrying in the least, or paying any heed to us, an old male stepped down

from the security of the rocks towards the hard-pressed little one, walked towards the dogs without betraying the slightest fear, held them in check with glances, gestures, and quite intelligible sounds, slowly climbed the rock, picked up the baby-monkey, and retreated with it, before we could reach the spot, and without the visibly disconcerted dogs making the slightest attempt to prevent him. While the patriarch of the troop performed this brave and self-sacrificing deed, the other members, densely crowded on the cliff, uttered sounds which I had never before heard from baboons. Old and young, males and females, roared, screeched, snarled, and bellowed all together, so that one would have thought they were struggling with leopards or other dangerous beasts. I learned later that this was the monkeys' battle-cry: it was intended obviously to intimidate us and the dogs, possibly also to encourage the brave old giant, who was running into such evident danger before their eyes.[72]



Fig. 45.—Old Baboon Rescuing Young One.

A few days later I learned by experience that these self-reliant animals are a match even for men. On our return from the Bogosland, we fell in with a large herd, possibly the same one, and we opened fire upon them from the valley with seven double rifles.

Our shots had an indescribable effect. The same battle-cry which I had heard before rang out again, and, as if at the command of a general, they prepared for resistance. While the screaming females with the young ones fled in all haste over the crest of the rock beyond range of our guns, the adult males, casting furious glances, beating the ground with their hands, and barking rather than roaring, sprang upon projecting stones and ledges, looked down on the valley for a few moments, continually growling, snarling, or screaming, and then began to roll stones down upon us with so much vigour and adroitness that we immediately saw that our lives were in danger and took to flight. If it had not been possible for us to clamber up the opposite wall of the narrow valley, and so to escape the monkeys' fire, we should have been utterly routed. The clever animals not only conducted their defence on a definite plan, but they acted in co-operation, striving for a common end, and exerting all their united strength to attain it. One of our number saw one monkey drag his stone up a tree that he might hurl it down with more effect; I myself saw two combining their strength to set a heavy stone a-rolling.

No animals but the higher apes adopt such means of defence, and no other male animal runs into danger to rescue a helpless young one of his species. Such traits must not be ignored, and cannot be misinterpreted, for they speak for themselves better and more loudly than all the sophistical analysis which refuses to admit that animals have intelligence and the power of spontaneous action.

That the dog-like monkeys recognize and distinguish between cause and effect can be certified by every unprejudiced observer. They open doors and

windows, drawers, cupboards, and boxes, untie knots, and overcome other obstacles when they have once seen how to set about it; but they also invent means to attain similar ends. A female baboon, which I brought up in my family, got hold of a kitten with the intention of making a pet of it and mothering it, but was scratched by the terrified bundling. The monkey carefully examined the kitten's paws, pressed the claws forward, looked at them from above, from beneath, and from the side, and then bit them off to secure herself against further scratches. My brother and I used to startle the same baboon by pouring a little heap of powder on the ground in front of her, and setting it alight by means of a piece of burning tinder. The sudden blazing up of the powder gave our baboon such a fright every time that she screamed loudly and sprang back as far as her tether would allow. After this trick had been played upon her several times in succession, she protected herself from further annoyance by beating the glowing tinder with her hand till the spark was extinguished, and then eating up the powder. In another case she conjured up fear and horror for herself. Like all monkeys without exception, she regarded creeping things, and above all snakes, with a boundless horror which was most amusing. We often teased her by putting a snake, live, dead, or stuffed, into a broad tin box, which was handed to her closed. After a time she knew the box and its contents perfectly, but her curiosity always mastered her, and she opened it every time, to run away screaming directly afterwards.

Not content with recognizing causes really present, this monkey, when she suffered any annoyance, sought for probable ones. Something or someone must bear the blame of her discomfort. Thus her

anger was directed against the first person who came in sight. If she was chastised, she was not angry with her master and keeper, but with anyone else who was present during her punishment; such a one must have been the cause of the harsh treatment she received from her usually kind master. She had thus exactly the same suspicions as small-minded human beings are apt to have in like circumstances.

Notwithstanding her own extreme sensitiveness to any punishment, even if only threatened, and also to quizzing and teasing, the baboon in question could never refrain from tormenting, annoying, and even ill-treating other animals. Our crabbed old badger-dog was lying comfortably in the sun enjoying his mid-day nap. The baboon saw this, slipped quietly up to him, looked with a sly twinkle of her little eyes into the dog's face to make sure that he was really asleep, then suddenly seized the sleeper's tail and brought him back with a violent pull from dreamland to reality. The dog angrily rushed at the disturber of his peace to avenge the insult. But the monkey escaped the threatened punishment with a single leap over the advancing dog, and in the next instant she had seized the tail and repeated the outrage, obviously enjoying the powerlessness of her furious opponent, until the latter, almost beside himself with anger and excitement, unable even to bark, but gasping and foaming, tucked his tail between his legs and fled, leaving the enemy in possession of the field. If the baboon could have laughed, the parallel between her behaviour and that of a mischievous boy would have been complete. As it was, the scorn and ridicule with which the vanquished dog was overwhelmed were intelligible enough. The baboon herself took teasing very ill, would even become furious if laughed at by an

unprivileged person, and never omitted to take her revenge on the first opportunity, even if that should not occur for weeks. But then she was a monkey, and felt herself such, therefore regarded a dog as a creature of a lower order, her insolence towards which was as pardonable as that of every other creature towards herself was reprehensible and worthy of punishment.

Of this self-esteem, or rather over-esteem, the dog-like monkeys give daily proofs to every careful observer. The baboon in question, like all monkeys, was exceedingly fond of pets, and in particular of a long-tailed monkey which shared her cage, and could be trusted even out of the cage with it, because it was always by the baboon's side as if under a charm. It slept in her arms, and obeyed her slavishly. The baboon expected such obedience and took it as a matter of course; but she demanded the most absolute subjection at meal-times. While the good-natured and obedient long-tailed monkey unresistingly allowed its foster-mother to pick out all the titbits, the latter only left for the little one what was absolutely necessary, and if it did succeed in storing something in its pouches, simply opened these again and appropriated the contents to her own use.

Unbounded as is the arrogance and self-esteem of the dog-like monkeys, they are thoroughly well aware when they have done wrong, that is, have done something deserving of punishment. Schomburgk gives a most instructive example of this. In the Zoological division of the Botanic Gardens at Adelaide an old sacred macaque lived in a cage with two younger members of the same species, over whom, as a matter of course, he ruled despotically.

One day, irritated by something or other, he attacked his keeper and wounded him dangerously by biting through an artery on the wrist. For this Schomburgk condemned him to death, and commissioned another keeper to carry out the sentence by shooting him. The monkeys were quite accustomed to fire-arms, which were often used in the gardens for killing injurious animals, and though they knew their effect they were not disquieted in the least when these were brought into their immediate neighbourhood. The day after the misconduct of the old tyrant the two young monkeys remained quietly at the food-trough on the appearance of the keeper intrusted with the execution of their comrade, but the criminal himself fled with the utmost haste into his sleeping cage, and no amount of coaxing could entice him out of it. An attempt was made to lure him forth by setting down food; but he did what he had never done before, saw his two subjects eat up the dainty fare and did not venture to take part in the meal. Not till the suspected keeper had retired did he venture to creep forth, seize a few crumbs, and retire in fear and trembling to his hiding-place again. At length he was persuaded to come out a second time, and the door of his retreat was closed. When he saw the keeper with his weapon approaching, he knew that he was lost. Frantically he threw himself on the door of his sleeping cage to open it if possible, and not succeeding he rushed through the whole cage examining every corner and space in the hope of finding a means of escape; at last, seeing that there was no possibility of flight, he threw himself despairingly on the ground and surrendered himself, his whole body trembling and shuddering, to the fate which overtook him a moment later.

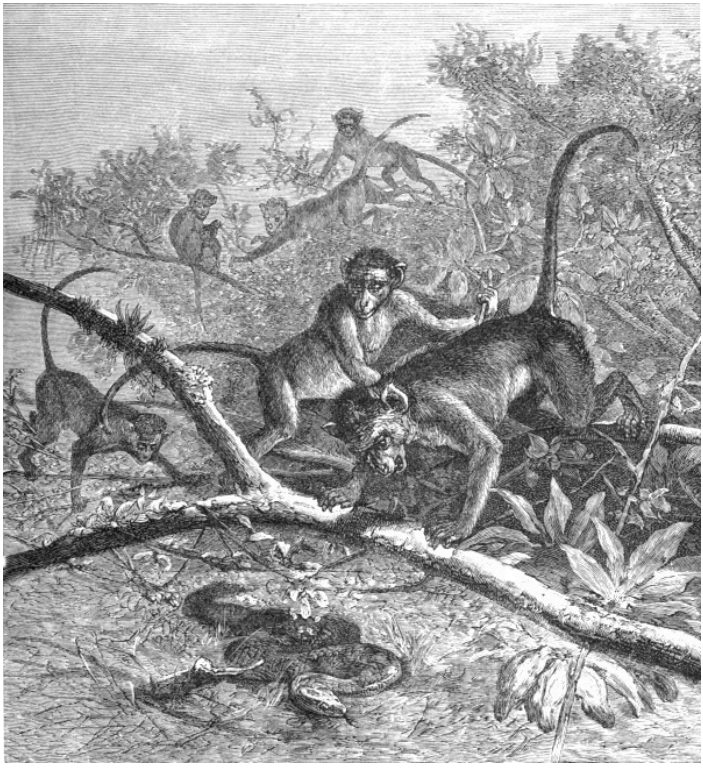


Fig. 46.—Macaque or Bonnet-monkey (*Macacus sinicus*) and Snake.

It must be admitted that no mammal of any other order, not even the dog, who has associated with us, and been educated, and, strictly speaking, formed by us for thousands of years, acts in the manner described, or exhibits such a high degree of intelligence. And yet a wide gulf lies between the dog-like monkeys and the anthropoid apes, of which I have said that they rise even above the average of monkeyhood.

By the anthropoid apes we understand those which in their structure most resemble man, but are externally distinguished from him by the very

prominent canine teeth, the relatively long arms and short legs, the structure of the hand, the ischial callosities present in some species, and the hairy covering of the body. They inhabit the tropical countries of Asia and Africa (the former being richer in species), and they are divided into three families, of which one is confined to Africa. Each of these families embraces only a few species, but probably we do not know nearly all of them as yet.

The structure of the anthropoid apes points to an arboreal life; they are most excellent climbers, though by no means slaves to the tree any more than the langurs, long-tailed monkeys, and macaques. Their movements, however, both among the branches and on the ground, are quite different from those of all other monkeys. In climbing up a tree, particularly a smooth trunk without branches, they take the same position as a man would do, but, thanks to their long arms and short legs, they make much more rapid progress than the most expert human climber; and when they have reached the branches they put every gymnast to shame by the variety and security of their movements. With outstretched arms they seize one branch, with the feet they clasp a parallel one, about half their height lower down, and, using the upper branch as a rail, they walk along the lower one so quickly, though without the least sign of effort, that a man walking underneath must exert himself vigorously to keep pace with them. On reaching the end of the branch, they seize any available bough or twig of the next tree and proceed on their way in the same manner, with undiminished speed, yet without hurry. In ascending they seize hold of any branch strong enough to bear their weight, and swing themselves upwards with equal ease whether they are holding

the branch with both hands or only with one; in descending, they let themselves hang with both arms and search about for a new foothold. Sometimes they amuse themselves by swinging freely for some minutes; sometimes, clasping a branch with arms and feet, they walk, for a change, on its lower surface; in short, they assume every imaginable position, and execute every possible movement. Quite unrivalled masters of climbing are the long-armed apes or gibbons, anthropoid apes with arms so disproportionately long that, when outstretched, they measure thrice as much as their upright bodies. With incomparable speed and security they climb up a tree or bamboo-stem, set it, or a suitable branch swinging, and on its rebound spring over spaces of from eight to twelve yards, so lightly and swiftly, that they seem to fly like a shot arrow or an alighting bird. They are also able to alter the direction of a leap while actually springing, or to cut it suddenly short by seizing a branch and clinging to it—swinging, rocking, and finally climbing up by it, either to rest for a little, or to begin the old game anew. Sometimes they spring through the air in this manner three, four, or five times in succession, so that one almost forgets that they are subject to the law of gravity. Their walking is as awkward as their climbing is excellent. Other anthropoid apes are able to traverse a considerable distance in an upright position—that is, on their feet alone, without special difficulty, though when in haste they always fall on all-fours, resting on the inturned knuckles of the fingers and the outer edges of the feet, and throwing the body laboriously and clumsily forward between the extended arms. But the long-armed apes move in an upright position only in cases of extreme necessity, and then they hop rather than walk. When

the distance to be covered is a short one they raise themselves to their full height, and preserving their balance by extending their arms, now more, now less, spread out the great toes as far as possible, and patter pitiably along with short, quick steps. Their power of movement must therefore be characterized as one-sided, for their superiority over the other anthropoid apes in climbing does not counterbalance their helplessness on the ground.

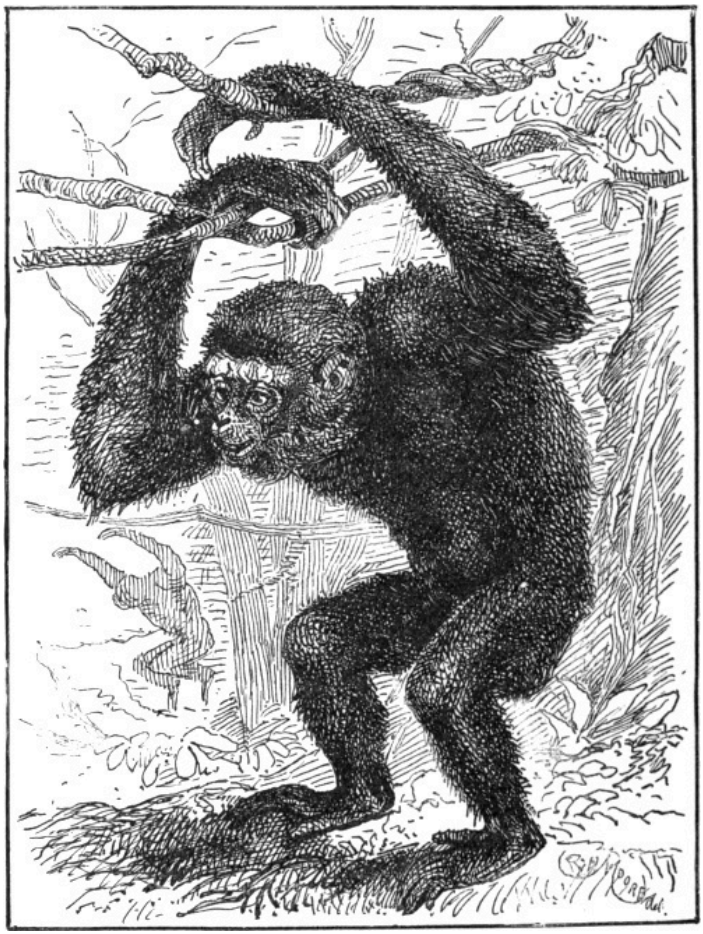


Fig. 47.—The Hoolock (*Hylobates leuciscus*), one of the Gibbons.

The voice-power of the anthropoid apes is very noteworthy. We find that the most active and agile species have the loudest voices, while those of the more widely developed, though less nimble, anthropoid apes are capable of greater variety of expression. I do not say too much when I assert that I have never heard the voice of any mammal—man, of course, always excepted—which was more full-toned and sonorous than that of a long-armed ape which I observed in captivity. I was first astonished, then delighted, with these deep notes, uttered with full strength, and by no means disagreeable, because perfectly clear and well-rounded. In one species the ringing call, which I should describe as a song rather than a cry, begins on the key-note E, ascends and descends in semitones through the chromatic scale for a full octave, sometimes ending with a shrill cry, which seems to be uttered with the animal's whole strength. The key-note remains audible throughout, and serves as a grace-note to each of the succeeding ones, which, in ascending the scale, follow each other more and more slowly, in descending more and more quickly, at last with extreme rapidity, but always with perfect regularity. The notes of some species of the group are said to be less clear, but all are so loud that, in the open air, one can hear them distinctly at a distance of an English mile. The same correlation between agility of motion and voice-power can be observed in other anthropoid apes. The slow-moving, awkward-looking orang-utan utters, as far as I know, only a strong, deep throat sound; the lively, active, sprightly chimpanzee, with only a few notes, understands so well how to give them variety of emphasis and intelligible expression that one is tempted to concede to him the power of speech. He

does not indeed speak with words, but with sounds, and even syllables, of the constancy of whose meaning the observer who has much acquaintance with the chimpanzee can have no doubt. Other anthropoid apes of the same family are probably not far behind him in this respect.

Anyone who wishes to learn to what a height the mental qualities of a monkey may reach must select the chimpanzee or one of his nearest relatives for observation, and must associate closely with it for a lengthened period, as I have done. He will then discover with wonder and amazement, perhaps with slight horror, how much the gulf between man and beast can be diminished. The other anthropoid apes, too, are highly gifted creatures; they, too, surpass all other monkeys in this respect; but the talents of the long-armed gibbons or the orang-utans do not attain to the same universally intelligible expression—I may say, the same impressiveness, as those of the chimpanzees and their relatives. They—the pongos, the gorilla, the *tschiego*, and the chimpanzee—cannot be treated as animals, but must be associated with as men, if their mental powers are to be known and appreciated. Their intelligence is not far behind that of a rude, undisciplined, uneducated human being. They are, and remain animals, but they behave so humanly that one can almost lose sight of the beast.

For years in succession I have kept chimpanzees, have observed them closely and, as far as possible, without prejudice, have associated intimately with them, taken them into my family, brought them up as playmates for my children, let them eat at my table, taught and trained them, waited upon them in sickness, and not forsaken them in the hour of death. I have therefore a right to believe that I know them

as well as anyone, and that I am justified in pronouncing an authoritative opinion. For these reasons I select the chimpanzee, in order to show to what height the mental power of an animal may rise.

The chimpanzee is not only one of the cleverest of all creatures, he is a being capable of deliberation and judgment. Everything he does is done consciously and deliberately. He imitates, but he does so with intelligence and on due consideration; he allows himself to be taught, and learns. He knows himself and his surroundings, and he can appreciate his position. In association with man he yields submission to superior intelligence; in his relations with animals he exhibits a self-conceit similar to our own. What is merely hinted at among other apes is quite pronounced in him. He regards himself as better, as standing higher than other animals, even other monkeys; he rates even human beings exactly according to their standing; thus he treats children quite differently from grown-up people; the latter he respects, the former he looks upon as comrades and equals. He shows an interest in animals with which he can form no friendship or other tie, and also in objects which have no connection with his natural wants; for he is not merely inquisitive, he is greedy of knowledge; an object which has attracted his attention increases in value in his eyes when he has found out its use. He can draw conclusions, can reason from one to another, and apply the results of experience to new circumstances, is cunning, even wily, has flashes of wit, and indulges in practical jokes, exhibits humours and moods, is entertained in one company and bored in another, enters into the spirit of some jokes and scorns others, is self-willed but not stubborn, good-natured but not wanting in independence. He expresses his emotions like a

human being. When in a gay mood he smirks with satisfaction, when depressed his face is drawn into wrinkles which speak for themselves, and he gives utterance to his grief by plaintive sounds. In sickness he behaves like one in despair, distorts his face, screams, throws himself on his back, beats with his hands and feet, and tears his hair. To a friendly voice he responds with sounds expressive of pleasure, to chiding with cries of distress. He is active and busy from morning till late in the evening, seeks constant occupation, and when he comes to an end of his usual employments he invents new ones, even if it should only be slapping his feet with his hands, or knocking against hollow boards, and thus producing sounds which give him evident pleasure. In a room he occupies himself with carefully examining everything that attracts his attention, opens drawers and rummages among their contents, opens the stove door to look at the fire and shuts it again, holds a key properly, stands before the mirror and amuses himself with the reflection of his own gestures and grimaces, uses brush and duster as he has been taught, puts on blankets and clothing, and so on.



Fig. 48.—Chimpanzee (*Troglodytes niger*).

His acuteness of observation is strikingly proved by his almost unfailingly correct judgment of persons. Not only does he recognize and distinguish his friends from other people, but well-meaning from evil-intentioned persons so thoroughly that the keeper of a chimpanzee was convinced that anyone with whom his *protégé* refused to make friends was really a good-for-nothing or a scoundrel. A thorough but accomplished hypocrite who deceived me and others was all along a horror to our chimpanzee, just as if he had seen through the red-headed rascal from the first. Every chimpanzee who has been much in human society likes best to be a member of a family circle. There he behaves as though he felt himself among equals. He carefully observes the manners and customs of the house, notices immediately

whether he is being watched or not, and does in the former case what he ought to, in the latter what pleases him. In contrast to other monkeys, he learns very easily and with real eagerness whatever is taught to him, as, for instance, to sit upright at table, to eat with knife, fork, and spoon, to drink from a glass or cup, to stir the sugar in his tea, to touch glasses with his neighbour, to use his napkin, and so on; with equal case he becomes accustomed to clothing, beds, and blankets; without great difficulty he gains after a time an understanding of human speech which far surpasses that of a well-trained dog, for he follows not merely the emphasis but the meaning of words, and executes commissions or obeys commands with equal correctness. Exceedingly appreciative of every caress and flattery, and even of praise, he is equally sensitive to unfriendly treatment or blame; he is also capable of deep gratitude, and he expresses it by shaking hands or kissing without being asked to do so. He evinces a special fondness for children. Being neither spiteful nor vicious, he treats children with great friendliness as long as they do not tease him, and behaves to helpless infants with really touching tenderness, though towards others of his own species, monkeys of a different species, and animals generally, he is often rough and harsh. I lay special stress on this characteristic, which I have observed in every chimpanzee I have brought up, because it seems to prove that the chimpanzee recognizes and respects the human even in the youngest child.

The behaviour of a sick and suffering anthropoid ape is most touching. Begging piteously, almost humanly, he looks into his keeper's face, receives every attempt to help him with warm thanks, and soon looks upon the physician as a benefactor, holds out

his arm to him, or stretches out his tongue as soon as he is told, and even does so of his own accord after a few visits from the physician. He swallows medicine readily, submits even to a surgical operation, and, in a word, behaves very like a human patient in similar circumstances. As his end approaches he becomes more gentle, the animal in him is lost sight of, and the nobler traits of his character stand out prominently.

The chimpanzee which I kept longest, and with the help of an intelligent, animal-loving keeper educated most carefully, was taken ill with inflammation of the lungs, accompanied by suppuration of the lymphatic glands of the neck. Surgical treatment of the glands was found necessary. Two surgeons, friends of mine who were on good terms with the chimpanzee, undertook to open the tumour on the neck, the more readily that the monkey believed that to be the cause of his suffering, and continually guided the surgeon's hand towards it. But how was the necessary operation in such a dangerous spot to be performed without imperilling the monkey's life? Anæsthetics were out of the question because of the lung disease, and the attempt to have the chimpanzee held down by several strong men had to be abandoned because of his intense excitement, and the strenuous resistance he offered. But where force failed persuasion succeeded. When the monkey was quieted and reassured by the coaxing and endearments of his keeper, he allowed a further examination of the swelling, and even submitted, without twitching an eyelid or uttering a complaint, to the use of the knife, and other painful treatment, including the emptying of the opened tumour. When this was done the distressingly laboured breathing became instantly less oppressive, an unmistakable

expression of relief passed over the sufferer's face, and he gratefully held out his hand to both physicians, and embraced his keeper, without having been asked to do either.

Unfortunately, the removal of the one trouble did not succeed in saving the animal's life. The neck wound healed, but the inflammation of the lungs increased and killed him. He died fully conscious, gently and peacefully, not as an animal, but as a man dies.

These are features of the character and conduct of anthropoid apes which can neither be misunderstood nor cavilled at. When one considers that they can be observed in all anthropoids not yet full-grown but beyond the stage of childhood, one must undoubtedly grant those animals a very high place. For the opinion expressed by some one incapable observer, and thoughtlessly repeated by hundreds, that the monkey loses mental power with increasing age, that he retrogrades and becomes stupid, is completely false, and is disproved by every ape which is observed carefully, and without prejudice, from youth to age.[73] Even if we knew nothing more about full-grown anthropoids than that they erect shelters resembling huts rather than nests, in which to pass a single night, and that they drum on hollow trees for amusement, it would be enough to lead us to the same conclusion as we have arrived at by observation of the young members of this group; that is, that they must be regarded as by far the most gifted and highly developed of animals, and as our nearest relatives.

And the ape question? I might say that I have just answered it in what I have said; but I have no hesitation in expressing a more definite opinion.

Everyone must admit that man is not the

representative of a new order of being, but is simply a member of the animal kingdom, and every unprejudiced person will also describe apes as the creatures most resembling man. If we compare them with one another, and then with man, the conviction is forced upon us, however we may strive against it, that there is a greater difference between the marmosets and the anthropoid apes than between the latter group and man. Zoologically, therefore, one cannot even relegate the apes and man to different orders of the highest class of animals. This has indeed been done, and is still done, man being classed as two-handed and monkeys as four-handed animals, but this leaves the most important aid to the classification of a mammal, the dentition, out of the question. For the dentition of man and monkeys is so essentially similar that it points imperatively to the necessity of placing the two types together. Nor is the distinction between two-handed and four-handed tenable, for although as regards the structure of hands and feet man and monkeys are certainly different, the difference does not imply any opposition; and the monkeys are just as much two-handed as we are. If we keep to the basis of classification adhered to without exception elsewhere, we are forced to place both in one order. I have given to it the name *Hochtiere*.

But though the characteristics which belong to all the higher animals as members of one order correspond thus accurately, a closer comparison reveals differences between man and apes which absolutely forbid a fusion of the two groups such as has been attempted in modern times. The symmetry of form, the comparative shortness of the arms, the breadth and mobility of the hands, the length and strength of the legs, as well as the flatness of the feet,

the naked skin, and the less-developed canine teeth are external marks of man which must not be underestimated, for they are important enough to justify putting him and the apes in different families, perhaps even different sub-orders. If, in addition, we take man's endowments into due consideration, compare his movements, his articulate speech, his mental capacities with the corresponding gifts in the ape, the need for insisting on the boundaries between the two is confirmed.

Blind disciples of the Doctrine of Descent, as Darwin founded it and others developed it, do indeed cross these boundaries without hesitation, but they cannot possibly be regarded as giving a carefully thought-out and authoritative judgment on the actual state of the case. Satisfactory, not to say probable, as this doctrine is, it has not yet risen above the level of an ingenious hypothesis; and incontrovertible evidence for the correctness of this hypothesis has not yet been produced. Variation within the limits of species and breed can be proved, can even be brought about; but transformation of one species into another cannot be established in any case. As long as this is so we are justified in regarding man and apes as creatures of different nature, and disputing the descent of one from the other. No attempt to discover or establish a common ancestor, no undertaking to draw up a pedigree for man, alters this in the slightest; for true natural science is not satisfied with interpretative theories, it demands proofs; it does not want to believe, but to know.[74]

So we may without scruple give the apes the place in the scale of being which unprejudiced investigation points out. We may look upon them as the animals most resembling ourselves, and as our nearest

relatives in the zoological sense; anything more than this we must deny. Much that is characteristic of man is to be found in the apes also; but a wide gulf still remains between them and true humanity. Physically and mentally they have many of the characteristics of man, but by no means all.

DESERT JOURNEYS.

On the fringe of the desert, under a thick group of palms, a small tent is pitched. Around it is a motley collection of bales and boxes, built into a sort of barricade. Outside this some Nubian boys are lounging or squatting. They are in holiday garb, so to speak, for their glossy skins have been freshly smeared with grease.

The travellers whom the tent shelters have come so far on a Nile boat, but as the river now describes a huge curve and abounds in rocks and rapids, they have decided to cut across the desert.

It is about noon. The sun stands almost vertically above the tent, in a cloudless deep blue sky, and his scorching rays are but slightly warded off by the loose open foliage of the date-palms. On the plain between the river and the desert the heat is oppressive, and the strata of air above the burning ground are heaving unsteadily, so that every picture is distorted and blurred.

A troop of horsemen, evidently hailing from the desert, appears on the horizon. They pay no heed to the village which lies further inland, but make straight for the tent. The horses are thin, but plainly of no ignoble breed; the riders are dark brown and poorly clad, with long loose burnooses more gray than white. Reaching the cluster of palms they dismount. One of them approaches the tent and enters with the dignity of a king. He is the chief of the camel-drivers (Sheikh el Djemali), to whom we,

the travellers, had sent a messenger, asking him to provide us with the necessary guides, drivers, and camels.

“Peace be with you,” he says on entering, and lays his hand on his mouth, his forehead, and his heart.

“Peace be with thee, O Sheikh,” we answer, “the mercy of God and his blessing.”

“Great has been my desire to see you, ye strangers, and to learn your wishes,” he assures us, as he takes his seat on a cushion in the place of honour at our right hand.

“May God, the Almighty, reward thy goodness, O Sheikh, and bless thee,” we answer; and we order our servants to bring him coffee and a freshly lit pipe before serving ourselves.

With half-shut eyes he comforts his mortal body with the coffee and his immortal soul with the pipe; and thick clouds of smoke veil his expressive features. There is almost perfect stillness in the tent, which is pervaded with the fragrance of the exquisite Djebelit tobacco and a thin smoke by no means unpleasant. At last we think that we may venture to begin business without violating any of the rites of hospitality.

“Is it well with thee, O Sheikh?”

“The Giver of all Good be praised, it is well with your servant. And how is it with thee?”

“To the Lord of all be honour and glory, it is well with me. Great was our longing to see thee, O Sheikh.”

“May God in His compassion fulfil your desire and bless you. Are ye in your state of health well

content?”

“Glory be to Allah and to His Prophet, on whom is His grace.”

“Amen, be it as thou hast said.”

Fresh pipes revive the immortal soul; renewed, almost interminable courtesies are interchanged; and at last the rigid conditions of etiquette have been fulfilled, and it is permissible to turn to business matters.

“O Sheikh, with the help of the All-merciful, I would travel through this stretch of desert.”

“May Allah give thee good speed.”

“Art thou in possession of camels both to run and to carry burdens?” we ask.

“I am. Is it well with thee, my brother?”

“The Almighty be praised, it is well. How many camels canst thou provide for me?”

Instead of an answer only countless clouds of smoke issue from the Sheikh’s mouth, and it is not until we repeat our question that he lays aside his pipe for some moments and says with dignity, “Sir, the number of the camels of Beni Said is known to Allah alone; no son of Adam has ever counted them.”

“Well, then, send me twenty-five beasts, and among them six trotters. And I have besides need of ten large water-bags.”

The Sheikh smokes afresh without giving answer.

“Wilt thou send the beasts we desire?” we repeat with emphasis.

“I shall do so to serve thee,” he answers, “but their

owners require a high price."

"How much?"

"At least four times the customary wages and hire will be necessary."

"But Sheikh, Allah, the Most High, preserve thee: these are demands which no one will be willing to grant. Praise the Prophet!"

"God, the Preserver of all, be glorified and His messengers blessed! Thou art in error, my friend: the merchant who has his camp over there has offered me double what I ask; only my friendship for thee has allowed me to make so small a demand."

In vain seems all haggling, all further business. Fresh pipes are brought and are smoked; renewed courtesies are exchanged; the names of Allah and His Prophet are freely misused on both sides; most precise inquiries after health and comfort are made mutually; until at length the studied courtesy of the native begins to waver and the traveller from the North loses patience.

"Then know, Sheikh, that I am in possession of a letter authorizing a demand for means of convoy from the Khedive and likewise one from the Sheikh Soliman; here are both of them, what dost thou demand now?"

"But, sir, if thou holdest a safe-conduct from his high majesty, why dost thou not demand the head of thy slave? It is at thy service, on his orders. I take thy wishes on my eyes and on my head. Command and thy servant obeys. Thou knowest the government prices. Allah protect thee; in the morning I shall send thee men, beasts, and water-skins."

If any one imagines that all the preparations for the desert journey were thus brought to a satisfactory conclusion, he is indeed totally ignorant of the manners and customs of the people. In the morning none of the promised drivers or beasts had put in their appearance; only by afternoon did they begin to come in; not even on the following morning, but at soonest about the time of afternoon prayer, could one think of starting. “Bukra inshallah—to-morrow, if God will”—is their motto, and it baffles all commands. Indeed, there is much to do, much to arrange, and much to be planned before the journey can be undertaken.

In course of time the tent is the centre of a gay and lively picture. The sunburnt children of the desert bustle about among the baggage. Their activity is unbusiness-like to a degree, but they seem to try to make up for this by incredible noisiness. The baggage, which had been arranged in a sort of barricade, is scattered about; individual pieces are lifted and tested as regards both weight and bulk; one package is compared with another, selected and then rejected, strapped together and then pulled apart again. Each driver tries to outwit his neighbour, each endeavouring to secure the lightest load for his own beast; each one rushes about in opposition to the rest, and all are shouting and roaring, screaming and scolding, swearing and cursing, entreating and execrating. In anticipation of what is coming the camels also add to the noise right lustily, and if, instead of roaring, and growling and grumbling, they should keep silence for a while, that only means: Our time has not yet come, but it is coming! Anyhow, with or without the camels’ accompaniment, the stranger’s ear is harassed, literally tortured, by all the medley of sounds which

fall upon it at once. For hours together the bustle, the racket, the uproar continues; the men scold and quarrel over the loads until they have had enough or more than enough; and at last the prelude comes to an end.

After peace is concluded they begin to twist the bast fibres of the date-palm into cords and ropes. With these they sling the bales and boxes cleverly together; they make hooks and eyes so that the two bundles may be fastened quickly to the saddle and as quickly loosened; they mend the ready-made nets which they have brought to hold the smaller packages; and they test the large and small skin bags, patching them where need be, and finally smearing them with ill-smelling varnish of colocynth. Lastly, they examine the sun-dried flesh, fill several bast bags with Kaffir-millet or dhurra, others with wood-charcoal, and some perhaps with camels' dung, rinse out the skin-bags and fill them with water fresh from the stream. As the tedious business is brought to a close one hears each utter a hearty "Thank God"—"El hamdu lillahi".

To look after all these preparations is the duty of the *Chabir* or leader of the caravan. According to its importance is his rank, but in all cases he must be what his title signifies—one who knows the way and the existing conditions. Experience, honesty, cleverness, mettle, and bravery are the requirements of his difficult, and not rarely dangerous office. He knows the desert as a mariner the sea, he can read the stars, he is familiar with every oasis and every spring on the course of the journey, he is welcome to the tent of every Bedouin or nomad chief, he understands all sort of precautions against break-down or peril by the way, he can cure snake-bite and

scorpion-sting, or at least alleviate the sufferings of the injured, he wields the weapons of the warrior and of the huntsman with equal skill, he has the word of the Prophet not only on his lips but in his heart, he utters the "*Fatiha*" at starting, and discharges the obligations of Mueddin and Iman at the appointed times; in a word, he is the head of the many-membered body which travels through the desert. In the solitudes where nothing seems to point the way which other caravans have taken, where the wind obliterates every track almost as soon as the last camel has passed, he finds signs unseen by others which guide him aright. When the dry, ill-boding dust of the desert hides the everlasting heavens, his genius is his guiding star; he tests the drifting sand, measures its waves, and estimates their direction; he reads the points of the compass on a stem of grass. On him every caravan, every traveller depends without mistrust. Ancient and in part most remarkable laws, inscribed in no charter, yet known to all, make him responsible for the welfare of the journey and for the life of each traveller, except in so far as any inevitable dispensation of the Ordainer of destiny may decree otherwise.

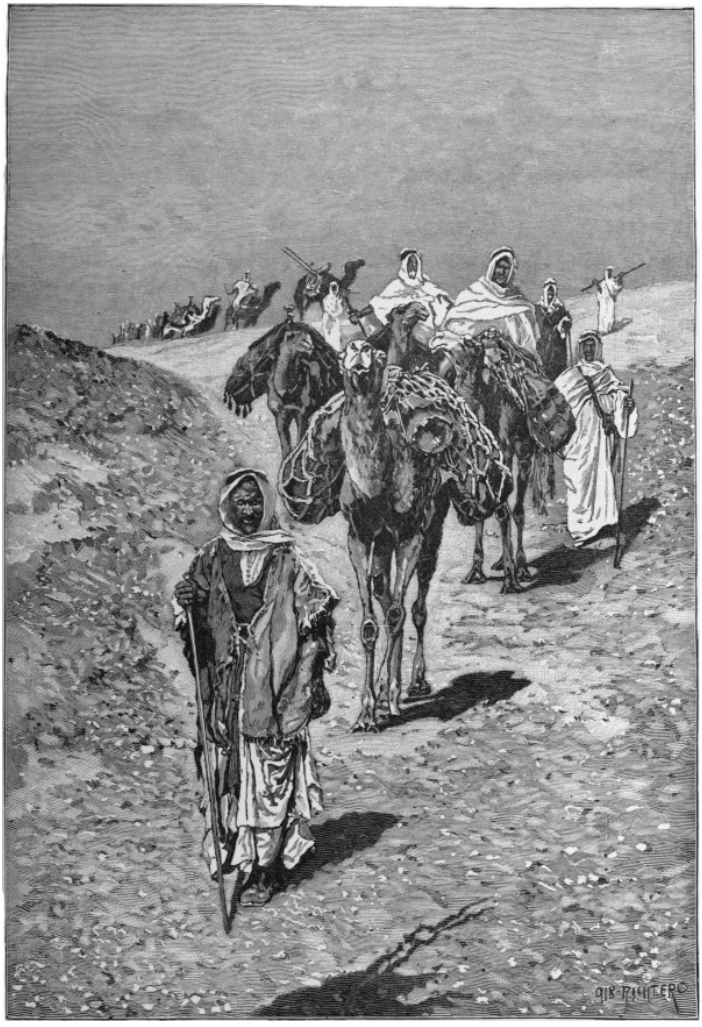


Fig. 49.—Caravan in the African Desert.

At the sacred hour, the time of afternoon prayer, the leader announces to travellers and drivers that all is ready for the start. The brown men rush around, catching, leading, saddling, and loading the camels. Resisting to the utmost the beasts are forced to obey; they seem to have a vivid foreboding of a stretch of

toilsome days. Their time has now come. Roaring, screaming, snarling, and grumbling, in obedience to the inimitable guttural commands of their masters and sundry gentle hints from the whips, they sink down on their bended knees; bellowing they adjust themselves to receive the unwelcome burden on their humped backs, and still bellowing they rise with their load. Not a few kick and bite in their efforts to resist being loaded, and it indeed requires all the inexhaustible patience of the drivers to subdue the obstinate creatures. But patience and tact master even camels. As soon as the rebellious beast has consented to kneel, one of the drivers stands up on its bent fore-legs, and with a quick grip seizes the upper part of the muzzle so that by pressing the nose he can stop the camel's breathing; meanwhile two others from opposite sides lift the equally poised burden on to the saddle; a fourth runs fastening pegs through the loops of the ropes; and the fractious camel is loaded before he has quite regained his senses. As soon as all are loaded, the march begins.

It is now the turn of the well-saddled trotting camels. Each traveller fastens his weapons and indispensable personal luggage to the high, trough-shaped saddle fixed over the hump. He then proceeds to mount his steed. For the novice this is usually a critical business. With a bold spring he must leap into the saddle, and, as soon as he touches this, the camel bolts up. He rises backwards, first on his fore-knees, immediately afterwards on his long hind-legs, and finally on his fore-legs. To the second jerk the novice in camel-riding usually falls a victim, he is hurled out of the saddle and either kisses mother earth or falls on the beast's neck and holds on tightly. The camel is much too ill-humoured to treat this as a joke or an accident. An angry cry bursts from its ugly lips; it

flies into a passion with the poor traveller, hanging in a most unenviable position on its neck, and proceeds to shake itself free both of him and his baggage. It takes some time before the traveller from the North learns to bend his body forwards and backwards at the right moment so as to keep his seat as the camel springs up.

For our own part, we swing ourselves into the saddle with the agility of natives. Urging on our steed with a few strokes of the whip, and keeping it in due check by means of a fine nose-rein, we hasten after the leader. Our camel, a lank, loosely-built, long-legged creature, falls at once into that uniform, persistent, long-stepping, and most effective trot, to which it is trained from earliest youth, and which raises it high above all beasts of burden, and closely follows the leaders. The small head is stretched far in front; the long legs swing quickly backwards and forwards; behind them sand and small stones rise into the air. The burnooses of the riders flutter in the wind; weapons and utensils clatter together; with loud calls we spur on the beasts; the joy of travel seems to give our spirits wings. Soon we overtake the caravan of baggage-camels which had preceded us; soon every trace of human settlement disappears; and on all sides there stretches in apparent infinitude —the desert.

Sharply defined all around, this immense and unique region covers the greater part of North Africa, from the Red Sea to the Atlantic, from the Mediterranean to the Soudan, including whole countries in its range, embracing tracts of fertile land; presenting a thousand varieties, and yet always and everywhere the same in its essential features. In area, this wonderful region is nine or ten times larger than the

whole of the German Empire, and three or four times larger than the Mediterranean. No mortal has thoroughly explored or even traversed it; but every son of earth who has set foot on it and crossed some part of it, is in his inmost heart impressed with its size and grandeur, its charm and its horror. Even on the most matter-of-fact Northerner who sojourns in the desert a lasting, ineffaceable impression is left by the glowing splendour of the sunlight and the parching heat of its days, by the heavenly peacefulness and the magical phantoms of its nights, by the witchery of the radiant atmosphere, by the dreadfulness of its mountain-moving storms; and many a one may have experienced, what the children of the desert so acutely feel—a longing to return, to breathe its air for a day, an hour, to see its pictures again with the bodily eye, to experience again that "unutterable harmony" whose echoes the desert awakens in the poetic soul. In short, there is a home-sickness for the desert.

It is literally and truly "El Bahhr bela maa"—the sea without water—the sea's antithesis. To the sea the desert is not subject as are other parts of the earth; the might of the vitalizing and sustaining element is here annulled. "Water silently embraces all things"—the desert alone excepted. Over the whole earth the winds bear the clouds, the sea's messengers, but these fade away before the glow of the desert. It is rarely that one sees there even a thin, hardly perceptible vapour; rarely can one detect on a leaf in the morning the damp breath of the night. The flush of dawn and the red glow of sunset are indeed seen, but only, as it were, in a breath which is scarce formed when it passes away. Wherever water gains the mastery, the desert changes into fertile land, which may, indeed, be poor enough, but the limits

between them are always sharply defined. Where the last wave of the sacred Nile, raised above its level by man's ingenuity, loses itself in the sand, the contrast is seen; the traveller, whose way lies from the river to the hills adjacent, may stand with one foot on a field of sprouting grain, and with the other touch the desert. It is not the sand itself which hinders the growth of plants, but solely the scorching heat which radiates through it. For, wherever it is irrigated or periodically watered, there, amid the otherwise plantless desert, a green carpet of vegetation is spread, and even shrubs and trees may grow.

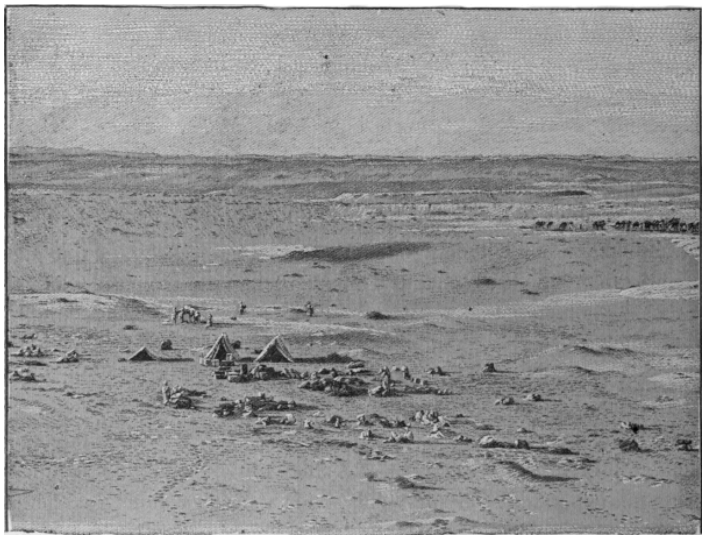


Fig. 50.—An Encampment in the Sahara.

Barren, pitifully barren is the desert, but it is not dead—not, at least, to those who have eyes to see its life. Whoever looks with a dull eye sees nothing but sandy plains and rocky cones, bare low grounds and naked hills, may even overlook the sparse reed-like grasses and shrubby trees of the deeper hollows, and the few animals which occur here and there. But he

who really wishes to see can discover infinitely more. To the dull-eyed the desert is a land of horrors; they allow themselves to be so depressed by the glowing heat of the day that the blissfulness of the night brings them no comfort or strength; they ride into the desert trembling, and leave it shuddering; their sensations are all for the terrible, their feelings for the annoyances attendant on the journey; for the infinite sublimity of the desert such hearts are too small. But those who have really learned to know the desert judge otherwise.

Barren the desert is, we confess, but it is not dead. Thus, although the general aspect is uniform, the nature of the surface varies greatly. For wide stretches the desert is like a rocky sea, with strangely-shaped cones, abrupt precipitous walls, deeply-riven gorges, sharp-angled ridges, and wondrous towering domes. Over these the ceaselessly-blowing wind drifts the sand, now filling up hollows, now emptying them again, but always grinding, polishing, hollowing out, sharpening, and pointing. Black masses of sandstone, granite, or syenite, more rarely of limestone or slate, and here and there of volcanic rock glow in the sun, and rise in expressively-outlined ranges. On one side the wind robs these of every covering, driving the fine sand uninterruptedly over their summits, completely enveloping them in a veil in times of storm, and leaving no particle of sand at rest until it has been blown across the ridge. On the lee side, protected from the wind, lie golden yellow beds of the finest rolled sand, which form terraces one above another, each about a yard in height. But they also are in ceaseless movement, continually displacing one another from above downwards, and being renewed from the other side of the range. Strikingly

contrasted with the black walls of the exposed side, these terraces of sand are visible from afar, and in certain lights they sparkle like broad golden ribbons on the hills. We may venture to call such ranges the regalia of the desert. No one unacquainted with the glowing South can picture the marvellous wealth of colour, the splendour and glamour, and the infinite charm which the overflowing sunlight can create on the dreariest and wildest mountains of the desert. Their sides are never clothed with the welcome green of woodland, at most the highest peaks bear a scant covering of bushes, to which the precipitation of vapour at this height allows a bare subsistence and a stunted growth. One misses the whispering of the beeches, and the rustling of the firs and pines; there is none of the familiar murmuring, or joyous chatter, or echoing roar of running water, which lays silver ribbons on our mountains at home, fringing them here with verdure, while in another place the sun shining upon rushing waterfall and whirlpool enhaloes them with rainbow colours; there is no mantle of ice and snow which the sun can transfigure into purple at dawn and sunset, or into glowing brightness at noon; and there is no fresh green from any mead. In short, all the witchery and charm of Northern mountain scenery is absent; and yet the desert mountains are not deficient in wealth of colour, and certainly not in majesty. Every individual layer and its own peculiar colour comes into prominence and has its effect. And yet, brilliant as may be the brightly-coloured and sometimes sharply-contrasted strata, it is on the continuously sand-polished, grandly-sculptured cones, peaks, gullies, and gorges that the light of heaven produces the finest play of colour. The alternations of light and shade are so frequent, the flushing and fading of

colours so continuous, that a very intoxication of delight besets the soul. Nor do the first and last rays of the sun fail to clothe the desert mountains in purple; and distance sheds over them its blue ethereal haze. They, too, live, for the light gives them life.

In other regions the desert is for wide stretches either flat or gently undulating. For miles it is covered with fine-grained, golden-yellow sand, into which man and beast sink for several centimetres. Here one often sees not a single stem of grass nor living creature of any kind. The uniformly blue sky roofs in this golden surface, and contributes not a little to suggest the sea. In such places the track of the "ship of the desert" is lost as it is made; they are pathless as the sea; for them as for the ocean was the compass discovered. Less monotonous, but not more pleasant, are those regions on which loose, earthy, or dusty sand forms a soil for poisonous colocynth-gourds and the wholesome senna. Long low hills alternate with shallow and narrow hollows, and a carpet of the above-named plants, which from a distance seems green and fresh, covers both alike. Such places are avoided by both man and beast, for the camel and his driver often sink a foot deep into the loose surface-soil. Other tracts are covered with coarse gravel or flints, and others with hollow sand-filled balls, rich in iron, which look almost as if they had been made by human hands, and whose origin has not yet been very satisfactorily explained.[75] On such stretches, where the camel-paths are almost like definite highways, thousands of quartz crystals are sometimes exposed, either singly or in groups, like clusters of diamonds set by an artist hand. With these the sun plays magically, and such stretches gleam and sparkle till the dazzled eye is forced to turn

away from them. In the deepest hollows, finally, the dust forms a soil, and there one is sure to find the reed-like, but very hard, dry, sharp, dark-green alfa, umbrella-shaped mimosas, and perhaps even tom-palms, pleasant assurances of life.

But of animal life also there is distinct evidence. To think of the desert as a dead solitude is as erroneous as to call it the home of lions. It is too poor to support lions, but it is rich enough for thousands of other animals. And all these are in a high degree remarkable, for in every respect they prove themselves the true children of the desert.

It is not merely that their colouring is always most precisely congruent with the dominant colour of the ground, that is generally tawny, but the desert animals are marked by their light and delicate build, by their strikingly large and unusually acute eyes and ears, and by a behaviour which is as unassuming as it is self-possessed. It is the lot of all creatures born in the desert to be restless wanderers, for sufficient food cannot be found all the year round at one place, and the children of the desert are endowed with incomparable agility, indefatigable endurance, untiring persistence; their senses are sharpened so that the pittance which is offered is never overlooked, and their clothing is adapted to conceal them alike in flight or in attack. If their life is perhaps somewhat hard, it is certainly not joyless.

The fact that almost all the desert animals agree in colouring with their surroundings explains why the traveller, who is not an experienced observer, often sees, at first at least, but little of the animal life. Moreover, the desert seems far poorer than it is, since it is not till dusk that most of its tenants leave their places of rest and concealment and begin to be

lively. Some, however, force themselves on the attention of the least observant. Even though the traveller may fail to notice the various species of desert-lark which cross his path everywhere, and are noteworthy for their likeness to the ground and for their extraordinarily developed powers of flight, he cannot possibly overlook the sand-grouse; and though he may ride unobserving over the burrows of the jerboas, he is sure to observe a gazelle feeding not far from his path.

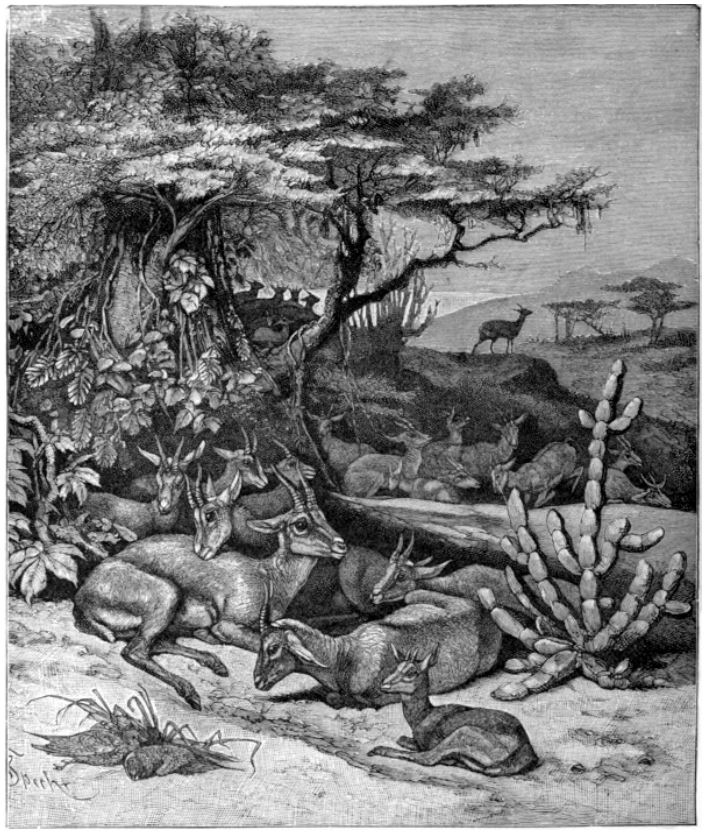


Fig. 51.—Gazelles lying near a Mimosa.

This antelope may be regarded as typically a desert animal. Although it is proportionate in all its parts, the head and sense-organs seem almost too large, and the limbs too delicate, in fact almost fragile. But this head carries a brain of unusual cleverness for a ruminant, and those limbs are as if made of steel, exceedingly strong and elastic, admirably suited for agility and untiring endurance. One must not judge the gazelle of the desert from its appearance in captivity, cooped up in a narrow space. What activity, adroitness, suppleness, grace, and spirit, it displays in its native haunts! How well it deserves to have been chosen alike by the Oriental and by the native of the desert as the image of feminine beauty. Trusting to its tawny coat, as well as to its incomparable agility and speed, it gazes with clear, untroubled eyes at the camels and their riders. Without seeming to be disturbed by the approaching caravan, it continues to browse. From the blossoming mimosa it takes a bud or a juicy shoot; between the sharp alfa leaves it finds a delicate young stem. Nearer and nearer comes the caravan. The creature raises its head, listens, sniffs the air, gazes round again, moves a few steps, and browses as before. But suddenly the elastic hoofs strike the ground, and the gazelle is off, quickly, lightly, and nimbly, as if its almost unexcelled speed were but play. Over the sandy plain it skims, quick as thought, leaping over the larger stones and tamarisk bushes as if it had wings. It seems almost to have left the earth, so surprisingly beautiful is its flight; it seems as if a poem of the desert were embodied in it, so fascinating is its beauty and swiftness. A few minutes of persistent flight carry it out of reach of any danger with which the travellers can threaten it, for the best trotter would pursue in vain, and not even a

greyhound could overtake it. Soon it slackens its speed, and in a few moments it is browsing as before. And if the bloodthirsty traveller begins the chase in earnest, the sly creature has a tantalizing way of allowing him to get near it again; a second and a third time it cleverly gets out of range of his murderous weapons, until at length, becoming scared, it leaves all danger far behind. The further it gallops the more slender seem its body and limbs; its outline begins to swim before the eyes; at length it disappears on the sandy flat, merging into it and seeming to melt away like a breath of vapour. Its home has received and concealed the fugitive, removed it, as if magically, from vision, and left not a trace behind. But if the vision is lost to the eye it remains in the heart, and even the Western can now understand why the gazelle has become such a richly-flowering bud in the poesy of the East, why the Oriental gives it so high a rank among beasts, why he compares the eyes which kindle fires in his heart to those of the gazelle, why he likens the neck around which he throws his arms in love's secret hour to that of the swiftest of the desert's children, why the nomad brings a tame gazelle to the tent of his gladly-expectant spouse, that she may gaze into its tender eyes and reflect their beauty on the hoped-for pledge of their wedlock, and why even the sacred poet finds in the fair creature a visible emblem of his longing after the Most High. For even he, removed from the world, must have felt a breath of the passion which has purified the words and made smooth the verses and rhymes of the fiery songs in praise of the gazelle.

Less attractive, but by no means less interesting, are some other desert animals. Among the sparsely sprouting alfa there is a numerous flock of birds

about the size of pigeons. Tripping hither and thither, scratching and scraping with their bills, they seek for food. Without anxiety they allow the rider to approach within a distance of a hundred paces. A good field-glass enables one to see not only every movement, but also the more prominent colours of their plumage. With depressed head, retracted neck, and body held almost horizontally, they run about in search of seeds, the few grains which the desert grasses bear, freshly unfolded panicles, and insects. Some stretch out their necks from time to time and peer circumspectly around, others, quite careless, paddle in the sand, preening their feathers, or lie at ease, half sideways, in the sun. All this one can distinctly see, and one can count that there are over fifty, perhaps nearly a hundred. What sportsman would their presence not excite? Sure of his booty, the inexperienced traveller shuts up his field-glass, gets hold of his gun, and slowly approaches the gay company. But the birds disappear before his eyes. None has run or flown, yet none is to be seen. It seems as if the earth had swallowed them. The fact is that, trusting to the likeness between their plumage and the ground, they have simply squatted. In a moment they have become stones and little heaps of sand. Ignorant of this, the sportsman rides in upon them, and is startled when they rise with simultaneous suddenness, and loudly calling and scolding, take wing and fly noisily away. But if he should succeed in bringing one down, he will not fail to be struck by their colouring and marking, which is as remarkable as their behaviour. The sand-coloured upper surface, shading sometimes into gray, sometimes towards bright yellow, is broken and adorned by broad bands, narrower bars, delicate lines, by dots, spots, points, streaks, and blurs, so

that one might fancy at first sight that birds so marked must be conspicuous from a distance. But all this colour-medley is simply the most precise copy of the ground; every dark and light spot, every little stone, every grain of sand seems to have its counterpart on the plumage. It is no wonder then that the earth can, as it were, make the bird part of itself, and secure its safety, which is further assured by the creature's strong wings, which are capable of incomparably swift flight. And so it is that the poetic feeling of the Arabs has idealized these sand-grouse in luxuriant fancy and flowery words, for their beauty fascinates the eye, and their marvellous swiftness awakens longing in the heart of mortals who are bound to the earth.

All other desert animals display characters like the two which we have described. Thus there is a lynx, the caracal, leaner and lanker, with longer ears and larger eyes than the rest of his race, moreover not striped nor spotted, but sand-coloured all except his black ear-tips, eye-stripes, and lip-spots. His hue varies slightly, being lighter or darker, and with more or less red, according to the locality in which he lives. There is also a desert fox, the fenec, the dwarf of the dog family, with dun-yellow fur, and extraordinarily large ears. The desert also harbours a small rodent, the so-called jumping-mouse, the jerboa: he suggests a miniature kangaroo, and has exceedingly long hind-legs, diminutive fore-legs, and a tail longer than the body with hairs in two rows. He is more harmless and good-natured, but also swifter and more agile than any other rodent.

The birds, the reptiles, and even the insects show the same stamp, though form and colouring may vary greatly. When any other colour besides sandy-yellow

becomes prominent, if hair, feather, or scale be marked with black or white, ashy-gray or brown, red or blue, such decorations occur only in places where they are not noticeable when looked at from above or from the side. But where a mountain rises in the midst of the desert, it shows its varied character also in the animal life. On the gray rocks of the mountains in Arabia the steinbok clambers, the hyrax has its home, the bearded vultures nest, and not a few other birds are to be found on the peaks and cliffs, in the chasms and valleys. But from the dark rocks of more low-lying deserts the only sound one hears is the loud but tuneful song of the deep-black wheatear.

Thus the desert exhibits harmony in all its parts and in every one of its creatures, and this fact goes far to strengthen the impression made on every thoughtful, sensitive, and healthy mind—an impression received on the first day in the desert, and confirmed on every succeeding one.

If one would really know the desert and become in any measure at home there, one must have a vigorous constitution, a receptive mind, and some poetic feeling. Whoever shrinks from enduring the discomforts of the journey, whoever fears either sun or sand, should avoid the desert altogether. Even if the sky be clear, and the atmosphere pure and bright, even if a cooling breeze come from the north, the day in the desert is hard to bear. Almost suddenly, with scarce any dawn, the sun begins to exert his masterful power. It is only near the sea or large rivers that the dawn is heralded by a purple flush on the eastern horizon; amid the vast sand-plains the sun appears with the first reddening in the east. It rises over the flats like a ball of fire, which

seems as if it would burst forth on all sides. The coolness of the morning is at once past. Directly after sunrise the glowing beams beat down as if it were already noon. And though the north wind, which may blow for months at a time and is often refreshing, may prevent the unequally expanded layers of air from shaping themselves into a mirage, yet it does not bring sufficient cooling to annul the peculiar heaving and quivering of the atmosphere which is seen over the sand. Heaven and earth seem to float in a flood of light, and an indescribable heat streams from the sun, and is reflected again from the sand. With each hour the light and heat increase, and from neither is there any escape.

The caravan starts at daybreak and proceeds without a sound. The baggage-camels step out briskly and their drivers keep pace with elastic steps; the riding-camels hasten at full trot, urged according to their strength, and soon leave the burden-bearers far behind. With unslackened speed they hurry on. All one's bones seem to crack with the jerks and jolting caused by the rapid pace of the riding-camels. The sun beats down, piercing through all the garments with which one tries to protect oneself. Under the thicker clothing perspiration pours all over the body, on the more lightly clad arms and legs it evaporates as it is formed. The tongue cleaves to the roof of the mouth. Water, water, water! is the one idea left to those unaccustomed to these discomforts. But the water, instead of being in iron vessels or flasks, is in the characteristic skin-bags of the country; it has been carried for days in the full sun on the camel's back, it is more than lukewarm, of evil odour, thick, brown in colour, and tastes so vilely of leather and colocynth varnish that it produces nausea or even vomiting. But it seems as impossible to improve it as

to do without it. Its penetrating taste and smell baffle all attempts to enjoy it in coffee or tea, or mixed with wine or brandy. Undiluted wine or brandy simply increase the burning thirst and oppressive heat. The traveller's condition becomes one of torture before the sun reaches the zenith, and his distress is the greater the worse the water. But it has to be and is endured. And although the Northerner can never conquer his repugnance to the kind of water which we have described, he grows used to the heat, at first so unbearable, and, as he begins to be at home with his steed, other discomforts are also lessened. In the future he will make sure of water which is at least clean, and will soon cease to complain of its warmth or of any other inevitable inconveniences of his journey.

Resting comfortably, though rudely wakened by the loud grumbling of the baggage-camels, the experienced travellers allow the caravan to go on ahead while they comfort body and soul with coffee and tobacco. Thereafter they mount the dromedaries and speed along as quickly as these trotters will go. Not a word is exchanged, the only sounds are the crunching of the sand under the elastic hoofs, the loud breathing, and hollow, deep grunting of the camels. In a short time the baggage-train is overtaken, and we shoot on ahead. A gazelle browses near our course and raises hopes of welcome booty. With spirited movements the graceful creature—image of the desert poet's fancy—skips and dances before its pursuers; the gasping, sharply-spurred camels rush on with gigantic strides. The gazelle seems careless and allows near approach; the riders act as if they would pass it, they rein in their beasts and ride more moderately. But one slips from the saddle to the ground, stops his beast for a moment,

and from under cover of its body fires a deadly shot. In a trice the leader has sprung from his saddle to make sure of the fallen game; triumphantly he drags it along, fastens it dexterously to his saddle, and on goes our cavalcade.

Towards noon a halt is called. If there is a hollow near, it will probably contain an umbrella-like mimosa, whose thin foliage will afford some slight shade; but if the sandy plain stretches unbroken on all sides, all that can be done is to fix four lances in the sand and stretch a blanket over them. Though the sand on which one must lie is glowing, and the air one breathes is oppressive, languor and weariness overpower even the natives, how much more the Northerner. One seeks rest, but it comes not, and refreshment, but one cannot enjoy it. Blinded by the overflowing light and the tremulous atmosphere, we shut our eyes; but, tormented by scorching heat, and tortured by feverish thirst, we toss about sleepless. The hours go by on leaden feet.

The baggage-train winds slowly past and disappears in a vapourous sea on whose heaving waves the camels seem to float. Still one lingers, and continues to suffer the same agonies. The sun has long since passed the zenith, but his glowing beams are as fierce as ever. It is not till late in the afternoon that a fresh start is made. And again there is a rapid ride, whose swiftness seems almost to create a cooling breeze of air. The baggage-camels come in sight again, and are soon overtaken. The drivers stride behind them, singing; one leads the song, and the rest join in at the end of each verse in regular refrain.

When one knows the toilsome labour of the camel-driver in the desert, one wonders indeed to hear him

singing. Before daybreak he loaded his camel, after he had shared with it a few handfuls of soft-boiled dhurra grains—the sole food of both; all through the long day he strides behind his beast, without a bite to eat, with at most an occasional mouthful of ill-smelling water; the sun scorches his head, the glowing sand burns his feet, the hot air parches his sweating body; for him there is no time to pause or rest; he may perhaps have had to change the loads of some of the beasts, or to catch one or other which had bolted; and yet he sings! It is the approach of night which inspires him.

When the sun goes to rest, the limbs of these wizened children of the desert seem to become supple again; in this, as in all else, they are like their mother. Like her they are parched at noon, like her they revive at night. As the sun declines, their poetic gifts weave golden dreams even in waking hours. The singer praises the well-springs rich in water, the groups of palms around them, and the dark tents in the shade; he greets a brown maiden in one of the tents, who hails him with welcome; he extols her beauty, likens her eyes to those of the gazelle, and her mouth to a rose, whose fragrance is as her words, and these as pearls in his ear; for her sake he rejects the sultan's eldest daughter, and longs for the hours when fate shall permit him to share her tent. But his comrades admonish him to seek after higher joys, and raise his thoughts to the Prophet, "who satisfies all longing".

Such is the song which falls on the Northerner's ears, and the songs of home rise to his lips, and when the last rosy flush of the setting sun fades away, when night stretches her robe of witchery over the desert, then it seems to him as if the hardest had been easy,

as though he had suffered no thirst in the heat, nor discomfort by the way. Cheerfully he leaps from the saddle, and while the drivers unload and tether the camels, he heaps and smooths the sand for his bed, spreads his carpet and coverlet, and gives himself over with delight to the rest he had longed for.

The small camp-fire illumines the plain only for a few paces. Around it the dark, half-naked sons of the desert move about busily; the flame casts a weird light on them, and in the half-darkness they look like shadows. The bales and boxes, saddles and utensils assume strange shapes; and the camels, lying in a wide circle outside the baggage, become ghostly figures when their eyes gleam with the reflection of the firelight. It becomes quieter and quieter in the camp. One driver after another leaves the camels, with whom he has shared his frugal supper, wraps himself in his long body-cloth, sinks to the ground, and becomes one with the sand. The fire flares up for the last time, loses its glow, and goes out. It is night in the camp.

He who would describe a night in the desert should be, by the grace of God, a poet. For how can its beauty be described, even by one who has watched, revelled, and dreamed through it all? After the heat of the day it comes as the gentle, compensating, reconciling bestower of unspeakable comfort and inspiration, bringing peace and joy, for which a man longs as for his beloved who atones to him for his long waiting. “Leïla”, the starry night of the desert, Leïla is with justice the Arab’s image of all that is fair and joyous. Leïla he calls his daughter; with the words, “my starry night”, he embraces his beloved; “Leïla, O Leïla!” is the musical refrain of his songs. And what a night it is, which here in the desert, after

all the burden and discomfort of the day, soothes every sense and feeling! In undreamt-of purity and brightness the stars shine forth from the dark dome of heaven: the light of the nearest is strong enough to cast slight shadows on the pale ground. With full chest one breathes the pure, fresh, cooling, and invigorating air; with delight one gazes from star to star, and as their light seems to come nearer and nearer, the soul breaks through the fetters which bind it to the dust and holds converse with other worlds. Not a sound, not a rustle, not even the chirping of a grasshopper interrupts the current of thought and feeling. The majesty, the sublimity of the desert is now for the first time appreciated; its unutterable peace steals into the traveller's heart. But what proud self-consciousness also fills his breast: here, in the midst of the infinite solitude, so alone, apart from all human society and help, reliant on himself only, his confidence, courage, and hope are strengthened. Dream-pictures full of infinite charm pass before his wakeful eyes, and merge in ever fresh and fascinating combinations, and as the stars begin to twinkle and tremble, his thoughts become dreams, and his eyes close in sleep.

After the refreshment which the desert night brings both to body and soul, the discomforts of the next day seem lighter, however much effort it may require to drink the water, which becomes more vile every hour. Perfect rest, unclouded comfort is only to be had at one of the desert wells. Always menaced by dearth of the most essential necessaries of life, every desert journey is a ceaseless anxiety, a restless hastening on; it is therefore entirely devoid of that ease and comfort with which one would prefer to travel. One day passes like another; each night, in favourable seasons at least, is like that which I have

described. But in the oasis, the day becomes a holiday, the evening is a joyous festival, and the night brings perfect rest.

The essential condition for the formation of an oasis is a basin-like or valley-like depression. Without a gushing spring, without at least an artificial well, rich vegetation is impossible, and water is found in the desert only on the lofty mountains or in the deepest hollows. As the sea of sand is in so many respects the counterpart of the ocean, so its oases are counterparts of islands, but they do not rise above the surface, they are sunk beneath it. The water may either rise in a visible spring, or it may be found at a slight depth below the surface. Its abundance and its quality determine the character of the oasis. In the minority the water is pure and cool, but in most cases it is salt, ferruginous, or sulphurous, and on that account probably very healthful. But it is by no means always drinkable or conducive to fertility. Perhaps there is hardly one oasis which produces fresh, green sward. And it is only in very favourable places that the water is evident at all; in most cases it collects drop by drop in clefts of the rock or in shafts which have been dug for it; at times at least it has to be artificially forced. Even where the water wells up copiously it would soon lose itself in the sand, if it were not carefully collected and distributed. At the same time it always evokes a refreshing life, doubly welcome amid such sterility.

Around the spring, long before men appeared to take possession, a company of green plants had effected settlement. Who can tell how they got there? Perhaps the sand-storm sowed the seeds, which first germinated by the well, and grew into plants, with leaves, flowers, and another generation of seeds

which were scattered through whole valleys. It is certain, at least, that they were not planted by men, for the mimosas which form the greater part of the little colony occur also in springless hollows, where one sees them sometimes singly, sometimes forming a small thicket of ten or twenty. They alone are able to keep life awake in the desert; they put forth green leaves, they blossom and send forth fragrance—how fresh and balmy! In their pleasant shade the gazelle rests; from their tops resound the songs of the few feathered songsters of the desert. The sappy leaves, seen amid the stiff masses of limestone, the cones of black granite, and the dazzling sand, do the eyes good like a meadow in May; their flowers as well as their shade refresh the soul.

In the larger, more copiously watered oases, men have planted palms, which lend a fresh charm to the settlement. The palm is here all in all: it is the queen of trees, the giver of fruit which sustains man and binds him to his little spot of earth, the tree around which saga and song are twined, the tree of life. What would an oasis be without palms? A tent without a roof, a house without inmate, a well without water, a poem without words, a song without tune, a picture without colour. The palm's fruits feed the nomad herdsman and the settler alike, they become wheat or barley in his hand, they satisfy even the tax-gatherer of his lord and master. Its stems, its crown, its narrow leaves supply him with shelter and utensils, mats, baskets, and sacks, ropes and cords. In the sandy desert one first appreciates its full worth and importance, it becomes the visible emblem of Arabian poetry, which rises like it from frequently barren ground, which grows strong and fades not, which raises itself on high, and there only bears sweet fruit.



Fig. 52.—An Oasis in the Desert of Sahara.

Mimosas and palms are the characteristic trees of all oases, and are never absent from those which have so many springs or wells that gardens and fields become possible. Here they are restricted, like outposts against the invading sand, to the outer fringe of the desert island, while the interior is adorned with more exacting plants which require more water. Thus around the springs or wells there are often charming gardens in which grow almost all the fruit-bearing plants of North Africa. Here the vine clambers, the orange glows amid its dark foliage, the pomegranate opens its rosy mouth, the banana expands its fan-shaped leaf clusters, the melons straggle among the beds of vegetables, prickly-pears and olives, perhaps even figs, apricots, and almonds, complete the picture of fruitfulness. At a greater distance from the centre lie the fields, bearing at least Kaffir-millet, and, in favourable conditions, wheat, or even rice.

In oases so rich man finds a permanent home, while in those which are poorer he is but a sojourner, or a

more or less periodic guest. The village or small township of a large oasis is essentially like that of the nearest cultivated country; like it it has its mosques, its bazaars, its coffee-houses; but the inhabitants are children of a different spirit from that which marks the peasants or townsfolk in the Nile valley or along the coast. Although usually of diverse race among themselves they all exhibit the same customs and habits. The desert has shaped and fashioned them. Their slender build, sharply-cut features, and keen eyes, gleaming from under bushy brows, mark them at once as sons of the desert; but their habits and customs are even more characteristic. They are unexacting and readily contented, energetic and full of resource, hospitable and open-hearted, honourable and loyal, but proud, irritable, and passionate, inclined to robbery and acts of violence, like the Bedouins, though not their equals either in good or evil. A caravan entering their settlement is a welcome sight, but they expect the traveller to pay them toll.

Very different from such oases are those valleys in which a much-desired well is only to be found at times. The Arabian nomads are well pleased if the supply of drinking-water for themselves and their herds is sufficient for a few months or even weeks; and the caravan, which rests in such a place, may be content if its demands are satisfied within a few days. The well is usually a deep shaft, from whose walls the water oozes rather than trickles. A few tom-palms rise among the sparse mimosas and saltworts which surround the well; a few stems of grass break through the hard ground.

Unutterably poor are these nomad herdsmen, who pitch their tents here as long as their small flocks of

goats can find anything to eat. Their struggle for existence is a continuous succession of toil, and want, and misery. Their tent is of the simplest; a long dark web of cloth, made of goats' hair, is laid across a simple framework, and its ends pinned to the ground; a piece of the same stuff forms the back-wall, and a mat of palm-leaves forms the door in front. The web is the wife's self-made dowry, the materials for which she gathered, spun, and wove from her eighth to her sixteenth year. A few mats which serve as beds, a block of granite and a grindstone for pounding the grain got in barter, a flat plate of clay to roast the cakes, two large jars, some leather sacks and skins, an axe and several lances, form the total furnishings. A herd of twenty goats is counted a rich possession for a family. But these people are as brave as they are poor, as lovable as they are well-built, as good-natured as they are beautiful, as generous as they are frugal, as hospitable as they are honourable, as chaste as they are devout. Ancient pictures rise in the mind of the Occidental who meets with these folk for the first time; he sees biblical characters face to face, and hears them speak in a manner with which he has been familiar from his childhood. Thousands of years have been to these nomads of the desert as one day; to-day they think, and speak, and act as did the patriarchs of old. The very greeting which Abraham uttered meets the stranger's ear; the very words which Rebecca spoke to Abraham's servant were addressed to me, when, tortured with thirst, I sprang from my camel at the well of Bahiuda, and begged a beautiful brown damsel for a drink of fresh water. There she stood before me, the Rebecca of thousands of years ago, alive and in unfading youth, another and yet the same.

On the arrival of the caravan the whole population of the temporary settlement assembles. The chief steps forward from their midst, and utters the greeting of peace; all the rest bid the strangers welcome. Then they offer the most precious of gifts, fresh water; it is all that they have to give, and it is given with dignified friendliness, ungrudgingly, yet without urgency. Eagerly the travellers drink in long refreshing draughts; the camels also press in riotously upon the watering-place, although they might know from experience that they must first be unloaded, tethered, and turned on the grass before they are allowed to quench an unbroken thirst of four or six days. Even at the well not a drop is wasted, therefore the camels first get any water that remains in the skins, and it is not till these are filled up again that the beasts get a fresh draught, and that with more respect to the existing supplies than their actual needs. Only at the copious wells can one satisfy their apparently unbounded desires, and see, not without amusement, how they swallow without ever looking up, and then hasten from the well to the not less eagerly desired pasture, forced by their hobbles to grotesque and clumsy movements, which make their stomachs rumble like half-filled casks.

And now begins a festival both for travellers and settlers. The former find fresh water, perhaps even milk and meat, to increase the delight of the longed-for resting-time; the latter gladly welcome any break in their life, which, in good seasons, is very monotonous. One of the camel-drivers finds in the nearest tent the favourite instrument of those who live in the desert, the *tambura* or five-stringed zither, and he knows right well how to use it in accompaniment to his simple song. The music allures the daughters of the camp, and slim, beautiful

women and girls press inquisitively around the strangers, fastening their dark eyes on them and their possessions, inquiring curiously about this and that. Steel thy heart, stranger; else these eyes may set it on fire. They are more beautiful than those of the gazelle, the lips beneath put corals to shame, and the dazzling teeth excel any pearls which thou couldst give these daughters of the desert. And soon all yields to music and to song. Around the zither-player groups arrange themselves for the dance; hands both hard and soft beat time to the tune, the words, and the regular swaying movements. New forms come and those we have become familiar with disappear; there is a constantly changing bustle and crowd around the strangers, who are wise if they regard all with the same innocence and simplicity which their hosts display. All the discomforts of the journey are forgotten, and all longings are satisfied, for water flows abundantly and takes the place of all that one might desire in other places or at other seasons.

Such a rest revives body and soul. Strengthened and encouraged the caravan goes on its way, and if the days bring nothing worse than scorching, thirst, and fatigue, a second, and a third well is safely reached, and finally the goal of the journey—the first township on the other side of the desert. But the desert—the sea of sand—is like the all-embracing ocean also in that it is fickle. For here too there are raging storms, which wreck its ships and raise destruction-bringing billows. When the north wind, which blows continuously for months, comes into conflict with currents from the south, or yields them the mastery, the traveller suddenly sees the sand become alive, rising in huge pillars as thick as they are high, which whirl more or less rapidly over the plain. The sun’s rays sometimes lend them the ruddy

gleam of flames, at another time they seem almost colourless, yet again, portentously dark, the furious storm weakens them and strengthens them, splits them and unites them, sometimes merging two or more into one huge sand-spout which reaches to the clouds. Well might the Occidental exclaim at the sublimity of the spectacle, did not the anxious looks and words of his escort make him dumb. Woe to the caravan which is overtaken by one of these raging whirlwinds, it will be good fortune if man and beast escape alive. And even if the inexorable messenger of fate pass over the party without doing harm, danger is by no means over, for behind the sand-spouts usually comes the Simoom or poisonous storm.

This ever-dreaded wind, which blows as the *Chamasin* through Egypt, as the Sirocco towards Italy, as the *Föhn* through the Alps, as the *Tauwind* in North Europe, does not always rise into a storm; not unfrequently it is hardly noticeable, and yet it makes many a man's heart tremble. Of course much that is fabulous is told of it, but this much is true, that it is in certain conditions extremely dangerous to the caravan, and that it is responsible for the bleached skeletons of camels and the half-buried, half-mummified, corpses of men that one sees by the wayside. It is not its strength, but its character, its electric potential, which brings suffering and destruction to man and beast wandering on the sandy sea.

The natives and the observant can foretell the coming of the sand-storm at least one day, often several days, ahead. Unfailing symptoms tell of its approach. The air becomes sultry and oppressive; a light, grayish or reddish vapour obscures the sky; and there is not a breath of wind. All living creatures

suffer visibly under the gradually increasing sultriness; men grumble and groan; the wild animals are shyer than usual; the camels become restless and cross, jostling one another, jibbing stubbornly, even lying down on the ground. The sun sets without any colour; no red-glow fringes the evening sky; every light is veiled in a vaporous shroud. Night brings neither coolness nor refreshment, rather an aggravation of the sultriness, the lassitude, the discomfort; in spite of all weariness one cannot sleep. If men and beasts are still able to move, no rest is taken, but they hurry on with the most anxious haste as long as the leader can see any of the heavenly bodies. But the vapour becomes a dry fog, obscuring one constellation after another, hiding moon and sun, though in the most favourable conditions these may be visible, about half their normal size, pale in colour and of ill-defined contour.

Sometimes it is at midnight that the wind begins to raise its wings; more commonly about noon. Without a watch no one could tell the time, for the fog has become so thick that the sun is completely hidden. A gloomy twilight covers the desert, and everything even within a short radius is hazy and indistinct. Gently, hardly perceptibly the air at length begins to move. It is not a breeze, but the merest breath. But this breath scorches, pierces like an icy wind into bone and marrow, producing dull headache, enervation, and uneasiness. The first breath is followed by a more perceptible gust, equally piercing and deadening. Several brief blasts rage howling across the plain.

It is now high time to encamp. Even the camels know this, for no whip will make them take another step. Panic-stricken they sink down, stretch out their long

necks in front of them, press them closely on the sand, and shut their eyes. Their drivers unload them as rapidly as possible, build the baggage into a barricade, and heap all the water-bags closely together, so as to present the least possible surface to the wind, and cover them with any available mats. This accomplished, they wrap themselves as closely as may be in their robes, moisten the part which surrounds the head, and take refuge behind the baggage. All this is done with the utmost despatch, for the sand-storm never leaves one long to wait.

Following one another in more rapid succession, the blasts soon become continuous, and the storm rages. The wind roars and rumbles, pipes and howls in the firmament; the sand rushes and rages along the ground; there is creaking and crackling and crashing among the baggage as the planks of the boxes burst. The prevailing sultriness increases till the limit of endurance seems all but reached; all moisture leaves the sweat-covered body; the mucous membranes begin to crack and bleed; the parched tongue lies like a piece of lead in the mouth; the pulse quickens, the heart throbs convulsively; the skin begins to peel, and into the lacerations the raging storm bears fine sand, producing new tortures. The sons of the desert pray and groan, the stranger murmurs and complains.

The severest raging of the sand-storm does not usually last long, it may be only for an hour, or for two or three, just like the analogous thunder-storm in the north. As it assuages the dust sinks, the air clears, perhaps a counter-breeze sets in from the north; the caravan rearranges itself and goes on its way. But if the Simoom last for half a day or for a whole day, then it may fare with the traveller as it

did with an acquaintance of mine, the French traveller Thibaut, as he journeyed through the Northern Bahiuda desert. He found the last well dry, and with almost exhausted water-bags he was forced to push on towards the Nile, four days' journey off. On him and his panic-stricken caravan, which had left every dispensable piece of baggage at the dry well, the deadly storm broke loose. The unfortunate company encamped, hoped for the end of the storm, but waited in vain, mourning, desponding, desperate. One of Thibaut's servants sprang up maddened, howled down the storm, raged, and raved, and at last, utterly spent, fell prostrate on his master, gasped, and died. A second fell victim to sunstroke, and when the storm at last abated was found dead in his resting-place. A third lingered behind the rest after they had started again on their life-or-death race, and he also perished. Half of the camels were lost. With the remnant of his company Thibaut reached the Nile, but in two days his coal-black hair had become white as snow.

To such storms are due the mummied corpses which one sees by the path of the caravan. The storm which killed them also buries them in the drifting sand; this removes all moisture so quickly that the body, instead of decaying, dries up into a mummy. Over them one wind casts a shroud of sand, which another strips away. Then the corpse is seen stretching its hand, its foot, or its face towards the traveller, and one of the drivers answers the petition of the dead, covers him again with sand, and goes on his way, saying, "Sleep, servant of God, sleep in peace."

To such storms are also due the dream-pictures of the Fata Morgana which arise in the minds of the survivors. As long as a man pursues his way with

full, undiminished strength and with sound senses, the mirage appears to him merely as a remarkable natural phenomenon, and in no wise as Fata Morgana. During the hot season, especially about noon, but from nine in the morning until three o'clock, the "devil's sea" is to be seen daily in the desert. A gray surface like a lake, or more accurately like a flooded district, is formed on every plantless flat at a certain distance in front of or around the traveller; it heaves and swells, glitters and shimmers, leaves all actually existing objects visible, but raises them apparently to the level of its uppermost stratum and reflects them down again. Camels or horses disappearing in the distance appear, like the angels in pictures, as if floating on clouds, and if one can distinguish their movements, it seems as if they were about to set down each limb on a cushion of vapour. The distance which limits the phenomenon remains always the same, as long as the observer does not change his angle of vision; and thus it varies for the rider and the pedestrian. The whole phenomenon depends on the well-known law, that a ray of light passing through a medium which is not homogeneous is refracted, and thus it is inevitable, since the lower strata of air become expanded by reflection of heat from the glowing sand. No Arab hides his face when he sees a mirage, as fanciful travellers assure their credulous readers; none puts any deep interpretation on the phrase which he likes to use—"the devil's sea". But when the anxiety, distress, enervation, and misery consequent on a sand-storm beset and weaken him, and the mirage appears, then it may become a Fata Morgana, for the abnormally excited imagination forms pictures which are in most perfect harmony with the most urgent desire of the moment—the desire for water and for

rest. Even to me, who have observed the mirage hundreds of times, the Fata Morgana appeared once. It was after four-and-twenty hours of torturing thirst that I saw the devil's sea sparkling and gleaming before me. I really thought I saw the sacred Nile and boats with full-bellied sails, palm-groves and woods, and country-houses. But where my abnormal senses perceived a flourishing palm-grove, my equally abnormal comrade saw sailing-boats, and where I fancied I recognized gardens, he saw not less imaginary woodland. And all the deceptive phantasms vanished as soon as we were refreshed with an unexpected draught of water; only the nebulous gray sea remained in sight.

Perhaps every one who crosses a stretch of desert in the Nile-lands sees the devil's sea; but there is a real and most living desert picture, a sight of which is not granted to all. On the extreme limit of vision, raised perhaps by the mirage and veiled in vapour, a number of riders appear; they are mounted on steeds swift as the wind, with limbs like those of deer; they approach rapidly, and urging to full gallop the steeds which till then they had restrained, they rush down upon the caravan. It always gave me pleasure to meet these haggard, picturesquely-clad men; they and their horses seemed to be so thoroughly harmonious with the desert. The Bedouin is indeed the true son of the desert, and his steed is his counterpart. He is stern and terrible as the desert day, gentle and friendly as the desert night. True to his pledged word, unswerving in obedience to the laws and customs of his race, dignified in bearing, lofty in discourse, unsurpassed in self-restraint and endurance, more sensitive than almost any other man to deeds of prowess, to glory and honour, and not less to the golden web of fancy into which his

poetic genius weaves such wondrous pictures and twines such tender fragrant flowers; yet is he cunning and crafty towards his enemies, a bounden slave to his customs, unscrupulous in his demands, mean and paltry in his exactions, greedy in his pleasures, unrestrained in cruelty, terrible in revenge, to-day the noble host, to-morrow a threatening and shameless beggar, now a proud robber and again a pitiable thief. In short he is to the stranger as fickle and changeful as the desert itself. His horse has the same keen, fiery, expressive eyes, the same strength and agility in its thin, almost fragile limbs, the same endurance, the same frugality, the same nature as his master, for they grew up together under the same tent, they rest and dwell beneath the same roof. The animal is not the slave but the companion, the friend of its master, the playmate of his children. Proud, spirited, and even savage in the open desert, it is as quiet as a lamb in the tent; it seems altogether inseparable from its master.



Fig. 53.—Band of Mounted Bedouins.

In all the deserts which are, in name at least, under the sway of the Khedive of Egypt, the Bedouins no longer fill the rôle which was theirs in earlier times, and still belongs to them in Arabia and in North-west Africa. For between them and the Egyptian government there is a strict treaty which binds them to allow caravans to pass through their haunts unmolested. Thus robberies in the desert are of the rarest occurrence, and an encounter with the Bedouins raises the less apprehension, since these children of the desert are usually the owners of the hired camels. At the same time the true lords of the waste still love to cling to the old customs and to retain a semblance of their dominion, so that it is prudent before setting out on a desert journey to claim safe-conduct from some recognized chief. With this in possession, an encounter took form somewhat as follows.

One of the sunburnt horsemen sprang forward from the troop, and turned to the leader or head of our caravan.

“Peace be with thee, O stranger!”

“And with thee, O chief, be the grace of God, His mercy, and His compassion!”

“Whither journey ye, sirs?”

“To Belled-Aali, O Sheikh.”

“Do ye journey under protection?”

“We journey under the safe-conduct of his Excellency, the Khedive.”

“And no other?”

“Also Sheikh Soliman, Mohammed Cheir Allah, Ibn Sidi Aulad Aali, has granted us protection and peace.”

“Then are ye welcome and blessed.”

“The Giver of all blessings bless thee and thy father, O chief!”

“Have ye need of ought? My men will supply it. In Wadi Ghitere are our tents, and ye are welcome there if ye seek rest. If not, may Allah grant a prosperous journey!”

“He will be with us, for He is merciful.”

“And the Guide on all good ways.”

“Amen, O chief!”

And the troop wheels off; rider and steed become one; the light hoofs seem scarce to touch the sand, the white burnooses flutter in the wind, and the poet’s words rise into memory—

"Bedouin, on thy steed, thou art a poem in thyself!"

Such are some of the fascinating pictures shown to the receptive eye. The more intimately one comes to know the desert, the more it grows upon one, alleviating and lessening all toil and discomfort. Yet the last hours of the journey are those of greatest joy. When the first palm-village of cultivated land appears in sight, when the silver line of the sacred river is once more visible, gladness fills the heart. Men and beasts hasten as if to prove that the glad reality is not an illusion which may vanish in the mist. But the goal becomes more and more distinct; it seems as if we had never seen fresher colours, we fancy that nowhere else can there be trees so green, water so cool. With a final effort the camels push on, far too slowly for their impatient riders. Friendly greetings reach our ears. The village on the Nile is reached at last. From all the huts throng men and women, the aged and the children. Inquisitively they crowd around the camp, men and women curiously questioning, youths and maidens eager for the dance. Tambura and tarabuka, the zither and drum of the country, invite to motion; and the dancing-girls gladden the eyes of strangers and countrymen alike. Even the creaking of the water-wheel on the river, formerly a thousand times cursed, seems musical to-day. The evening brings fresh joys. Comfortably couched on the cool and elastic divan, the foreigner pledges the native in palm-wine or merieza—the nectar of the land; while the sound of zither and drum, and the rhythmic hand-clapping of the dancing youths and maidens form a merry accompaniment to the dainty banquet. But at length the approaching night begins to press its claims. Tambura and tarabuka sink into silence and the dance comes to an end; one after another, refreshed

and well-content, the travellers seek rest. At length only one is left, a son of Khahira, the mother of the world, whom sleep still refuses to bless. From beside the flickering camp-fire comes his simple, tremulous song—

Sweet night, dear night, thou mak'st me sad,
  Longer thou seem'st and alway longer;
No peace from thee I ever had,
  With thee day's pain grows ever stronger.

Oh, gentle night, how long, how long,
  Since these poor eyes last saw her beauty!
Seeing aught else they do her wrong;
  When will she come to claim their duty?

Oh, tender night, now hovering near,
  Lighten Love's load, and my undoing!
Bring Peace to me, Peace to my Dear,
  Shelter my Sweet, and speed my wooing!

But this lover's plaint also dies away, and the silence of the night is unbroken save by the murmurings of the wavelets on the sacred river.

NUBIA AND THE NILE RAPIDS.[B]

[B] In order to understand and appreciate this chapter the reader should bear in mind that the Nile is in flood from June to about the end of September, being at its highest in the latter month, and at its lowest in April. At low Nile the rapids present a very different appearance from what they do at high Nile.

Egypt and Nubia, though immediately adjacent, and closely connected by a river common to both, are essentially different countries. Through Egypt the sacred Nile flows with leisurely dignity, through Nubia it rushes in furious haste; over Egypt it distributes its blessings widely, in Nubia it is hemmed in by high rocky banks; in Egypt it triumphs over the desert, in Nubia the desert is supreme; Egypt is a garden which the river has formed after thousands of years of ceaseless labour, Nubia is a desert which it cannot conquer. Of course this desert has its oases like any other, but they are few and scarcely worth considering in comparison with the lands on both sides of the stream which remain in unchangeable sterility and desolation. Throughout the greater part of the long winding valley which forms what we call Nubia, dark, gleaming masses of rock rise from the bed of the river or from its immediate vicinity, and over wide tracts prevent the growth of almost all vegetation. They have for their sole adornment the waves of golden yellow sand which are blown from the deserts on east and west, and gradually slide down the rocks into the river.

The sun beats from the deep-blue and rarely cloudy sky; for many years together not a single shower refreshes the thirsty ground. In the deeply cut gorges the life-giving waves of the fertilizing stream contend in vain with the unimpressionable rocks, on which they hurl themselves roaring and foaming, blustering and thundering, as if enraged that their generosity is met with ingratitude and their beneficence with disdain. The field on which this battle is waged is the region of the rapids.

Very few travellers who visit the lower valley of the Nile ever reach the rapids of its middle course. A few go beyond the so-called first cataract, scarcely one in a hundred passes the second. Wady Halfa, a village immediately below the second group of rapids, is the usual goal of travellers; only purposes of exploration, the passion for the chase, or some commercial enterprise, leads any one further south. For it is at Wady Haifa that the difficulties of a journey into the interior really begin, and it is therefore not surprising that the great majority turn the prow of the boat homewards at that village of palms. But no one who is young and vigorous, energetic, and not too luxuriously inclined, will ever regret if he pushes farther south. In the Nile valley, which is by no means rich in picturesqueness, the region of the rapids is quite unique. Grandeur and beauty, sombreness and gaiety, desolation and overflowing life mark the scenes that here follow one another in quick succession; but they are all desert pictures which this landscape presents, and one must forget conventional standards in order to appreciate them as they deserve. The man who is unable to appreciate the desert, to revel in its wealth of colour, to endure its scorching heat, and to find refreshment in its solemn night, would do well to avoid the desert

of the Nile. But he who travels through the country of the rapids with open eye and receptive heart, who in his frail boat engages, wherever possible, in the struggle with the furiously foaming waves, will have his whole life enriched with precious memories. For never will the impressive spectacle that his eye has looked on fade from his mental vision, never will the sublime melody the stream has sung in his ear cease to echo in his soul. Such, at least, is my experience, and I have journeyed through the rocky valley of Nubia on land and on water, up the river and down, contending with the waves, ay, and with hunger and want, and looking down on the rapids from the tops of high cliffs as well as from the camel's back.

It is customary to speak of three cataracts. Each consists of a series of rapids, which, for about a mile, make navigation in the highest degree difficult and dangerous. At the first cataract there is properly but one rapid; taking the second and third together there are about thirty which the Nubian boatmen call by special names. There are no waterfalls which make navigation of any kind impossible, not at least on the regular route where, in addition to passing vessels, there ply boats specially built and equipped for the rapids.[76]

When the traveller in his progress up the sacred river has traversed the north-easterly tract where the river is hemmed in between the Rocks of the Chain (*Jebel Silsileh*), the scenery changes abruptly. Behind him lies Egypt, in other words the low-lying valley, broadening seawards into a boundless plain; before him rises the rocky threshold of Nubia. The contrast is most striking. Monotony is replaced by diversity. It is indeed true that even the scenery of Egypt presents many a picture which is stimulating to the eye and

refreshing to the soul; it is true that its beauty is enhanced, especially in the morning and evening hours, by the wondrous brilliance of southern light; but taken as a whole it seems monotonous, for everywhere the prospect is alike, whether the eye rests on rocks of sandstone and limestone by the margin of the valley, or takes a wider survey over the river and the fields. One and the same picture, with little variety, is repeated a hundred times: hills and fruitful plains, river-banks and islands, thickets of mimosa, groves of palms and sycamores, towns and villages, everywhere bear essentially the same stamp. But at the rock-masses of the first cataract, which form the last barrier overcome by the stream as it presses towards the sea, Egypt really ends and Nubia begins. No longer does the boat glide smoothly on a surface majestically calm; it has to fight its way among low masses of rock, and among rocky cones that rear themselves above the waves.

Nearing the first cataract, we see, high on a precipitous headland on the left bank, a wretched and yet impressive piece of Arabic architecture, the sepulchre of Sheikh Musas, the patron saint of the first rapids. Further on lies the island of Elephantine, rich in palms, and immediately beyond is Assuan. The way is hemmed in by masses of rock, from whose surface the waves, storming for thousands of years, have not succeeded in obliterating hieroglyphics graven in the time of the Pharaohs. These rocks compel the boat to follow a tortuous course, till at length it finds a safe landing-place in a calm creek, which is, however, so near the rapids that it is resonant with their raging.

It is venerable ground on which we stand. Through the inscriptions in the sacred characters of the

ancient Egyptian people, past ages converse with us in intelligible speech. “Ab”, or ivory-store, was the name of the town Elephantine on the island of that name, and the island remains though even the ruins of the town have almost completely disappeared: “Sun” or Syene was the township on the right bank where the modern Assuan stands. Elephantine was the most southerly harbour of the old Egyptians and the capital of the southern Nile district; it was the ancient depot for produce from the interior, especially for ivory, highly prized then as now. “Sun” was probably only a village of working people, but as such by no means of less importance than Elephantine. For near here, from the earliest times, the “Mat” or “Ethiopian stone” of Herodotus was quarried, and was brought to the river-banks to be loaded on the boats, which bore it to its destination. It was from this place that the valuable stone derived the name of Syenite, which it still bears.[77] Inscriptions which are found on monuments dating from the oldest dynasties of Egyptian kings, that is to say from two or three thousand years before the Christian era, make repeated mention of “Sun”, and countless other hieroglyphics in the adjacent quarries testify to the importance of this industrial village. These quarries extend over many square miles of the desert to the east of the cataract. From them were hewn those immense blocks which form the columns, obelisks, cornices, and lintels of the temples, and fill us with wonder and admiration. With them, too, the ancients roofed in the sepulchral chambers of the pyramids, confident that they would bear the stupendous burden piled above them. “All around us here”, says my learned friend Dümichen, “we see how human hands laboured to loosen the valuable stone from the wall of rock, and to immortalize this

or that event in sculpture or inscription. Everywhere the rock has become a memorial of the past, and numerous inscriptions, often on the highest peaks of the mountains, proclaim the glory of the divine trinity worshipped by the first province of Upper Egypt—the Cataract-god Chnum-Ra, and his two consorts Sati and Anuke—or celebrate the exploits of Egyptian kings and high officers of state. Some of these go back to the oldest historic times, and yet how young they seem in comparison with the work, which through innumerable ages the Egyptian Sun-god Ra has wrought upon the stone. For the rocks, all around which are as yet untouched by human hand, present to us a surface covered with a dark crust gleaming like enamel; while the cut surfaces of the syenite (to many of which we may certainly ascribe an age of four thousand years) still show, like the blocks in the quarries, the characteristic red of the granite in its pristine vividness—they are still too young to show the impress of Time's hand."

From any of the higher peaks on the banks one can get a survey of a part of the cataract. Two deserts meet at the Nile, and join hands across it by means of hundreds of small rocky islands. Every island splits the stream, forcing it into a narrower channel, through which, however, it rushes all the more violently, ceaselessly dashing against the ruins of the rocky barrier through which it burst hundreds of thousands of years ago. The river seems to be intent on sweeping them away to utter destruction, and to be enraged at finding its opponents still invincible. The thunder of its waters resounds in the ears of the spectator above, and seems to him a fit accompaniment to the magnificent scene beneath him. Restless as the ever-flowing waves, the eye travels over the chaos of rocks; it embraces hundreds

of single pictures in one glance, and then combines these into one sublime, harmonious whole, the stiff masses of gleaming rock contrasting sharply with the white foam of the hissing water, the golden-yellow deserts that bound them on either side, and the dark, cloudless sky overhead. The upper region of the rapids is especially charming. A chain of black rocks, the natural boundary-wall between Egypt and Nubia, stretches obliquely across the river, and sweeps out on both right and left bank in a wide curve, thus forming before the eye of the spectator a great basin almost completely surrounded by rocky ramparts. These walls consist in part of continuous masses, but in part also of loose blocks—round, oval, and angular—lying one upon the other as though piled up by the hand of some giant. Here and there portions of this wonderful rampart project and again recede; here and there they rise like islands from the bed of the ancient lake which they encircled before the mighty stream broke its way through.

In the midst of these prehistoric ruins lies the green, palm-clad island of Philæ with its stately temple. I know of no more impressive picture than this. Surrounded by dark, rugged rocks, encompassed by the ceaseless roar of the waves as they beat on its foundations, bedecked with fruitful palms and fragrant mimosas, the temple stands—a striking emblem of inner peace amid raging strife. The river shouts its mighty battle-song; the palms wave back an answer of peace. A worthier place could scarcely be found for the worship of the great god to whom it was dedicated. Amid such solitude, and in such an environment, the spirit of the youths whom the wise priests taught must surely have found both nurture and life, must surely have turned to what is high and holy, have recognized the kernel within the sensory

symbolism of their cult, and have beheld the veiled image of Sais.

In the sacred trinity—Isis, Osiris, and Horus—to whom the temple of Philæ was dedicated, Isis stood supreme. “Isis, the great goddess, the queen of heaven, sovereign of all gods and goddesses, who with her son Horus and her brother Osiris is worshipped in every city; the exalted, divine mother, the spouse of Osiris, she is the queen of Philæ.” Such is the tenor of the inscriptions in the temple itself. But records in all the different kinds of writing that were in use at various epochs of Egyptian history tell also of the changes which have befallen the temple in the course of ages, down to the time when the Christian priests, who had succeeded the servants of Isis, were driven from the sanctuary by hordes of immigrant Arabs.

To-day the greater part of Philæ is in ruins. Instead of the solemn chant of the priests, one hears only the simple song of the desert-lark; but the waves of the stream still roar in their strength as they did thousands of years ago. The island is desolate, but the peace of the temple has remained to it. And, in spite of all changes, island and temple are still the jewel of the first cataract.[78]

For some distance upwards from this point the Nile is free from rocks, yet quite incapable of bestowing its blessing upon the shore. Laboriously man endeavours to force from the stream what is elsewhere so lavishly bestowed. Wheel after wheel creaks as it raises the life-giving water to the narrow fringe of cultivation along the banks. But in most places the desert and the rocks press so closely on the river that no space is left for field or grove of palms. For long stretches one sees nothing but stunted weeds,

between which the yellow drift-sand rolls ceaselessly down, as though it would help the desert even here to a victory over the sacred giver of fruitful land.

To the south of Wady Halfa, the most southern village of the tract above mentioned, the stream again rages among impeding rocky islands. Countless masses of stone, blocks and cones of rock, compel the river to divide its forces; the eye is bewildered by a chaos of rock and water, the like of which is to be seen nowhere else. When the water is high, the roar of the waves whirling and surging between the rocks drowns the human voice; the river rumbles and thunders, rages and blusters, dashes and hisses, so that the very rocks appear to quake.

Beyond the rapids and whirlpools, which at this point are almost continuous, the full-swollen Nile lies like a broad, calm lake; but this pleasant picture, enhanced by the presence of several green islands, is circumscribed by narrow limits. For, further up, the bed of the stream is again divided by countless rocky islands, which mark the beginning of the “Batte el Hadjar”, or “rocky valley” of the boatmen, in which lie no less than ten considerable rapids. It is by far the dreariest region in Nubia, or in the whole Nile valley. From the river there is usually nothing to be seen but sky and water, rock and sand. The rocks rise steeply, sometimes almost vertically, on either bank, and between them and the countless islands the Nile is so cooped up that during its flood-time it reaches a height of 40 to 50 feet above its lowest level.

The rocky banks of the stream are as smooth as if they had been polished; they gleam and glow by day as if they had just left the earth’s fiery interior. The beneficent stream rushes over them, leaving scarcely a trace behind; indeed, only in a very few places can

it possibly exercise its prerogative of blessing. Here and there, in receding creeks, or behind projecting bastions, which divert the violent current, the river deposits its fertile mud and may carry a few seeds to a resting-place. Then, even in this wilderness, there is germination and growth, foliage and flowers. On all the islands in whose rocky clefts mud has been caught and kept, and in all the inlets which the current does not sweep, there is a growth of willows and scattered mimosas, evidences of life in the realm of death. When a willow has found a foothold it sends out root after root, shoot after shoot, and soon the naked ground is clothed in enlivening green. While the water is low the willows gradually spread; when the flood comes the waves roll over both island and willow-beds. Higher and higher rises the stream, fiercer and stronger press the waves; the willows bow before them, but keep firm hold of the rocks. For months the flood buries them, all but a few twigs which project above the boiling, hissing waves; yet the roots hold fast, and the shrubs sprout with renewed vigour as soon as the flood subsides. In such pleasant spots, amid the dreary waste, signs of animal life are to be seen, as in some other parts of the Nile valley. Here and there among the willows a pair of Nile-geese have settled, lively and clamorous; on the rock above, the pretty water-wagtail has made its home; from the shore cliffs sounds the song of the blue rock-thrush or the black wheatear; on the blossoming mimosas a gorgeous sun-bird—the first tropical bird one meets—is busily at work; and now and then one may come upon a flock of pretty little rock-partridges. These, and a few others, form the sparse fauna of the rocky valley, but during the migrating season they are often joined by large flocks of birds, who make the course of the stream their

highway to the interior, and rest here and there on the journey. But they hasten on again at their utmost speed, since the rocky valley is incapable of supporting them even for a few days; indeed, it is often difficult to understand where they find their daily bread.

But these are not the only settlers in this wilderness of waters. Even men are able to find a home here. At intervals of a mile or more one comes upon a miserable straw hut, in which a Nubian and his family eke out a meagre subsistence. A small creek between the precipices on the shore filled with fertile mud, or it may be only a deposit of mud upon the rocks themselves, forms the paltry farm which he cultivates. The owner of a creek is rich compared with his poor neighbour who can call himself master only of a mere mud-bed. At the risk of his life the latter swims to spots which are inaccessible on foot, and sows some beans on the mud-plot from which the falling stream has just receded. Some days later, when the river has sunk still lower, he repeats his visit and his sowing operations, and so proceeds on the parts of the mud-bank successively uncovered as long as the river continues to fall. Thus at such places one sees fields of beans at all stages of growth, becoming broader as the water sinks; and the frugal husbandman is engaged at once with sowing and reaping. In the most favourable circumstances a deeply receding inlet, filled with Nile mud, makes it possible for the farmer to erect a water-wheel and to irrigate a field a few acres in extent. The fortunate possessor is then able to keep a cow, and to live at least in tolerable comfort, although he is still so poor that even the Egyptian government does not venture to burden him with taxes. But such places are rare oases in this forbidding waste. The boatman, fighting

his way up-stream, welcomes every bush; he greets a palm-tree with manifest joy, a bean-field, perhaps hoped for all day long, with exultation, a water-wheel with thanks to the All-merciful. For it is not merely that his bold spirit has learned to know fear in this valley of rocks, but also because he knows well that, should his supply of provisions fail, bitter want would befall him, and starvation stare him in the face. Down-stream the well-steered boat speeds rapidly through this land of desolation and poverty; but sailing up-stream it often lies, as if spell-bound, for hours, or even days, at a time, waiting for a favourable wind, sheltered by a rock from the force of a rapid. The boatman, who becomes "sea-sick" with the incessant rocking of his craft, may roam or swim for miles without coming upon men or fields.



Fig. 54.—An Egyptian *Sakieh* or Water-wheel.

At its southern limit the rocky valley passes almost abruptly into the fertile country of middle Nubia. Before the traveller lies a narrow basin shut in by two deserts, and with several large islands in its midst. The basin is filled with mud, and of this the

islands are composed. Though we do not yet find all the wealth of tropical life, there are hints of it in the freshness and vigour of both fauna and flora. Almost continuous palm-groves, in which ripen the most delicious dates in the world, border this pleasant oasis in which the labours of the husbandman are rewarded by rich harvests. Christ-thorns and various mimosas, not hitherto seen, give evidence that we have crossed the equator. Besides the sun-bird already mentioned, there are now other birds characteristic of the interior of Africa. In the first dhurra-field which one carefully observes, the eyes are gladdened by a sight of the fiery weaver-bird, as beautiful as it is agile, which has its home among the stems, and from time to time appears like a flash of fire on the top of an ear, uttering from this perch its simple whirring and buzzing song, and inciting others of its kind to a like display. In the holes and crevices of the mud-huts other members of the family, especially steel-finches and blood-finches, have established themselves; in the gardens round the houses the cape-pigeons have settled; on the sand-banks in the stream have been hollowed out the shallow mud-nests of the shear-waters or skimmers—night-terns, of peculiar habit, who do not begin to seek their prey until the twilight, and fish, not by diving, but by skimming over the waves and rapidly ploughing the water with their bills, thus catching small creatures which swim on or near the surface.

But this cheerful region has narrow limits. Below the ruined temple of Barkal the desolate and barren hills again encroach on the river, excluding fertile land and steppe alike. The last group of rapids now lies before the traveller who is making his way up-stream. The region of the third group of cataracts is not so unutterably poor as the rocky valley. Well-

tilled, though narrow, strips of land lie on either bank, and there are fertile islands in mid-stream; thus there is not that look of hopeless poverty which is characteristic of the region already traversed. The masses of rock on the banks are more broken up than those in the rocky valley, and there are many of the so-called “stone-seas”, hillocks and walls of wildly jumbled blocks and rolled stones, such as mighty streams leave behind when they dig their bed deeper in the valley. On each side, usually on the top of the cliff next the stream, there are great blocks of more than a hundred cubic yards in bulk, which rest so loosely on their substratum that they oscillate in violent wind, and could be hurled down by a few men with levers. In many places these stone-seas present a most extraordinary appearance. It seems just as if giants had for a whim amused themselves by erecting cones and pyramids, mounds and ramparts to form a weirdly-disordered parapet on the river’s rocky embankment. But it is not so much to this strange natural architecture as to ancient works of man’s own hand, that the third group of rapids owes its characteristic appearance. On all suitable rock-projections, and especially on the larger islands, rise buildings with inclosing walls, towers, and jagged battlements, such as are not seen elsewhere in the Nile valley. These are fortifications of ancient days, castles of the river-chiefs, erected for protection and defiance, to secure life and property against the invasions of hostile neighbouring tribes. The ramparts and battlements are built of unhewn stones, rudely piled one upon the other, usually cemented only with Nile mud; the thick walls of the superstructure, roofed with sun-dried mud-tiles, have for the most part fallen or are still falling. These fortresses impress one not so much by their

architecture as by the boldness of their position. A naked, deep-black, glistening rock rises from the midst of the rushing waters, and bears on its summit one of these forts. The waves beat wildly around its base, but it stands absolutely unshaken by any flood, and towers aloft, an impregnable refuge. On the down-stream side, in the shelter of the rock, the life-giving stream has added beauty to sublimity. For in the course of ages the mud accumulated in the still-water, and an island gradually rose above the flood. On this fertile island man planted palms and laid out fields; and thus, among the rocks there arose a pleasing scene of security and comfort, all the more impressive in its contrast to the wilderness of restless water and barren rock.

At the southern boundary of the third group of rapids begin the steppes and forests of tropical Africa, in which rocks are found only here and there on the banks of the main stream and its great tributaries. For over 450 miles the Bahr-el-Abiad and Bahr-el-Azrek, the White and the Blue Nile, flow through a fruitful and almost flat country; thereafter there are again some rapids. But they do not belong to the picture whose chief outlines I have been endeavouring to sketch: Nubia alone is the land of the Nile cataracts.

While it is difficult to tell to what degree the Nubian has been influenced by his surroundings, or made by them the manner of man he is, this at least may be safely said, that he is as markedly differentiated from his neighbour, the modern Egyptian, as his home is different from the land of Egypt. The truth is, they have nothing in common, neither race nor speech, neither customs nor habits, scarcely even religion, although both to-day repeat the creed, “There is but

one God, and Mohammed is His prophet".

The modern Egyptians are of mixed blood, being descended from the ancient Egyptians and the immigrant Arabic hordes from Yemen and Hedjaz, who amalgamated with the earlier inhabitants of the lower Nile valley. The Nubians are descendants of the "wild Blemyes", with whom the Pharaohs of the ancient, middle, and more recent dynasties, as well as the Egyptian governors of the Ptolemies, contended ceaselessly, and by no means always successfully. The former use the language in which the "Revelations" of Mohammed are recorded, the latter use an old Ethiopian speech now split up into several dialects; the former employ an ancient mode of writing, the latter never have had any which has taken organic root in their own language. The former still preserve the seriousness at once characteristic of the old Egyptians, and of the sons of the desert from whom they sprang. Like all Orientals they give themselves, throughout their whole life, deep anxiety about the world to come, and order their customs and habits according to their fantastic notions of it. The Nubians, on the other hand, have preserved the cheerful joyousness of the Ethiopians, living like children for the present, taking what is pleasant without thanks and what is painful with loud complainings, and under the influence of the moment readily forgetting both. The yoke of foreign masters rests heavily on both alike; the Egyptian bears it with groaning and grumbling, the Nubian with equanimity and without resistance; the former is a sullen slave, the latter a willing servant. Every Egyptian fancies himself high above the Nubian, regards himself as nobler in race, speech, and customs; boasts of his culture, though that is restricted to but a few of the people, and seeks to

oppress the dark-skinned race as completely as he himself is oppressed. The Nubian recognizes the general physical superiority of the Egyptian, and thoroughly acknowledges the intellectual culture of the prominent members of the neighbour-people, but he seems to be scarcely conscious of his own deficiency in culture, and is even inclined, in his turn, to enslave the less strong or less gifted people of the interior. Yet even with the purchased negro he is on a brotherly footing, and seems to have patiently submitted to his burdensome fate, after having tried in vain to contend successfully against a superior force. In every fibre of his being he is still a child of nature, while the Egyptian seems the sad type of a decayed and still decadent people. The Nubian, in the most barren country in the world, still retains a measure of freedom; the Egyptian, on the richest of soils, has become a slave, who is not likely ever to venture to shake off his chains, though he still talks vaingloriously of the greatness of his past.

In point of fact, the Nubian has as much right, if not more, to glory in the exploits of his ancestors and to fortify his soul in recounting their prowess. For these ancestors fought bravely not only with the Pharaohs and the Romans, but also with the Turks and the Arabs—the governing and subject races of modern Egypt[79]—nor would they have been overcome had they not been without fire-arms. At the time of my first visit to the Nile, eye-witnesses of some of the last battles were still alive, and from their lips I learned enough to enable me to do justice, in one respect at least, to a manly, much misjudged people. The events to which I refer took place in the beginning of the third decade of this century.

After Mohammed-Aali, the energetic but

unscrupulous and even cruel founder of the family now ruling in Egypt, had, in March 1811, treacherously fallen upon and massacred the chiefs of the Mamelukes whom he had invited to meet him, his mastery of the Lower Nile seemed assured. But the proud warriors, whose leaders had been done to death by shameful stratagem and unworthy breach of faith, were not completely subjugated. Brooding revenge, the Mamelukes chose new leaders and betook themselves to Nubia, there to collect their forces, to renew the combat with their artful foe, or at least to threaten him. Mohammed-Aali recognized the danger, and delayed not to meet it. His army followed the still-scattered troops of the Mamelukes. The latter, too weak to venture open battle, were forced to take to the river-forts, where, fighting desperately and defiant of death, they fell to a man. The Nubians were conquered at the same time, and, submitting to their fate, were condemned to servitude. Only the brave race of the warlike Sheikier resisted. In 1820 they met the Turkish-Egyptian army near the village of Korti—an heroic but undisciplined people, accustomed to win victory with lance, sword, and shield, against well-drilled soldiers equipped with fire-arms. According to ancient custom the women were present at the battle to stimulate the combatants with their shrill battle-cry, to raise the children aloft in their arms, that the fathers, seeing them, might be fired to deeds defiant of death.

The Nubians fought in a manner worthy of their sires; bravely they pressed forward against the artillery, which wrought fell destruction in their ranks. Mightily they smote with their long swords at the supposed monsters, leaving the deep impress of their sharp blades on the brazen barrels of the cannons; but the Egyptians conquered. Not bravery,

but superiority of weapons won the day. Amid screams of woe from the women, the brown warriors took to flight. But the former, possessed by a wild despair, preferring glorious death to shameful servitude, pressed their children to their breasts and threw themselves in hundreds into the river, which the blood of their husbands had reddened. The deserts on both sides of the stream prevented the fugitives from reaching any refuge, and finally there was nothing left to them but to surrender and to bend their hitherto unbowed necks under the yoke of the conqueror.

Only once again did the old heroic spirit burst into clear flames. One of the chiefs, who is already celebrated in the saga of Melik el Nimmr, or “the panther-king”, collected his people at Shendy in South Nubia, for the lash of the cruel conqueror had become unbearable. Suspicious of his intentions, Ismael Pasha, son of the Egyptian governor and commander of the forces, set out against him, and making use of all available boats, appeared at Shendy before Melik Nimmr had by any means completed his preparations. Impossible demands were made in order to compel Melik Nimmr to absolute subjection. He, recognizing the impending ruin, braced himself for action. While he feigned submission, his messengers hastened from hut to hut stirring into flames the sparks of insurrection which glimmered everywhere beneath the ashes. By crafty representations he induced Ismael Pasha to leave the security of his ship. He lured him to the roomy though straw-thatched royal dwelling, surrounded by a thick hedge of thorns and by immense heaps of straw which, according to the panther-king’s assurance, were intended to supply the camel-fodder which the Pasha demanded.

A splendid feast, such as Ismael has never seen, will Melik Nimmr give to his lord and master. He begs leave to invite all the officers of the Egyptian army, and receives the Pasha's permission. Captains, officers, and staff are gathered to the feast in the king's humble palace. Outside the fence of thorns sounds the tarabuka, the drum of the country which calls to the dance, as also to the battle. The young folk, festively anointed, engage in a merry war-dance. Hurled lances whirr through the air, and are deftly caught on the small shields of the company of dancers ranged opposite. Long swords are whirled dexterously, and as skilfully warded off. Ismael is mightily delighted with the handsome, dusky youths, the graceful movements of their supple limbs, the boldness of their attack, the security of their defence. Thicker and thicker becomes the whirling throng in front of the banquet-hall, more and more sword-dancers appear, more violent and riotous become their movements, and more rapidly beat the drums. Then suddenly the tarabuka changes its tone; it is echoed a hundred-fold in all quarters of Shendy, and not less in the neighbouring villages on this side and on that side of the river. A great cry of rage in the highest notes of women's voices fills the air; and women naked to the loins, with dust and ashes on their oil-soaked hair, bearing firebrands in their hands, rush upon the king's hall, hurling their brands on the walls and on the surrounding heaps of straw. A monstrous sheaf of fire shoots up to heaven, and amid the flames, resounding with cries of horror and woe, of execration and rage, the death-dealing lances of the dancers fly in thousands. Neither Ismael Pasha nor any of his feasting comrades escape a horrible death.

It was as if champions of the down-trodden people

had risen from the ground. Whoever could bear weapons turned against the cruel enemy; women, forgetful of their sex, joined the ranks of the combatants; girls and boys strove with the strength and endurance of men towards the common end. Shendy and Metamme were in one night freed of all their foes. Only a few of the Egyptians, quartered in the distant villages, escaped the bath of blood, and brought the gruesome news to the second commander, then stationed in Kordofan.

He, Mohammed-Bei el Defterdar, still spoken of by the Nubians as “el Djelad” or the devil, hastened with all his forces to Shendy, defeated the Nubians for the second time, and glutted his revenge by the slaughter of more than half the population of the unhappy country. The “panther-king” succeeded in escaping to Abyssinia; but his subjects had to bow under the foreign yoke, and their children “grew up”, to use the expression of my informant, “in the blood of their fathers”. Since these misfortunes the Nubians have remained submissive thralls of their oppressors.

The Nubians, or, as they call themselves, the Barabra, are a people of medium height, slim, and well-proportioned, with relatively small, well-formed hands and feet, with generally pleasant features, characterized by almond-shaped eyes, a high, straight or curved nose, slightly broadened only at the lobes, a small mouth, fleshy lips, an arched forehead, and a long chin. Their hair is fine, slightly curled but not woolly; the colour of their skin varies from bronze to dark-brown. They have a good carriage, their walk is light and elastic, and their other movements nimble and graceful. Thus they contrast very favourably with the negroes of the Upper Nile valley, and even with the Fungis of

Eastern Soudan. The men shave the hair of the head either altogether, or all but a tuft at the top, and wear a tightly-fitting white cap, the *takhie*, over which on holidays a white cloth may be twisted like a turban. The clothing consists of a shawl, six to nine yards in length, wound around the upper part of the body, short breeches and sandals, and an additional blue or white robe-like garment on holidays. A dagger is carried on the left arm, and, when journeying, they also carry a lance. Leather rolls, which are said to contain amulets, and a little pocket, hung round the neck with cords, are the only ornaments worn by the men. The women arrange their hair in hundreds of small thin plaits, which they soak with mutton fat, butter, or castor-oil, thus diffusing an odour which to our nostrils seems almost unendurable; they tattoo various parts of their face and body with indigo; their lips are often dyed blue, and their palms always red. They adorn their necks with beads of glass, amber, and cornelian, amulet-pockets, and the like, their ankles with bangles of tinware, ivory, or horn, their ears, nostrils, and fingers with rings of silver. An apron reaching to the ankle is worn round the loins instead of trousers, and the shawl is wound in picturesque folds around breast and shoulders. The boys go naked until their sixth or eighth year; the girls wear from their fourth year an exceedingly becoming tassel-apron, made of fine strips of leather, and often decorated with glass-beads or shells.

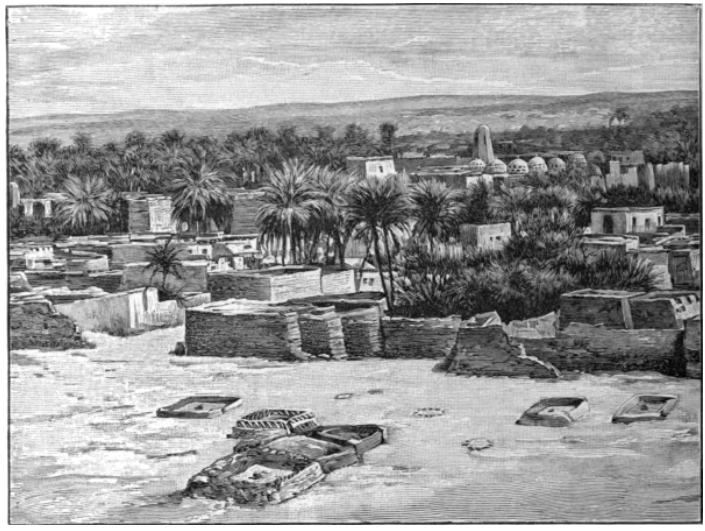


Fig. 55.—A Nubian Village on the Nile.

All the Nubians settled in the valley of the river live in four-cornered huts, more or less cubical in form. The walls are sometimes built of sun-dried bricks, and then they slope slightly inwards as they ascend, or the house may consist of a light wooden framework covered with straw. Usually there is but one room with a low door, and often the windows are represented only by air-holes: in fact the whole arrangements are of the simplest. The furnishings consist of a raised couch—the *aukareb*—with a cover of interwoven strips of leather or bast; simple chests; well-finished, even water-tight baskets; leather-bags; vessels for holding water, dhurra beer, and palm wine; hand-mills or stones for grinding the grain; iron or earthen plates, slightly hollowed on the surface, for baking bread; hollow gourds, a hatchet, a gimlet, several mattocks, and the like. Mats, curtains, screens, and coverlets are accessories; bowls, flat woven dishes and their lids are luxuries which not every house possesses. The food consists chiefly,

sometimes almost exclusively, of vegetable produce, milk, butter, and eggs. The grain, which is more frequently rubbed than ground, is worked into dough, and baked into a doughy bread. This may be eaten alone without any relish, or along with milk, or with thick mucilaginous soups made of various plants. To the latter may be added numerous pungent spices and some shreds of flesh, which has been dried in strips in the sun. The Nubian is more keen for drink than for food, and of every intoxicating liquor, whether of native or foreign origin, he always shows an eager, not to say excessive, appreciation.

The habits and customs of the inhabitants of the middle Nile valley display a remarkable amalgamation of inherited and acquired characters. Taciturn and carelessly pliant, the Nubian seems as willing to adapt himself to what is new as to forget the traditions of his home. Worshipper of Islam more in name than in reality, he is as innocent of strict adherence to the tenets of his creed as of intolerance towards those of another faith. Until he has reached mature manhood or old age, he seldom or never respects the commandments of the Prophet with the conscientiousness of Arab or Turk. He circumcises his boys, gives his daughters in marriage, treats his wives, buries his dead, and celebrates the feasts according to the laws of Islam; but he thinks that he has done quite enough if he observes the external regulations of his cult. Song and dance, amusing conversation, jokes, and a drinking revel, please him better than the precepts and commandments of the Koran; he has no mind to engage in monastic exercises of faith and penitence, nor even in the fasts which other Mohammedans hold so sacred.

At the same time, no one can call the Nubian weak-willed, fickle, servile, untrustworthy, treacherous, or, in short, bad. In lower Nubia, where he constantly meets with hundreds of travellers, rich in his eyes, and free-handed, he of course frequently becomes a shameless, indeed an unendurable beggar; and the strangers whom he importunes, because his poor land will not support him, do not tend to ennoble him. On the whole, however, he may fairly be called an honest fellow. One misses, it is true, the strength of will characteristic of his fathers, but spirit and courage are by no means lacking. He is gentler and more good-natured than the Egyptian, and not less trustworthy and enduring when he has to face difficult or dangerous tasks. In his poor, unproductive country his whole being is rooted. Of it he thinks with pathetic constancy when in a strange land; he labours, pinches, and saves with the one desire to pass his manhood and old age at home; and this desire, which compels him to a ceaseless struggle for existence, gives strength to both body and soul. The raging stream, with which he contends not less persistently than with the rocky land, arouses and preserves his courage and self-reliance, just as it develops his calm confidence in face of danger. Thanks to the qualities thus acquired, the Nubian is a trusty servant, a reliable companion, a restless *djellabi* or merchant, and, above all, an adventurous, fearless boatman.

It almost seems as if the parents disciplined their sons from their earliest years in all the services which they may have to discharge when grown up. As in Egypt, so in Nubia the children of the poor are hardly educated at all; they are at most urged to work, or rather are utilized according to the measure of their strength. However small the boy, he must do

his work and fulfil his allotted task; however tender the girl, she must help her mother in the many duties which are laid upon the women of the land. But whereas in Egypt they scarcely allow the children any recreation, in Nubia merry games are as far as possible encouraged. In Egypt the boy becomes a thrall and the girl his slave, without ever knowing the joys of childhood; in Nubia even those who are more than half grown-up are often still children alike in their disposition and in their ways. Thus the Egyptian youths seem to us as unnaturally serious as their fathers, while the Nubians are as joyous as their mothers.

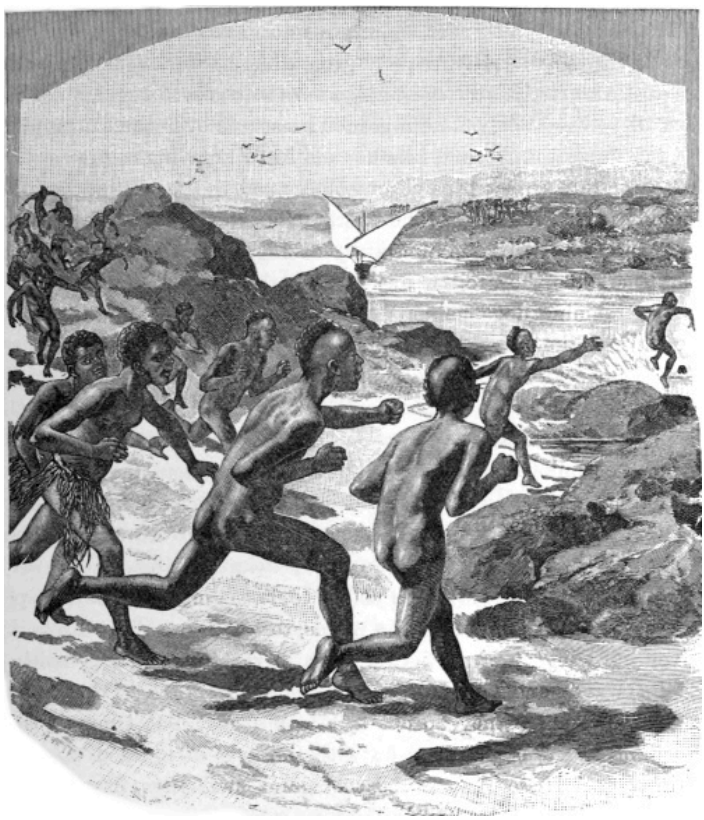


Fig. 56.—Nubian Children at Play.

Every traveller becomes familiar with a favourite game, which he cannot watch without delight, for it displays agility and grace of movement in combination with endurance and the spirit of adventure. It is the universal game of “Hare and Hounds” or “Follow my leader”. After their work is done the boys and girls unite in play. The boys leave the water-wheel around which they have driven the oxen from early morning till dusk, or the field in which they have worked with their father, or the young camel which they have been teaching to trot. The girls leave the younger brothers and sisters whom they have dragged rather than carried about all day, or the dough whose leavening they had to superintend, or the grinding-mill over which they have exerted their young strength. All hasten to the bank of the river. The boys are naked; the girls wear only their tasselled aprons. Laughing and chattering they go; like black ants they swarm on the golden yellow sand, running over and between the dark rocks. Those who are to chase stand picturesquely grouped, until the fugitive gets the requisite start. He gives the sign for the chase to begin, and they are all at his heels. Like a gazelle he speeds over the sandy plain to the nearest rocks, and like hounds in full cry his comrades give chase; like a chamois he climbs aloft upon the rocks, and not less nimbly do his pursuers follow; like a startled beaver he plunges into the stream to hide himself by diving, to escape by swimming, but there too they follow excitedly, both boys and girls, kicking like swimming dogs, halloing and screaming, chattering, laughing, chuckling, like a flock of gabbling ducks. For long the result remains undecided, and it not unfrequently happens that the bold fugitive swims right across the

broad river before he falls into the hands of his pursuers. The parents of the merry company look on from the banks, and rejoice in the agility, courage, and endurance which their children display, and even the European is compelled to admit that he never saw creatures more joyous or more vigorous than those slim, dusky, sleek-skinned Nubian children.

From boys who play thus boldly come the men who dare to ply the boatman's craft among the rapids, to steer their boat down the river hurrying through the valley, with rushing, swirling, boiling, raging waves, and even to sail upwards against these. On many of their journeyings they do not even use a boat, but trust to frail floats of dhurra-stems, or swim with the help of inflated, air-tight skin-bags. These Nubian boatmen and swimmers have looked danger in the face so firmly, and so often, that the waves have never whispered either myth or saga in their ears. They know of no nixies or water-sprites, of no genii, good or bad, and the protecting powers whose help they ask before or during dangerous journeys have but the solemn might of fate, none of the spite of fickle spirits. Thus the saga is dumb in the rapids, in "the Belly of the Rocks", in the plunging, whirling "Mother of Stones", in the "Shatterer", the "Camel's Neck", the "Coral", or whatever the rapid may be called; the saga is dumb, though the whole region seems the fittest home of legends, and the boatman has too often reason to be tempted to believe in spirits who wish ill to human kind.

The rapids are navigated down-stream at high and middle water, up-stream at middle and low water. When the Nile is lowest any boat going down-stream would be shattered; when the flood comes not even the

largest sail would impel a vessel of considerable size against the current. At low water hundreds of men are requisitioned to haul one of the all-powerful government's medium-sized barks up-stream; at the time of flood, they would scarcely be able to find footing on the few unflooded rock-islands on either side of the navigable channel. Full flood is the best time for going down-stream, and middle-water is best for going up, since at this time the regular north winds have set in and render practicable the use of sails.

All the craft specially intended for the rapids are distinguished from other Nile boats by their small size and by peculiarities of build and of rigging. The hull has but few timbers, and the boards are held together by nails driven in obliquely. The sail is not triangular, but four-sided, and fastened to two yards in such a way that from the lower more or less canvas can be unfurled, or spread to the wind. The build and rigging are thoroughly adapted to the conditions. The smallness, especially the shortness of the boat, is adapted to the necessity for sharp turnings; the manner in which the boards are joined gives the hull an elastic flexibility and pliancy which are valuable when the vessel runs aground; the adaptability of the canvas to the strength of the wind and of the current makes it possible to maintain a fairly successful contest against a most variable resistance. Nevertheless no one would willingly go up or down stream alone; the boatmen wisely prefer to go in companies, so that they may aid one another whenever occasion demands.

A fleet of boats plying up-stream presents a beautiful, inspiring picture as it sails away from a landing-place, or from some quiet creek, in which it has

rested by night. All the navigable portions of the river show white sails, of which one can see twenty or more gliding among the dark rocks; at first all the craft are about the same distance apart, but soon the variable currents and breezes break their order. One and then another lags farther and farther behind, one and then another shoots ahead of the main body of the fleet, and in the course of an hour there is a wide interval between the first boat and the last. Yet, even with a strong and constant wind, the progress of the voyage is much less than it seems. The waves, indeed, break impetuously on the bow, but the boat has to contend with so strong an opposing current that its forward movement is really slow. It is an art to steer under such conditions, so that the boat may sail as straight as possible, consistent with avoiding the rocks hidden beneath the surface. For every tack means a change in the position of the unwieldy sail, and every time the boat touches a rock a leak is caused. Captain and crew have thus constant employment. Yet their work only begins in earnest when they near one of the countless rapids which have to be overcome. The sail, hitherto but partially unfurled, is now given fully to the wind; the bark pushes its way like a strong steamship through the chaos of rocks and reaches the whirlpool which is found beneath almost all rapids. All the men stand with oars outstretched and ropes in readiness, awaiting the inevitable moment when the boat will be gripped by the whirlpool and drawn into its vortex. At the skipper's bidding the oars on one side dip into the water, on the other side long poles are thrust out to keep the boat off the rocks, while the sail, skilfully handled by the most experienced sailors, is taken in or let out, turned and twisted, as the circumstances demand. Once, twice, six times,

ten times, they try in vain to cut through the whirlpool; at last they succeed and the boat reaches the lower end of the water-rush. But here it stops as if spell-bound; the pressure of the current equals that on the sails. The wind rises, and the vessel moves on a few yards; the pressure on the sail slackens again, and the waves drive it back to its former place. The contest with the whirling waves recommences, and again the boat is worsted. At last it reaches the desired goal, and must hold to it. One of the crew grips a rope in his teeth, plunges into the midst of the wild surge, and dragging the heavy rope behind him seeks to gain a rock which rises above the raging waves some little distance ahead. The waves hurl him back, cover and overwhelm him, but he continues his efforts, until it becomes plain that he must yield to the superior force of the stream. He gives up the struggle and is pulled by the rope back to the boat. Again the whirling waves, so strong to destroy, play with the frail structure which ventures to oppose them; and at last the wind gives the victory to the boat. But suddenly a portentous crash is heard; the steersman loses his footing and is projected into the stream; the boat has struck on one of the hidden rocks. With the utmost speed one of the crew gets hold of the rudder, a second throws a rope and a bladder to the struggling steersman, and without a moment's delay the rest jump into the hold, and with hammer, chisel, and tow seek to repair the leak which they are sure to find. The man at the rudder endeavours to save the vessel from further mischance; the drenched steersman clambers up with an "*El hamdi lillahi!*" or "Thank God!" more grumbling than grateful; the rest hammer and plug the gaping leak, one even surrendering his shirt to eke out the scanty tow. Once more the boat sails

through whirl and wave, rocking, creaking, groaning like a storm-tossed ship; once more it reaches the rapids; once more it is arrested between wind and current. Two sailors spring overboard at once, and, fighting against the stream with all their strength, at last succeed in gaining the rock. They surround it with one end of the rope and signal to the others to pull the boat up. This done, the vessel is moored to the rock, and there it hangs in the midst of the wild rush of waters, rocking so violently and continuously that it causes nausea. A second boat draws near and asks for assistance. A rope is floated down on a bladder, and thus time and trouble are saved. Soon the second also reaches the rock, a third follows, and a fourth, and all dance up and down together in the tumult. And now the united strength of the crews is sufficient to effect a successful passage. One of the boats is manned with double the normal crew; the other boatmen swim, and wade, and climb, dragging the rope to another rock further ahead, and, with all the help that the sail can give, one boat after another is pulled through the rushing waters of the rapid. Now and then at certain places the sail alone is sufficient to carry the boat up, but in such cases a lull of the wind not unfrequently endangers both craft and crew. Often, too, boats are forced to linger in the midst of the tumult for hours or even days, waiting for a favourable wind. Then one may see a tiny bark hanging behind every jagged rock, all alike unable to help their neighbours.

Several times I have been forced to make my bed on one of the black rocks amid-stream, for the violent rocking of the boat in the rapids made sleep an impossibility. A stranger sleeping-place can scarcely be imagined. The ground on which one lies seems to tremble before the assaults of the flood; the roaring

and bellowing, hissing and splashing, rumbling and thundering of the waves drowns every other sound; one sits or lies on a rug with his comrades without uttering a word. Every blast of wind drives the spray like a fleeting mist across the rock island. The glowing camp-fire throws a weird light on the rock, and on the dark water foaming around its ragged edges; the falls and whirlpools in the shade seem even more gruesome than they are. At times one cannot help fancying that they open a hundred jaws to engulf the poor child of man. But his confidence is firm as the rock on which he rests. The mighty stream may thunder as it will, the seething waves may rage and foam, he is safe on a rock which has defied the flood for ages. But what if the rope break, and the boat be hurled and shattered on the nearest rocks? Then another will come to take the shipwrecked crew ashore! In spite of these and similar thoughts, and in spite of the ceaseless roar, the traveller can sleep, and sleep tranquilly too. For danger lends courage, and courage brings confidence, and the thunder of the waves becomes at length a lullaby to the wearied ear. And on the ensuing morning what an awakening! In the east the sky is suffused with red, the ancient giant-rocks wear a purple cloak on their shoulders, and shine in gleaming light, as if they were clad in burnished steel. Sunshine and shadow flit over the dark reefs and through the gullies filled with golden-yellow sand, and over all is thrown the marvellous, indescribably beautiful, colour-garment of the desert. Thousands and thousands of water-pearls shine and sparkle, and the mighty river rolls out its mighty melody, which is ever the same and yet eternally new. Such a glory, such a harmony, fills the heart with contentment and rapture. The morning is spent

in devotional contemplation of this glorious spectacle, for it is not till forenoon that the wind begins to blow from the north and fill the sails. Work and danger, toil and struggle, hazard and anxiety, begin anew; and thus one day follows another, and rapid after rapid is at length overcome.

The voyage up-stream is dangerous and tedious; the voyage down-stream has no parallel in perilousness, such a mad rush is it through flood and rapid, whirlpool and eddy, cataract and gorge,—an exciting game in which life is the stake.

Voyages down-stream through the region of the rapids are only undertaken by the special boats which are made for the purpose in the Soudan. About ten per cent are smashed on the voyage, and that the percentage of deaths is not equally high is simply due to the matchless swimming powers of the Nubian boatmen. Even when they are dashed by the waves against a rock they do not always drown; usually they are like ducks in the water, and reach the shore in safety.

Let me try to give a faithful picture of one of these down-stream voyages.

Six new boats, built of the much-prized heavy mimosa-wood which sinks in water, are moored to the shore at the southern limit of the third group of rapids. The men who compose their crews are lying on sandy places between the black rocks, where they have spent the night. It is still early morning and the camp is quiet; only the river roars and murmurs in the solitude. As day dawns the sleepers awake; one after another descends to the stream, and performs the ablutions ordained to accompany morning prayer. After the prescribed prayer has been uttered from “preface” to “conclusion”, they refresh

themselves with a frugal breakfast. Then old and young betake themselves to the tomb of a sheikh or saint, whose white dome gleams among the light-green mimosas, there to offer a special petition for a fortunate voyage. In this they are led by the eldest *Reis*, or steersman, who represents the Imam. Returning to the river, they observe an ancient heathen custom of throwing some dates, as an offering, into the waves.

At length each skipper orders his men to their posts. "Let go the sail! Row, men, row—row in the name of God, the All-Merciful," he shouts. Thereupon he strikes up a song, with an ever-recurring refrain; one of the rowers takes it up and sings verse after verse; and all the rest accompany him with the rhythmically repeated words: "Help us, help us, O Mohammed, help us, God's messenger and prophet!"

Slowly the bark gains the middle of the stream; quicker and ever quicker it glides onwards; in a few minutes it is rushing, more swiftly than ever, among the rocky islands above the rapid. "O Said, give us good cheer," says the Reis, while the sailors go on singing as before. More and more quickly the oars dip into the turbid flood; the men, who were freshly anointed yesterday, are naked to the loins, and the sweat pours down their bodies as they strain every muscle. Praise and blame, flattery and reproaches, promises and threats, blessings and curses, fall from the skipper's mouth according as the boat fulfils or disappoints his wishes. The strokes of the oars, pulled at full strength, follow each other more quickly still, though their purpose is solely to direct the otherwise exceedingly rapid course of the boat, and, as they often increase the danger they seek to avoid, the Reis may be excused if he exhausts all the

hortatory vocabulary at his command in his desire to stimulate his crew. “Bend to your oars; work, work, my sons: show your strength, ye children and grandchildren of heroes; display your prowess, ye brave; exert your strength, ye giants; do honour to the prophet, all ye faithful! Oh, for the *merieza*! Oh, for the scented damsels of Dongola! Oh, for the delights of Cairo; all shall be yours. Larboard, I say, ye dogs, ye children of dogs, ye grandchildren, and great-grandchildren, and litter of dogs, ye Christians, ye heathen, ye Jews, ye Kaffres, ye fire-worshippers. Ah! ye rascals, ye swindlers, ye thieves, ye villains, ye vagabonds, do you call this rowing? First oar, starboard! are there women hanging about you? Third oar, larboard! throw overboard the weaklings who are misleading you. That’s right, well done; bravo, ye strong, supple, clever youths; God bless you, brave fellows, and give your fathers joy and your children His blessing. Better, better, better yet, ye cowards, ye strengthless, ye sapless, ye miserable, ye pitiable—Allah damn you all in His righteous wrath, ye—ye—Help us, help us, O Mohammed.” Such is the torrent which rushes uninterruptedly from the skipper’s lips, and all his commands and cries, entreaties and execrations, are uttered with the utmost seriousness, and enforced with appropriate gestures of hand, and foot, and head.

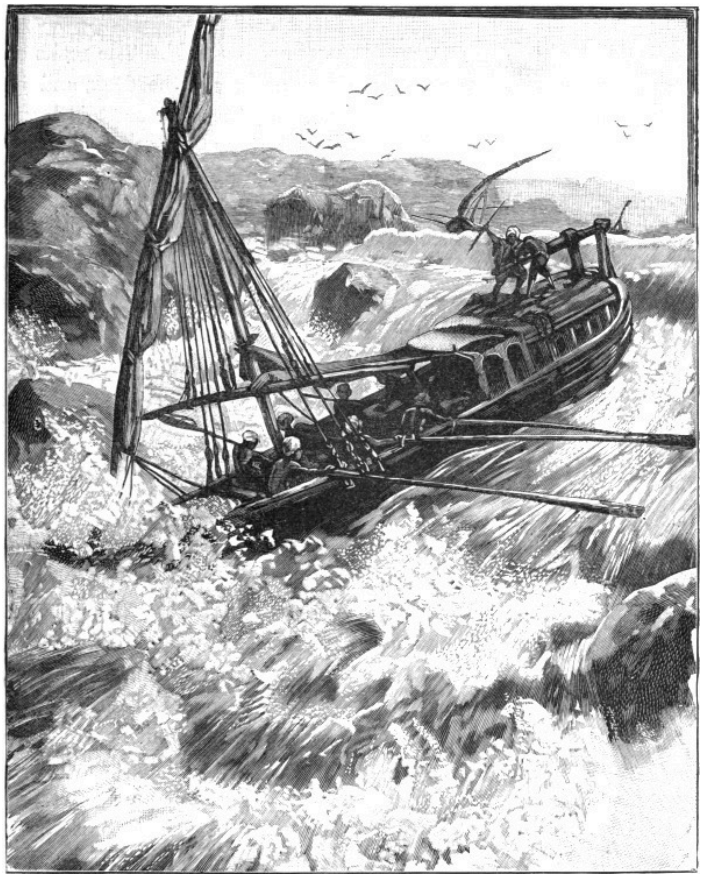


Fig. 57.—A Passage through the Nile Rapids.

The boat sweeps into the first part of the rapid. The rocks on both sides seem to whirl round; the surge floods the deck, and its thunder drowns every order. Unresisting the frail craft is borne towards a neck of rock—fear, anxiety, dismay may be read on every face, but there—the dreaded spot is already behind the stern, the foaming backwash has saved the imperilled boat, only a couple of oars have been shivered like thin glass. Their loss hinders the right management of the bark, and it sweeps on without

answering to the rudder, on to a formidable waterfall. A general cry, expressing horror and despair; a sign from the Reis standing in the bow with trembling knees, and all throw themselves flat on the deck, and hold on like grim death; a deafening crash and an overwhelming rush of hissing, gurgling waves; for the space of a moment nothing but water, and then the boat gives a leap upward; they have passed the cataract and escaped the jaws of death. “El hamdi lillahi!” (God be thanked) rings out from every breast; some hurry to the hold to find the leak and plug it, others lay out new oars, and on they go.

Behind the first boat comes a second, hurrying through the dangerous rapid. The oarsmen are labouring with extraordinary, ever-accelerating velocity; then, suddenly, all are thrown prostrate, all but one, who describes a high curve through the air into the river. He seems lost, buried in the raging depth; but no, while his comrades wring their hands in dismay, the matchless swimmer appears on the surface in the middle of the foaming whirlpool beneath the rapid. As a third boat shoots past the second, which has stuck on a rock, and reaches the whirlpool, the swimmer catches one of the oars, swings himself cleverly on board, and is saved. A fourth boat also hurries past; the beseeching gestures from the crew of the second boat implore for help; but a hand raised to heaven is the only answer. In truth, no human help could be given, for no craft is here under man’s control; the stream itself must help, if it will not destroy,—and it does help. The boat oscillates violently on the rock; its prow and stern dip deep in the water; but suddenly there is a whirl, and once more it is borne on through the surging current. Some of the crew row, others bale out the

water, as do two women journeying with them, others hammer, and plug, and caulk in the attempt to repair the damage done. Half-full of water, scarce keeping afloat at all, the boat reaches the shore and is emptied of her cargo. But half of this, consisting of gum-arabic, is spoilt, and the owner, a poor merchant, tears his beard, moaning, lamenting, weeping, and cursing the two women passengers. The two women are to blame for all. How could they, who brought ruin to the first man in paradise, bring any blessing to faithful Mussulmans? Woe, woe upon the women and all their kind!

Next day the bark is repaired, new caulked, and reloaded; it speeds on with the rest to the next rapids, passes through these without further mischance, and reaches the fertile valley of middle Nubia, which is free from rocks and gives a hospitable welcome to every voyager. The cares, lately so grievous, are as soon forgotten; like children, the brown men laugh and joke, and drink with content great draughts of palm wine and *merieza*. Much too quickly for their taste does the stream bear the boat through this happy land.

Again the desert spreads its golden-yellow sand over the rocky banks; again rocky islands narrow, divide, and impede the river; the barks are entering the second group of rapids. One after another the dangerous currents, the dreaded whirlpools, the perilous straits and corners, are safely passed and left behind; only the last and wildest of the rapids lie between the boats and the palmy Wady Halfa. And below that village all is smooth sailing except at one place below Philæ, where the river is once more broken up by rocks. Above these last rapids—Gaskol, Moedyana, Abu-sir, and Hambol—which are truly

dreadful, the boats seek for a quiet bay; and here all encamp to gain strength for the work and warfare, cares and trials of the coming day. The northerners also enjoy the prospect of a quiet night's rest.

Night draws its veil over the desert land. The rushing waves thunder in the rocky valley; the stars are reflected in the peaceful creek; the blossoming mimosas make the shore fragrant. An old gray-haired Reis, born and bred among the rapids, approaches the strangers from the north. A snow-white beard ennobles his impressive features; his flowing cloak suggests a priest's robe. "Sons of strangers," he says, "men from the land of the Franks, difficult things have ye overcome along with us, but there is harder still before you. I am a child of this land, seventy years has the sun shone upon me, and at last he has whitened my hair: I am an old man, and ye might be my children. Therefore take ye heed to my warning, and draw back from what ye propose—to accompany us on the morrow. Witless ye go to the danger, but I know it. Had ye seen, as I have seen, those rocks which bar the way of the waves; did ye know, as I know, how these waves storm and rage for entrance and passage, how they overwhelm the rocks, and hurl themselves roaring into the depths below, ye would see that only the grace of God, whom we praise and glorify, can guide our poor boat aright, ye would yield to me. Would not the heart of your mother break should the All-merciful refuse us His compassion? Ye will not stay? Then may the grace of the Father of mercies be with us all."

Before sunrise the shore becomes a scene of activity. Devoutly as before the boatmen offer the prayer of the dawn. Serious, experienced steersmen, who know the river well, and young, strong-limbed,

adventurous oarsmen, offer their services to the ancient. Carefully he chooses the most skilful steersmen and the strongest oarsmen; he sets three men to the rudder; and then he gives orders to start. “Men and sons of the land, children of the river, pray the Fatiha,” he orders. And all repeat the words of the first Sura of the Koran. “Praise and honour to the Lord of the world, the All-merciful, He who ruleth at the day of judgment. Thee would we serve, to Thee would we pray, that Thou wouldest guide us in the way that is right, in the way of those who enjoy Thy favour, and not in the way of those with whom Thou art displeased.” “Amen, my children, in the name of the All-merciful! Let go the sail, and bend to the oars.” With rhythmic stroke these dip into the water.

Slowly the pent-up stream bears the boat towards the first rapid. Again, as it nears the rocks, the boat refuses to obey either rudder or oars, but creaking and groaning in every joint, it rushes through the overwhelming waves and boiling foam, through eddy and whirlpool, through narrow channels and abruptly-winding courses, drenched and flooded with water, shaving rocky corners by an arm’s-length, almost touching the teeth of hidden reefs. On it rushes to the second rapid.

From the height of the cataract the eye looks down with dismay at the dreadful violence of the torrent, and one sees at the lower end of the rapid a round block of rock surrounded by foaming waves as if it were the head of a white-haired giant rising above the surface. Like an arrow to its mark our fragile ungovernable boat rushes towards this giant’s head. “In the name of the All-merciful, row, row, ye men, ye strong, brave, noble men, ye children of the stream!” cries the steersman. “Larboard, larboard the

rudder with all your strength!" But the boat answers neither to oars nor to rudder. It is not indeed the giant block which endangers the craft, but a narrow channel to the starboard into which we are swept and in which we are hurried on towards a labyrinth of rocks through which no possible pathway can be seen. The men already leave their oars, and throw off any clothes they have on, so that they may be unhampered in swimming. A fearful crash turns all eyes backward: the giant's head has caught the next boat, which was longer and less pliant, and holds it oscillating over the seething flood. This increases the dismay. All our men regard the crew of the second boat as doomed, and as for themselves they prepare to plunge into the torrent. Then the voice of the ancient pilot rings out sharp and clear: "Are ye mad, are ye God-forsaken, ye children of heathen? Work, work, ye boys, ye men, ye heroes, ye giants, ye faithful! In the hand of the Almighty rests all power and strength; give Him the glory, and bend to your oars, ye sons of heroes!" And he himself takes the rudder, and in a few minutes directs the misguided boat from the "way of sinners" into the "right way". One boat after another appears in the open water: but not all. The giant's head still bears his victim, and will most likely bear it until next year's flood. The ill-fated boat with the women on board was shivered to pieces at the uppermost of this group of rapids. With the crews, happily saved, the skipper prays, as he did before departure, "Glory and honour to the Lord of the World."

Before the village of Wady Halfa, overshadowed with palms, the boats are moored; the men have gone ashore, and lie in picturesque groups around the camp-fire. Big-bellied flagons, filled with *merieza*, invite the thirsty; in other vessels the flesh of new-

killed sheep is boiling under the care of women and girls who have quickly gathered round. Reeking of castor-oil, they are by no means welcome visitors to Europeans. The notes of the zither and the beating of the drum announce the beginning of the “fantasia”, the feast and the revel. Unutterable comfort takes possession of the boatman’s heart, joyous contentment is expressed in every look and gesture. At length, however, the inevitable fatigue after the heavy anxious work of the day asserts itself. The tarabuka sinks from the wearied arm, the tambura falls from sleepy fingers, and all the voices, which but a few moments ago were so loud, become silent.

Then the voices of the night are heard. The thunder of the rapids resounds down the valley, there is whispering among the crowns of the palm-trees with which the night-wind plays, and on the flat shore the waves splash in rhythmic cadence. The thundering waves and the rippling water, the rushing wind and the whispering palms unite their music in an exquisite lullaby, which leads all the sleepers to the happy land of golden dreams.

A JOURNEY IN SIBERIA.

We had left the populous streets of St. Petersburg and the gilded domes of Moscow far behind us; and before us rose the towers of Nijni-Novgorod on the further bank of the Oka. We had reason to be grateful for the manner of our reception in the two capitals of the Russian Empire. We had respectfully taken leave of his Majesty our own noble Emperor in Berlin, had received cordial recommendations from the German Foreign Office, and had met with a friendly welcome from the German Embassy in St. Petersburg, so we had hoped for a favourable reception in Russia, but the hospitality accorded us far exceeded our boldest expectations. His Majesty the Czar was pleased to give us an audience; princes and princesses of the imperial house deigned to receive us; the chancellor, the ministers, and high officers of state, had all met us with that thoughtful courtesy and obliging complaisance for which educated Russians are noted; and we were furnished with the introductions whose importance we afterwards realized.

As far as Nijni-Novgorod we had enjoyed the modern conveniences of travel; thenceforward we were to learn how Russians traverse distances of thousands of kilometres or versts, how they travel in summer and in winter, by day and by night, in furious storm and in smiling sunshine, in splashing rain, icy snow, and dusty drought, in sledges and in wagons. Before us stood a huge and massive travelling sledge, clamped at all its joints, with broadly projecting stays to

guard against overturning, with a hood to shelter the travellers from rain and snow, and drawn by three horses on whose yoke a little bell tinkled.

On the 19th of March we began a rapid journey over the frozen surface of the Volga, but it was not without its hindrances. For a thaw had accompanied us from Germany to Russia, and had warned us to hasten from St. Petersburg and Moscow, and a thaw remained our constant companion, as if we were heralds of the spring. Holes in the ice filled with water, warning us of the yawning depth beneath, drenched the horses, the sledge, and ourselves, or forced us to make tiresome circuits; the cracking and groaning of the ice made the danger seem worse than it really was, and both drivers and postmasters became so anxious, that after a short journey we were forced to exchange the smooth surface of ice for the as yet unbeaten summer highway. But this highway, traversed by thousands and thousands of freight wagons and by an equal number of exiles to dread Siberia, soon became to us, as to the prisoners, a way of sighs. Loose or slushy snow about three feet deep, covered the road; to right and left rushed little streams, wherever, in fact, they could find a course; the horses, now yoked in a line, one behind the other, strove, in a pitiable way, to keep their footing; with leaps and bounds they would try to keep the tracks of those who had gone in front, and at every false step they would sink up to the breast in the snow or in the icy water. Behind them floundered the sledge, creaking in every joint, as it plunged with a jerk from height to hollow; for hours sometimes it remained stuck in a hole, baffling the most strenuous exertions of the horses. On such occasions the wolf-scaring bell, the gift of the mysterious Faldine, seemed to sound most eerily. In vain the driver

threatened, entreated, swore, groaned, yelled, cried, roared, cursed, and whipped; in most cases we did not get under weigh again until other travellers came to our assistance.

Painfully the journey lengthened to four and five times the proper time for the distance. To look out of the sledge to right or left was scarce worth the trouble, for the flat country was dreary and featureless; only in the villages was there anything visible and interesting, and that only to those who knew how to look. For the winter still kept the people in their small, neatly built, but often sadly dilapidated log-huts; only fur-clad boys ran barefoot through the slushy snow and filthy mud which older boys and girls sought to avoid by help of stilts; only some old, white-bearded beggars loafed round the post-houses and taverns, beggars, however, whom every artist must have found as charming as I did. When they asked for alms, and stood in the majesty of old age, with uncovered bald heads and flowing hoary beards, disclosing the filthiness of their body and the raggedness of their clothes, they seemed to me such marvellous pictures and types of world-renouncing saints, that I could not keep myself from giving to them again and again, if only to get in thanks the sign of the cross, repeated from three to nine times in a manner so expressive and devout that only a real saint could equal it.

In the villages we also saw more of the animal life than we did in the fields or even in the forests which we traversed. For in the open country winter still kept its fetters on life and all was quiet and death-like; we saw hardly any birds except the hooded crow and the yellow bunting; and the snow showed scarce any tracks of mammals. In the villages,

however, we were welcomed at least by the delightful jackdaws, which adorned the roofs of the log-houses, by the ravens, which with us at home are the shy frequenters of mountain and forest, but are here the most confident companions of the villagers, by magpies and other birds, not to speak of domestic animals, among which the numerous pigs were especially obtrusive.

After an uninterrupted journey of four days, without refreshing sleep, without any real rest, without sufficient food, we felt as if we had been beaten in every limb, and were, indeed, glad to reach Kazan—the old capital of the Tartars. We crossed the Volga on foot, picking our steps over the much-broken ice, and drew near to the city of sixty towers, which we had seen the day before shining in the distance. I fancied myself once more in the East. From the minarets and the spire-like wooden towers I heard again the notes which call every faithful follower of Islam to prayer; dark-eyed women bustled about among the turbaned men, veiling themselves anxiously from their country folk, but unveiling inquisitively before us, and picking their steps, on account of their dainty but not waterproof saffron shoes, along the steps of the houses protected by the overhanging eaves. In the uproar of the bazaar young and old thronged and bustled without restraint. Everything was just as it is in the East. Only the numerous stately churches—among which we saw the convent of “the black Madonna of Kasan not made by human hands”, conspicuous both in site and architecture—were out of keeping with the Eastern picture, though they showed plainly enough that Christians and Mohammedans were here living in mutual tolerance.

On lighter sledges, but over even more unsubstantial highways, we journeyed onwards towards Perm and the Ural. The road led through Tartar and Russian villages and the fields around them, and again through extensive forests. The Tartar villages usually compared favourably with those of the Russians, not only in the absence of swine, which the Tartars hold unclean, but even more in the always well-cared-for cemeteries, usually surrounded by lofty trees. For the Tartar respects the resting-place of his dead, the Russian at most those of his saints. The woodlands, though divided up, are really primeval forests, which rise and flourish, grow old and disappear, without human interference, for they are too far from navigable rivers to be as yet of much commercial value.

Two large rivers, however, the Viatka and the Kama, cross our route. The winter holds them bound, though the approach of spring is beginning to loosen their fetters. The banks are flooded, and the horses of the carriers, who scorn the temporary bridges, are now and then forced to swim and to drag the sledge like a boat behind them.

Before we reached Perm we had to exchange the sledge for the wagon, and in this we trundled along towards the Ural, which separates Europe from Asia. The highway leads over long ranges of hills, with easy slopes, but gradually ascending. The landscape changes; the mountain scenery presents many pictures, which are beautiful if they are not grand. Small woods, with fields and meadows between, remind us of the spurs of the Styrian Alps. Most of the woods are thin and scraggy, like those of Brandenburg, others are more luxuriant and varied, and cover wide areas without interruption. Here they

consist of low pines and birches, and there of the same trees mingled with limes, aspens, black and silver poplars, above whose rounded crowns the cypress-like tops of the beautiful pichta or Siberian silver-fir tapers upwards. On an average the villages are larger and the houses more spacious than in the districts previously traversed, but the roads are bad beyond all description. Thousands of freight wagons creep wearily along, or rather in, the deep miry ruts: slowly and painfully we also jog along until, after three days' journeying, we reach the watershed between the two great basins of the Volga and the Ob, and learn from the milestone, which bears "Europe" on the west side and "Asia" on the east, that we have reached the boundary. Amid the clinking of glasses we think of our loved ones at home.

The pleasant town of Yekaterinburg, with its gold-smelting and gem-cutting industries, could not long detain us in spite of the hospitality of its inhabitants. For the spring was gaining strength, and the bridges of ice on the rivers and streams, which we had to cross on our way to distant Omsk, were melting and crumbling. So we pushed hastily onwards through the Asiatic region of the Perm government till we reached its boundary and entered Western Siberia.

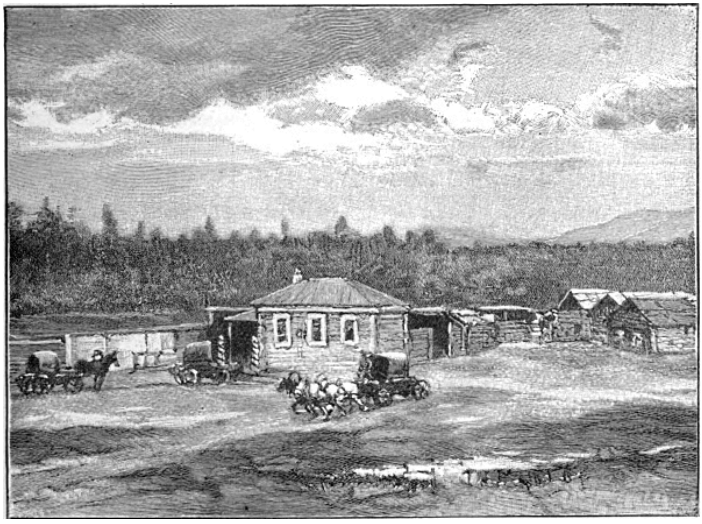


Fig. 58.—A Post Station in Siberia.

Here, at the first post-house, we were met by the district officer of Tiumen, who greeted us in the name of the governor, and offered us escort through his district. In the chief town of the district we found the house of one of the rich inhabitants prepared for our reception. Thenceforth we were to learn what Russian hospitality meant. Hitherto, indeed, we had been everywhere received and treated most hospitably, but now the chief officials of the district or province exerted themselves unsparingly on our behalf, and the best houses were thrown open to us. In fact, we were treated like princes, simply on account of our scientific mission. Words fail me to express our gratitude with adequate warmth. Beyond Tiumen, in which we stayed three days, inspecting the prisons of the exiles, the tanneries, and other sights of this first Siberian town, the peasants showed us their mastery even of the rivers. For the approaching spring had melted the ice on the Pyshma and the blocks had begun to move; we,

however, had to get across before this happened. At the village of Romanoffskoye the inhabitants with bared heads stood waiting for us on the bank of the Pyshma, and even the river had to wait before it was permitted to shake off its icy bonds. Boldly and cleverly the peasants had thrown a makeshift bridge across the half-melted stream, using a large boat as a centre pier, above and around which they had fettered the treacherous ice with strong hawsers and ropes. Willing hands unyoked the team of five required for our day's journey, seized spokes and axles, and bore one wagon after another across the yielding bridge, which groaned and creaked under its burden. The task was safely accomplished, and on we went merrily through water and snow, mud and mire, over log-roads and ice.

The Tobol, which we wished to cross on Good Friday, the 14th April, the first day of true spring, was less accommodating. Here also all requisite arrangements had been made to secure our passage: one of the wagons was unyoked and rolled on to the ice, but this suddenly cracked and split, and forced a hasty retreat. The bells on the cross-trees had tinkled merrily when we left Yalutoroffsk; they sounded sadly as we drove back again, and it was not till Easter-day that we were able to cross the great river with the help of a ferry-boat.

So we continued on our way. Before and behind us the rivers threw off the yoke of winter; only the dreaded Irtish lay still hard-bound and secure under our feet, and thus, after more than a month's journey without further adventure, we reached Omsk, the capital of Western Siberia.

After we had seen what was to be seen in Omsk,—the streets and the houses, the military academy, the

museum, the hospital, the military prison, and so on, we continued our journey toward Semipalatinsk, along the highway which runs along the right bank of the Irtish, connecting the villages of the so-called Cossack line. Already, in passing from Yalutoroffsk to Omsk, we had journeyed through a steppe—that of Ishim; now the steppe surrounded us on all sides, and almost every night the heavens were red with the flames of last year's grass and herbage, which was now being burnt. Troops of migrating birds followed the river directly behind the ice as it drifted northwards; crowds of aquatic birds peopled all the steppe streams and lakes; various species of lark flew hither and thither in flocks; the dainty falcons of the steppe had already betaken themselves to their summer quarters; the spring had indeed come.

In Semipalatinsk we had the good fortune to find in the governor, General von Poltoratski, a warm friend, ready to aid us in all our endeavours, and in his lady the most amiable of hostesses. Not content with having secured our hospitable reception, the general most kindly proposed to make us acquainted with the Kirghiz, who form a great part of the population of his district, and to this end organized a great hunting expedition after archars, the wild sheep of Siberia, which are almost twice the size of our domestic animals.[80]

On the 3rd of May we started on the chase, crossing the Irtish and following the post-road to Taschkent, in the Kirghiz steppe. After a journey of sixteen hours we reached the region of the chase—a rocky part of the steppe, and soon we were standing before the *aul* or *yurt*-camp which had been prepared for us. There we were welcomed by the general's wife, who had gone on ahead of us the day before, and cordially

also by about a score of Kirghiz sultans and district governors, and their numerous followers.

During the next three days there was great sport on the Arkat mountains. It was holiday with the Kirghiz, who are always eager for fun, and it was not less so for us. Hill and valley resounded with the hoofs of fourscore or more horsemen, who took part in the two-days' hunt; the sun, when he was pleased to show himself, shone down on strange, gay garments which had been hitherto hidden under furs; there was a merry bustle over hill and dale. The Kirghiz, once so much dreaded, whose very name means robber, are now the most faithful and contented Russian subjects, and there they were with their best horses—their most precious pacers, their tamed golden-eagles, greyhounds, and camels, their zither-musicians and impromptu poets, their wrestlers and other gymnasts—a merry crew. They sat together in groups and companies; they darted hither and thither, singly or in troops, wheeling their horses in sheer high spirits; with the keenest interest they watched the wrestling bouts or the boys racing on horseback; they led the chase with astuteness and good judgment, and listened with delight to the words of the extempore singer who celebrated its fortunes. One of the Kirghiz had already killed an archar before our arrival; good luck brought a second victim to my rifle. It was this good fortune which inspired the poet. His verses were not particularly full of ideas, but they were none the less so characteristic that I recorded them as a first sample of Kirghiz poetry. While the poet sang, an interpreter translated his words into Russian, and the General rendered them in German, while I took them down in shorthand:—

"Speak, red tongue, speak while thou hast life, for after death thou shalt be dumb.

Speak, red tongue, which God hath given me, for after death thou shalt be silent.

Words such as thou now utterest will no longer flow from thee after death.

I see before me people rising like the mountains, to them I will declare the truth.

I seem to see the rocks and mountains, to the reindeer I would liken them.

Greater are they than boats, like a steamship on the waves of Irtish.

But I see in thee, oh Ruler, after the majesty of the Emperor, the highest, to be compared to a mountain, precious as an ambling reindeer.

It was my mother who bore me, but my tongue hath God given.

If I should not now speak before thee, to whom should I ever speak?

Full freedom have I to speak, let me speak as if to my own folk.

Prosperity to thee, sir, all hail and blessing to thy guests, among them noble men, though they have thus unbent among us.

Each guest of the General is also ours, and assured of our friendship.

God alone gave me my tongue, let me speak further.

On the mountains we saw huntsmen, marksmen, and drivers, but with one only

was there good fortune.

As the top of the highest mountain towers above all others, so did he excel all, for he sent two well-aimed balls into the body of the archar and brought it to the yurt.

Every huntsman wished to bring in booty, but only one had his wish fulfilled: to us was joy, and to thee, noble lady, whom I now address.

All the people are delighted, not the men only, to see thee, to greet thee; all of us wish thee joy, and a thousand years of life and health.

And of thy good pleasure receive our homage. Thou mayest well have seen a better people, but no truer has ever offered greeting and welcome.

May God bless thee, thee and thy house and thy children. I cannot find words enough to praise thee, but God has given me my tongue, and it has spoken, the red tongue, what sprang from the heart."

We left the Arkat mountains, and soon thereafter the district governed by our kind host, whom we left at the hunting-ground; and very shortly afterwards we were welcomed in Sergiopol, the first town in Turkestan, by Colonel Friedrichs, who greeted us in the name of the governor of this great province, and gave us escort on our way. Kirghiz chiefs became our guard of honour, and supplied us with draught-horses which could never before have done duty as such, so madly did they at first try to run off with the heavy wagon. Kirghiz sultans showed us hospitality,

looked after our food and shelter, and erected yurts at every place where we wished to rest, or were expected to do so. Kirghiz also caught snakes and other creeping things for our collections, threw their nets on our behalf into the steppe-lakes, and followed us like faithful dogs on our hunting expeditions. Thus we journeyed through the steppe-land, now gorgeous in the full beauty of spring, delaying for a time to hunt and collect at Alakul ("the shining lake"), crossing valleys full of blossom and smiling hills, to Lepsa, the Cossack settlement on the Alatau, one of the grandest of the steppe mountains. We traversed the settled region, a little paradise, flowing with milk and honey; ascended the high mountains, rejoicing in the rushing torrents, the green Alpine lakes, and the lovely vistas, and finally directed our course to the north-east towards the Chinese frontier, for the shortest and most convenient route to the Altai led us through a portion of the Celestial Empire.

In Bakti, the last Russian outpost, news was brought to us that His Ineffability the Jandsun Dyun, the Governor of the province Tarabagatai, sent to greet us in the name of China, and invited us to a banquet. To meet the hospitable wishes of the noble mandarin, we rode on the 21st May to Tchukutchak or Tchautchak, the capital of the said province.

The company which rode through the summer glory of the steppe was larger and more splendid than ever. Partly in order to have a quite necessary security in a country disquieted by insurrection, partly in order to appear with dignity, not to say with pomp, before his Highness, we had added to our ranks. For, besides the thirty Cossacks from Sachan, under the leadership of our new escort, Major

Tichanoff, and besides our old Kirghiz friends, we had with us a half sotnia of Cossacks from Bakti. The beating hoofs of our small army sounded strangely in the otherwise desolate steppe. All our Kirghiz were arrayed in holiday dress, and their black, blue, yellow, and red kaftans, covered with gold and silver braid, vied in sheen and splendour with the uniforms of the Russian officers. At the boundary, which had recently been agreed upon, a Chinese warrior of high rank waited to greet us. Thereupon he wheeled round and galloped off as fast as his horse would bear him to inform his commander of our approach. Stumbling over rubbish heaps, between half-ruined and half-built houses, but also between blossoming gardens, our horses bore us towards the town. There apish Mongolian faces grinned at us, and appallingly ugly women outraged my sense of beauty. Our cavalcade drew up in front of the Governor's house, and we craved admission at the broad portal. Opposite it rose a wall of beautiful workmanship, with some strange animal figure in the centre; while to right and left on the ground lay some Chinese instruments of torture. An official of the house bade us enter, but indicated at the same time that the Cossacks and Kirghiz were to remain outside. The governor received us with the greatest solemnity in what seemed at once his sitting-room, office, and court of justice. Preserving all the dignity of a high mandarin, sparse of speech, in fact, uttering but a few disjointed words, always accompanied, however, with a cheerful, grinning smile, he gave us his hand, and bade us sit down at the breakfast-table. This gave promise of tea, and bore innumerable small dishes with strange delicacies, and "we raised our hands to the daintily prepared meal". The food consisted of rice, various fruits dried and preserved

in oil, slices of ham as thin as parchment, dried shrimp-tails, and a multitude of unknown, or, at any rate, unrecognizable tit-bits and sweets; the drinks consisted of excellent tea and sickeningly sweet rice-brandy of the strength of spirits of wine. After the meal, which I, at least, managed to get through with impunity, having fortified myself beforehand with a substantial snack of a less doubtful kind, the hookahs were produced, and we were shown various intelligible and unintelligible objects of interest in that room and the one adjoining. Among these were landscapes and pictures of animals, commendatory letters from the government, the great seal of state wrapped up with comical carefulness in brightly coloured silk, extraordinary arrows of an import which only a Chinese mind can fathom, samples of European industry, and so forth. The conversation was extremely limited, and unspeakably dignified. Our addresses had to be translated from French to Russian, from Russian to Kirghiz, and from Kirghiz into Chinese; and the answers had to pass through the reverse process. Little wonder, then, that the speeches acquired a tone of great solemnity! After breakfast some Chinese archers came in to display their warlike valour and skill; thereafter the Jandsun himself in all his glory led us to his kitchen-garden to let us taste its produce. At length he bade us farewell, and we rode again through the streets and markets of the town, and found hospitality in the house of a Tartar, where we enjoyed an excellent meal, especially graced by the presence of a young wife, as pretty as a picture, who was summoned to the men's apartments to do us honour. It was towards sunset that we left the town, which is not without historic interest.

Tchukutchak is that town which in 1867, after a

prolonged siege, fell into the hands of the Dungani, a Mongolian tribe, of Mohammedan faith, who had been for long in persistent insurrection against the Chinese rule. It was razed to the ground and no living creature spared. Of the thirty thousand souls who are said to have inhabited the town, over a third had found refuge in flight; the rest, confident in the success with which repeated assaults had been repulsed, remained to their destruction. When the Dungani succeeded in storming the town, they showed the same inhuman cruelty which the Chinese had shown to them. What the sword did not claim was destroyed by fire. When our escort, Captain Friedrichs, visited the place some fourteen days after the town had been stormed, the clouds of smoke had cleared from the charred ruins. Wolves and dogs, with bellies swollen from eating human flesh, slunk away sated, or refused to be disturbed in their horrible festival, and continued to gnaw at the bones of their old foes or masters. Eagles, kites, ravens, and crows shared the spoil. In places where the insurgents had made space for themselves, the corpses were thrown together in heaps, dozens and hundreds together; in other parts of the town, in the streets, courts, and houses, corpses lay singly, in couples, in tens,—husband and wife, great-grandparents, grandmothers, mothers, and children, whole families and neighbours who had sought refuge with them. Their foreheads were gashed with sword-cuts, their features decayed and burned, their limbs gnawed and torn by the teeth of dogs and wolves, their bodies headless and handless. Whatever horror the maddest imagination ever pictured was here realized.

At the present day there are at most a thousand inhabitants in Tchukutchak, and the newly-erected

battlemented fort is actually under the protection of the small Russian picket of Bakti. That the Dungani have not yet laid down their arms nor been subdued, was sufficiently proved by the recent march of a Chinese army into the valley of the Emil, where insurrection is again threatened.

Under the escort of Major Tichanoff and his thirty Cossacks we traversed this valley without seeing a single Dungani, indeed without meeting a human being for days. The Emil, arising from the Zaur, flows between the Tarabagatai and Semistan—two mountain ranges which meet at an acute angle—and receives numberless small tributaries on either side. The genius which the Chinese have for irrigation had utilized all the streams, and made a fruitful garden of the whole valley till the Dungani broke into and devastated the fertile land, and surrendered it once more to the steppe-land from which it had been won. In the neighbourhood of the town we passed through several small villages, and we came across a Kalmuck aul, but apart from these we saw only the ruin of former possession, comfort, and industry. Over the fields Nature herself had drawn a veil with gentle hand, but the ruined villages, not yet destroyed by storm and tempest, cried aloud to heaven. When we visited these villages, the tragedy of bygone days was appallingly clear. Between the crumbling walls, whose roofs had been burnt and whose gables had wholly or partially fallen in, on the mouldering rubbish over which poisonous fungi ran riot, amid remnants of Chinese porcelain, and half-charred and thus preserved plenishings, we came everywhere on human remains, crumbling skulls, bones broken by the teeth of carnivores, and certain parts of the skeletons of domesticated animals, especially of the dog. The skulls still bore traces of the heavy blows

which shattered them. The inhabitants had fallen before the rage of their murderous foes, and the dogs had shared the fate of their masters whom they may have been trying to protect; the other domestic animals had been driven away, plundered like the rest of the useful property, and the apparently useless residue had been broken up and burnt. Only two semi-domesticated animals remain, the swallow and the sparrow; the rest are replaced by ruin-loving birds.

We passed cheerlessly through the desolate valley. Not one of the Dungani was to be seen, for behind our thirty Cossacks was the great power of Russia. The first human beings we came across were Russian Kirghiz, who, though in Chinese territory, were pasturing their flocks and tilling their fields as usual, and had even erected a monument to one of their dead.

From the valley of the Emil we crossed the Tarabagatai by one of the lowest passes of the range, and thence descended to the almost flat plateau of Tchilikti, which lies over five thousand feet above the sea, surrounded by the Tarabagatai, Zaur, Manrak, Terserik, Mustau, and Urkashar. Crossing the plateau, passing some enormously large *Kurgans* or sepulchral mounds of the natives, we followed the serpentine valleys of the infinitely irregular Manrak mountains in order to reach the plain of Zaizan and the delightful town of the same name which had been erected as an outpost some four years previously. Here, close to the Chinese-Russian boundary, we found European comfort and civilization for the first time since leaving Lepsa. In the society which we enjoyed we seemed to be back again in St. Petersburg or Berlin. There was talking,

playing, singing, and dancing both within the family circle and in the public gardens. The melody of nightingales accompanied the dance and song; one forgot where one was.

I used the time of our sojourn here to hunt “ullars”, mountain-fowl resembling partridges, but as large as black-cock, and in so doing not only became acquainted with the wild grandeur of the Manrak mountains, but saw the life of the poorer Kirghiz herdsmen in a light new to me, and returned much satisfied with my excursion.

On the afternoon of the 31st May we again set off in our wagon, making for the Black Irtish in order to meet General Poltoratski at an appointed rendezvous in the Altai mountains. We drove rapidly through the rich steppe-land, over coal-black soil, and afterwards over the drier high-steppes till we came to the river, whose rolling waves bore us next day to the lake of Zaizan. Hitherto all the Siberian rivers and streams had seemed rather tedious; but on the Black Irtish it was far otherwise. We got lovely views of the two great mountains—Zaur and Altai—and the adjacent ranges, while the fresh green banks, cheerful with singing birds, gladdened our eyes and ears. A rapid cast of the net brought us an abundant catch of delicious fishes, and proved that the river was as rich as it was beautiful. On the 2nd June we crossed the shallow and muddy lake, exceedingly rich in fishes, but attractive only in the peeps of distant scenery which were to be got from its surface, and on the next day we traversed the dreariest part of the steppe which we had yet seen. Here, however, we made the acquaintance of three most noteworthy steppe animals—the wild horse or kulan, the saiga antelope, and Pallas’ sand-grouse. Our Kirghiz secured a kulan

foal and shot one of the birds. In the evening we rested among the spurs of Altai, and next day we met our former hosts at the appointed place, and continued our journey under their guidance.

It was a delightful journey, though wind, snow, and rain were all too frequent, and robbed the pleasant yurt (which we carried with us) of much of its comfort, though torrents barred our path, and though we had to find our way along precipitous slopes such as at home a chamois-hunter, but certainly no horseman would attempt. A Russian Governor does not travel like an ordinary mortal, least of all when he journeys through uninhabited territory. He is accompanied by the district-officers and their subordinates, by the elders and clerks of the community, by the *elite* of the district which he visits, by a troop of Cossacks and their officers including the captain, by his own servants and those of his escort, &c. And when, as in this case, the expedition is to a comparatively unknown country, when it is necessary to consult with Kirghiz communities, the cavalcade is enormously increased. For not only have yurts and tents to be carried, as is usual on steppe journeys, but flocks of sheep have to go on in front of the little army to feed the hundreds on their way through the barren wilderness. Since leaving the Zaizan lake we had been once more in China, and a journey of several days had to be faced before we could hope to come across human settlements, which are confined to the deeper valleys among the mountains.

At first we were accompanied by more than two hundred men, mostly Kirghiz, who had been summoned to receive an imperial order relating to the suspension of their pasture-rights in the crown-

lands of the Altai, and to come to an agreement as to consequent changes in their wanderings. But even after the deliberations were ended, our retinue still numbered over a hundred horses and sixty men. In the early morning the yurts were raised from over our heads and sent on in front with the baggage; then we followed in companies, riding slowly until the ladies, the General's amiable wife and daughter, overtook us. We breakfasted at some suitable spot, waited till the last of the pack-horses had gone ahead, and then went on, usually reaching our halting-place along with the daily dwindling flock of sheep which always started first. Thus, every evening, we had an opportunity of watching the pleasant picture of camp-life take form before us. Lovely verdant valleys full of spring's fragrance invited us; from the lofty precipitous mountains, still snow-capped, we got glimpses of the distant highlands and of the steppe-land, which we had traversed, stretching to the Zaur and the Tarabagatai; and at last we caught sight of Markakul—the pearl among the mountain lakes of the Altai—and entered the highlands proper. For three long days we journeyed along the lake, hindered by bad roads and bad weather, and delayed by a Chinese embassy sent to the Governor; then we rode through dense forests and over scarce surmountable passes, and down by breakneck paths towards the Russian frontier, and into the fertile valley of the Buchtarma. There in the newly-established Cossack settlement the Altaiskaya-Stanitza, we were again able to enjoy Russian hospitality and to rest in comfort.

The officers of the Stanitza were kind enough to present us with samples of the produce of the district, and we continued our journey on the 12th of June. The sun shone cheerfully down from a

cloudless sky on the splendid landscape, now for the first time unveiled. Immense park-like valleys, surrounded by steeply towering, snow-capped mountains, suffused with bewitching colours, beautiful trees on the meadows, blossoming bushes on the slopes, and an infinite wealth of flowers, beautiful beyond description, and as it were exultant in the sunlight long denied to them, newly unfolded wild roses, the call of the cuckoo and songs from a hundred throats, the auls of the Kirghiz in the broader valleys, and the Russian villages surrounded by green shrubs, grazing herds, fruitful fields, rushing brooks, and jagged rocks, mild air and the balmy fragrance breathing of spring—such were some of the elements which intoxicated the senses and made our journey a continual delight. Soon we crossed the boundaries of the crown-lands of the Altai, a property not much smaller than France! At the end of a day's journey we reached the little town of Serianoffsk with its silver mines. After we had been hospitably entertained and had inspected all the works, we turned again to the Irtish, and were borne by the rapid stream through deep and picturesque gorges past Buchtarminsk to Ustkamenogorsk, whence we journeyed in wagons once more through these crown-lands which give promise of a rich future. Steppe-like plains adjoin the pleasant tracts which lie along the spurs of the mountains; extensive forests alternate with cultivated land. Large prosperous villages; valuable, fertile fields of coal-black soil; well-built men with a look of conscious prosperity, beautiful women in picturesque costume, both child-like in their inquisitiveness and in their good-nature; excellent, serviceable, untiring horses, and powerful, shapely oxen lying at ease in large herds; an endless succession of caravans

bearing ore and coal along well-made roads, marmots on the slopes of the mountains, souslik on the plains, imperial eagles on the guide-posts by the highway, charming little gulls on the water-basins and about the townships—such cheerful pictures enlivened our route. We hastened through the country as if in flight, paying a passing visit to the mining town appropriately called Schlangenberg (Snake-town), and allowing ourselves but a short rest in the country-town of Barnaul. Thence we journeyed to the little hill-town of Zalair, and thence to the great government-town of Tomsk.

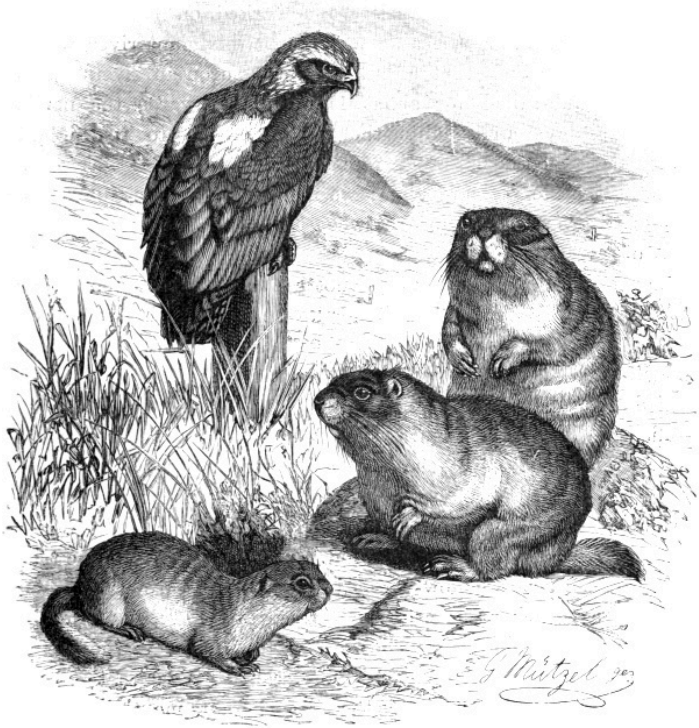


Fig. 59.—Imperial Eagle, Marmot, and Souslik.

Before we came to Barnaul we had reached the Obi;

at Barnaul we crossed it, and at Tomsk we embarked on board a boat. Through its tributary the Tom we entered this giant river, whose basin is larger than that of all the west European rivers taken together, and sailed for about 1700 miles, towards the north. For four days and nights the river—flooded to its highest water-mark—bore us at a rate almost twice as quick as a steamboat hastening up-stream; we required eleven full days and nights to cover the distance between the mouth of the Irtish and that of the Shtchutshya, although we only rested a few hours in Samarowo and Bereosoff, and did not include in our reckoning the two days which we spent in Obdorsk, the last Russian village on the river. The river is gigantic and most impressive, dreary and monotonous though it be called. In one valley, whose breadth varied from six to sixteen miles, it split up into numerous branches surrounding countless islands, and often broadening out into extensive lake-like shallows; near its mouth the depth of water in the main stream—miles in breadth—was on an average about 90 feet. Primeval forests, hardly broken by clearings, into whose heart not even the natives have penetrated, clothed the true banks of the river; willow-woods in all stages of growth covered the islands, which are continually carved at by the floods, eaten away, and built up afresh. The further down we went the poorer became the land, the thinner and more scanty the woods, the more miserable the villages, though as the river nears its mouth the water liberally supplies the food which the land itself denies. Not far below Tomsk, beyond Tobolsk, the soil ceases to reward cultivation, further down the grazing of cattle gradually ceases; but the river teems with shoals of valuable fishes, and the primeval forests along its

shores yield rich spoil to the huntsman. Fisher-folk and huntsmen replace the peasants, and the reindeer herdsmen the cattle tenders. Russian settlements become more and more rare, the homes of the Ostiaks become more frequent, until at length the only visible signs of man's presence are the movable, conical, birch-bark huts or "tshums" of the Ostiaks, and occasional exceedingly miserable log-huts, the temporary shelters of Russian fishermen.

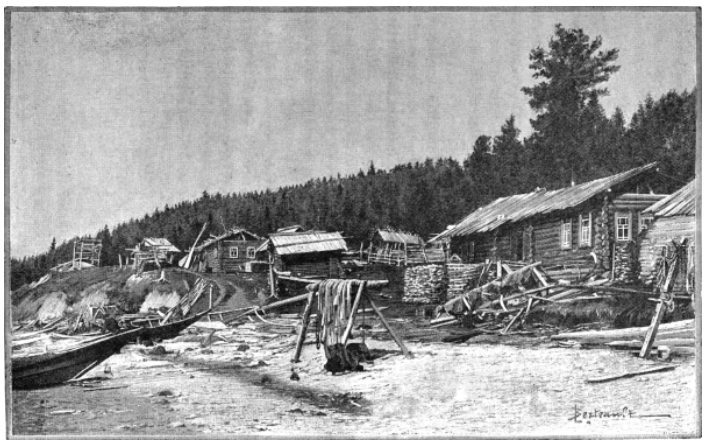


Fig. 60.—An Ostiak Settlement on the Banks of the Obi.

We had determined to explore a tundra or moss-steppe, and had therefore fixed upon the Samoyede peninsula between the Ob and the Kara Sea, all the more because a solution of certain important commercial problems was to be looked for in this portion of the broad treeless zone which encircles the pole—a region, moreover, on which Europeans had scarcely as yet set foot. In Obdorsk and further down-stream we hired for this journey several Russians, Syryanians, Ostiaks, and Samoyedes, and set out on the 15th of July.

From the northern heights of the Ural range, which is here represented by lofty mountains, three rivers

arise near one another, the Ussa, a tributary of the Petchora, the Bodarata, which enters the Kara Sea, and the Shtchutshya, which flows into the Obi. It was the basin of the last, Shtchutshya, which we determined to visit. But no one could tell us what the country was like, how we should fare, whether we might hope to find reindeer or be forced to go afoot.

To the mouth of the Shtchutshya river we journeyed in the usual fashion, paying off our oarsmen at each Ostiak settlement and hiring others; when we reached the river our own followers began their work. For eight days we worked slowly up the stream, following its countless serpentine windings further into the monotonous, indeed dismally tedious tundra, now approaching the Ural range, and again diverging from it. For eight long days we saw no human beings, but only traces of their presence,—their necessary property packed on sledges for the winter, and their burial-places. Treacherous swamps on both sides of the river prevented us from making inland excursions, and millions of bloodthirsty mosquitoes tormented us without ceasing. On the seventh day we saw a dog—quite an event for us and our crew; on the eighth day we came upon an inhabited tshum, and in it the only man who could tell us about the country before us. We took him with us as a guide, and with him, three days later, we set out on an expedition which proved as dangerous as it was fatiguing.

We were told that reindeer were to be found nine full days' journey from us, on the pasturage of Saddabei in the Ural range; at this season there was not one to be got near the Shtchutshya. There was nothing for it but to set off on foot, and to face, as best we might, the difficulties and hardships of a journey through a

pathless, barren, mosquito-plagued district, altogether hostile to man, and worst of all—unknown!

After careful and prolonged consultation with the natives our preparations were made, the burdens which each one was to bear were carefully weighed, for the spectre of starvation loomed before us. Full well we knew that only the nomad herdsman—but no huntsman—was able to keep body and soul together on the tundra; well we knew by previous experience all the trials of the pathless way, all the torments which the army of mosquitoes promised, the inconstancy of the weather, and the general inhospitability of the tundra, and we made our preparations with due consideration of all these. But we could not prepare for what we did not know and could not foretell, and for what, in fact, eventually befell us. Not that we wished to turn back, though, had we foreseen what was to happen, we might well have done so.

Dressed in short fur, heavily laden with knapsack, weapons, and ammunition, we set off on the 29th of July, leaving our boat in the charge of two of our company. Painfully we tramped, gasping under our burdens, stopping every hour and half hour, and at length every thousand paces, but finding no rest on account of the mosquitoes, which tortured us day and night without ceasing. We ascended countless hills, and traversed as many valleys, we waded through as many marshes and morasses; we passed by hundreds of nameless lakes, and crossed a multitude of swamps and streams.

As it happened, the tundra could not well have been more inhospitable. The wind beat the drizzling rain into our faces; drenched to the skin we lay down on

the soaking soil, without roof to cover us, or fire to warm us, and unceasingly tormented by mosquitoes. But the sun dried us again, gave us new courage and strength, and on we went. A piece of good news did us more good than sun or sleep. Our followers discovered two tshums, and with our field-glasses we distinctly saw the reindeer around them. Heartily delighted, we already pictured ourselves stretched comfortably in the sledge, the only possible vehicle in such a district, and we seemed to see the quickly-stepping antlered team. We reached the tshum and the reindeer; a dismal sight met our eyes. For among the herds splenic fever was raging—the most dreadful, and for man also the most dangerous of plagues, the most inexorable messenger of death, unsparing and merciless. Against its ruin-bringing attacks man is powerless; it reduces peoples to poverty, and claims its victims as surely from among men as among beasts.[81]

I counted seventy-six dead reindeer in the immediate neighbourhood of the tshum. Wherever the eye turned it lighted on carcasses or on beasts, both young and old, lying at their last gasp. Others came, with death at their heart, to the sledges already loaded for departure, as if they hoped to find help and safety in the neighbourhood of man. They would not be driven away, but remained stock-still for a couple of minutes with staring eyes and crossed fore-legs, then swayed from side to side, groaned and fell; a white foam issued from mouth and nose, a few convulsions, and another was dead. Milk-giving mothers and their calves separated themselves from the herd; the mothers succumbed with similar symptoms; the calves looked on curiously, as if amazed at their mother's strange behaviour, or grazed unconcernedly beside the death-bed. When

they came near, and found instead of their devoted mother a corpse, they snuffed at this, recoiled in terror, and hastened away, straying hither and thither and crying. They sought to approach one or other of the adults, but were repulsed by all, and continued lowing and searching until they found what they did not seek—death, from an arrow sped by the hand of their owner, who sought to save at least their skin. Death was equally unsparing of old and young; before the destroying angel the strongest and stateliest stags fell as surely as the yearlings of both sexes.

Schungei, the owner of the herd, his relatives and servants, hurried to and fro among the dead and dying beasts, seeking with mad eagerness to save whatever was possible. Although not unaware of the dreadful danger to which they exposed themselves if the minutest drop of blood or a particle of the infected foam should enter their system, knowing well that hundreds of their race had died in agony from the incurable plague, they worked with all their strength skinning the poisoned corpses. A blow from a hatchet ended the sufferings of the dying deer, an arrow killed the calves, and in a few minutes the skin —which for weeks is quite capable of spreading the infection—was off and lying beside the others. With blood-stained hands the men dipped morsels cut from the bodies of the calves into the blood collected in the chest-cavity, and swallowed them raw. The men seemed like executioners, the women like horrible harpies, and both like blood-smeared hyænas wallowing in carrion. Careless of the sword of death which hung over their heads, rather by a gossamer thread than by a hair, they grubbed and wallowed, helped even by their children, from half-grown boys down to a little girl hardly more than a

suckling.

The tshums were shifted to an adjacent hill. The unfortunate herd, which had started from the Ural two thousand strong, and had now dwindled to a couple of hundred, whose path was marked by a line of carcasses, was collected afresh around the tshum; but next morning there were again forty corpses around the resting-place.

We knew the danger of infection from animals with splenic fever or anthrax, but we had not adequately appreciated its extent. Thus we bought some fresh, apparently quite healthy reindeer, harnessed them to three sledges, loaded these with our baggage, and striding beside them went on our way lightened. The plague forbade us from getting reindeer flesh to eat, as we had hoped, and we began to look around more carefully and anxiously for some small game, a willow grouse, a great snipe, a golden plover, or a duck. Sparing our slender supplies to the utmost, we crouched around the miserable fire, whenever the least of Diana's nymphs had been propitious, and collectively roasted our paltry spoil as best we might. Of satisfying our hunger there was no longer any possibility.

After we had crossed the way of death which Schungei had followed, we reached the first goal, the Bodarata. There we had the inestimable good fortune to find more tshums and reindeer. Thus aided we made for the sea, but we were forced to turn without setting foot on the shore. For before us lay not only a pathless morass, but again a countless heap of reindeer carcasses; we were once more on the path by which Schungei had fled homewards, and our new acquaintance, the herdsman Zanda, would not dare to cross it.

For in his herd also death had been busy with his scythe; the destroyer had visited his house, and yet more disastrously those of his neighbours. The man who had been his companion on his wanderings had eaten of an infected fat reindeer which he had hastily killed, and he had paid for his rashness with his own life and that of his family. Thrice had the herd Zanda shifted his tshum, and thrice he had dug a grave among the corpses of the reindeer. First, two children fell victims to the dread disease, then the thoughtless man's servant, on the third day the man himself. Another child was still ill, groaning in its agony, when we set out on our journey to the sea; its cries were silenced when we returned to the tshum, for the grave had received a fifth victim. And this was not to be the last.

One of our men, the Ostiak Hadt, a willing, cheerful fellow, who had endeared himself to us, had been complaining since the day before of torturing pains which became ever more severe. He complained especially of an increasing sensation of cold. We had placed him on one of the sledges when we reached the herdsman's tshum, and thus we bore him when the tshum was shifted for the fifth time. He lay at the fire moaning and whining in our midst. From time to time he raised himself and bared his body to the warmth of the fire. Similarly he pushed his numb feet against the flames, and seemed to care not that they singed. At length we fell asleep, perhaps he did also, but when we awoke next morning his bed was empty. Outside, in front of the tshum, he sat quietly leaning on a sledge, with his face to the sun, whose warmth he sought. Hadt was dead.

Some hours later we buried him according to the customs of his people. He was a true "heathen", and

in heathenish fashion he should be buried. Our "orthodox" companions hesitated to do this; our "heathen" followers helped us in the ceremony, which, though not Christian, was at any rate dignified and human. The grave received its sixth victim.

Should this be the last? Involuntarily this question arose; it was gruesome for us all to have death as a travelling companion. Fortunately for us, Hadt's grave was the last on this journey.

Seriously, very seriously, still oppressed by increasing dearth of provisions, we turned again towards the Shtchutshya. Zanda provided a scant diet for our followers, while we relied on what we could shoot, and were pinched enough. But one forenoon we captured a family of geese, and shot several willow grouse, snipe, and plovers, and celebrated a feast, for it was pleasant to be able to eat without counting the mouthfuls. But without the help of our host it would hardly have been possible for us to have survived.

We reached the river, and, almost at the end of our stores, we regained our boat. Here we feasted on fare which was poor enough, though, after a fortnight's privation, it seemed most sumptuous. We said farewell for ever to the tundra.

A Shaman, whom we had found busy fishing further up the Obi, and had asked to give us a sample of his art and wisdom, had duly beaten his dull-sounding drum to summon Yamaul, the messenger of the gods, who befriended him, and had told us that we should next year revisit the inhospitable country which we had just left, but that we should then go to the region where the Shtchutshya, Bodarata, and Ussa have their source. For two emperors would reward

us, and the elders of our people would be satisfied with our report, and send us forth again. Moreover, on our journey no further misfortune would befall us. So the messenger of the gods, perceived by him alone, had said.

The last part of his prophecy was true enough. Slowly but without mishap or accident we journeyed for twenty-three days up the Obi, and after long delay we fortunately reached a steamboat, on which we ascended the Irtish for three days. Without misfortune, though not without hindrance, we crossed the Ural, in a comfortable steamer we glided swiftly down the Kama, more slowly we ascended the Volga. In Nijni-Novgorod, in Moscow, in St. Petersburg, we were hospitably received, as before, and were joyously welcomed at home. Our “elders” seem to have been well pleased with our report, but to the tundra I at least shall never return.

THE HEATHEN OSTIAKS.

The struggle for existence which man has to maintain in Siberia is easy and toilless now, and will probably remain so for centuries to come—easy and toilless especially among the lavishly endowed lands in the south of the country, and not too hard or laborious even in those regions which we are wont to picture as an icy waste, an inhospitable desert, which we still regard in this light if we only travel hastily and unwillingly through them. In the far north of West Siberia the climate is harsh and severe; the earth which, a little below the surface, is frozen and stiffened for ever, refuses to bring forth fruit; the sun will not ripen the bread-yielding grain; but even here Nature has bountifully shaken her horn of plenty, for what the land denies, is yielded by the water. The people who have dwelt for centuries in these latitudes, which we so carefully avoid, may appear poor and miserable in our eyes; in reality they are neither. They are able to procure all they need; they can even secure many luxuries, for their country yields them much more than is enough merely to sustain life. They do of course struggle, more or less consciously, for “an existence worthy of man”, but not with any grudge, outspoken or suppressed, against those whose lot is happier. Indeed they are happier than we think, for they are more modest, more easily satisfied than we are; they are utterly ignorant of what we call passion in the stricter sense; they accept the pleasures within their reach with a childlike joy, and the sorrows which visit them, with

that deeply felt but quickly forgotten grief which is characteristic of childhood. Black care may stand beside their bed; but they banish it whenever they perceive a ray of joy, and they forget affliction whenever the sun of good fortune once more shines upon them. They rejoice in wealth and complain of poverty, but they see their riches disappear without giving way to despair, and their poverty turn to wealth without losing their equanimity. Even in mature age they remain children in thought, feeling, and behaviour; they are happier than we.

The Ostiaks with whom we came most frequently in contact on the lower Obi, whose society we preferred, and whom we learned to know best, belong to the Finnish family, and profess the same religion as another branch of the same family, the Samoyedes, while their manners, customs, and way of life generally, are approximately the same as those of all the Finns in a restricted sense, and therefore also of the Lapps. They are wandering herdsmen and fisher-folk, huntsmen and fowlers, like the Samoyedes and like the Lapps. Apart from their religion, and perhaps also their language, they resemble the Lapps more than the Samoyedes, for there are among them dwellers in fixed homes as well as nomadic herdsmen, while the Samoyedes, even when engaged in fishing, very rarely exchange their movable hut for a fixed log-house, at least in the parts of Siberia through which we travelled.

It may be that the Ostiak tribe was more numerous at one time than it is now, but it was probably never a people in our sense of the word. In some parts of the territory inhabited, or at least traversed by them, the population is said to be continually decreasing, while in others it is slightly on the increase; but the

extent of increase or decrease seems inconsiderable. To reckon the whole number of these people at fifty thousand individuals is probably a high estimate. In the whole of the great district of Obdorsk, which extends from 65 degrees northern latitude to the northern end of the Samoyede peninsula, and from the Ural to the upper Chass river, there live at present, according to official statistics, not more than five thousand three hundred and eighty-two male Ostiaks, of whom not more than one thousand three hundred and seventy-six are able-bodied or assessable men. If we take for granted that there are as many women and girls, the whole number does not reach eleven thousand; and the above estimate is rather too high than too low, even though the tract inhabited by our people extends up the Obi to the district of Surgut, and up the Irtish to the neighbourhood of Tobolsk.

All the Ostiaks on the upper Irtish and middle Obi live in fixed log-houses, very simple, but resembling those of the Russians, and only here and there among these permanent dwellings, which indicate a higher degree of civilization, do we come upon a birch-bark tent or tshum. On the other hand, on the lower Obi, and especially between Obdorsk and the mouth of the stream, only birch-tents are to be seen, and they are, naturally, the only homes of the nomadic reindeer herdsman. Almost, if not exactly in agreement with this difference in dwelling, is the difference in religion, for the Ostiaks inhabiting settled villages belong to the Orthodox Greek Catholic Church, and are reckoned among its members, as they have been baptized, while those dwelling in the tshum are still true to their ancient faith, which, although regarded by the Russian priests and their followers as blind heathenism, is by

no means devoid of poetic grandeur, still less of moral worth. The tent-dwellers certainly practise their religion with more ardour and conviction than the settled villagers do their so-called Christianity, which, as far as can be observed, seems to an unbiassed onlooker rather a superstitious idolatry than a nobler substitute for the religion which grew out of a childlike mood, and finds expression in childlike ways. With the adoption of log-houses and of Christianity, the Ostiaks of the central Obi and lower Irtish regions have, to a certain extent, given up their own dress in favour of that of the neighbouring Russian fisher-folk, and in their intercourse with these, have adopted many of their manners and customs. In part, too, they have lost their purity of race, and have retained only the inalienable characteristics, the language and all peculiarities preserved by it, perhaps also the skill, dexterity, and harmless good-nature common to all the Ostiaks. But one cannot venture to assert that their morals have improved with their civilization, or that their purity of life has increased with Christianity; and in any case it is more satisfactory to get to know the heathen Ostiaks, and to come into close contact with a still primitive people, than to concern ourselves with that portion of the tribe which gives us but a dim picture of what they once were, or others still are. I shall, therefore, limit my remarks to a consideration of those Ostiaks who worship the divinity Ohrt, who live in polygamy when their means permit, who bury their dead exactly as their fathers did. My sketch will lose nothing, and will gain in unity, if it takes account of these alone, and leaves the others out.

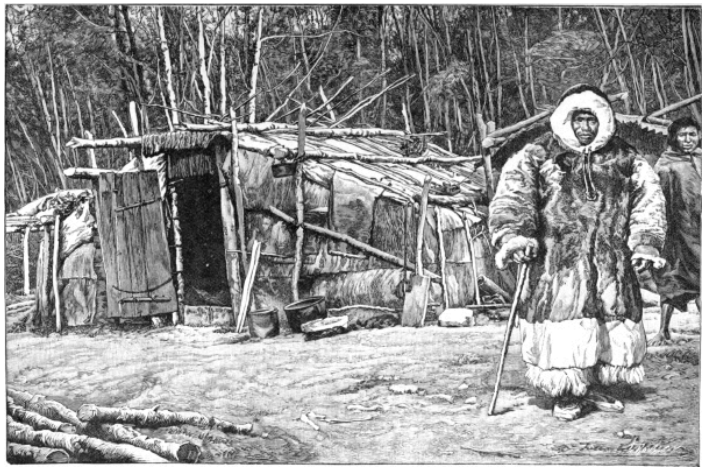


Fig. 61.—Huts and Winter Costume of the Christian Ostiaks.

It is difficult to speak of a common type among the Ostiaks, and still more difficult to describe it. I have repeatedly attempted to do this, but have always been forced to recognize the impossibility of adequately describing a face in words, or of satisfactorily delineating with the pen those tribal peculiarities which are evident enough to the eye. In shape of face, colour of skin, hair, and eyes, they vary greatly; their racial affinity, that is, their Mongol origin, is by no means always very apparent, in fact, it is often difficult to detect, and when at last one imagines one has formulated certain definite average characteristics, one learns from other members of the same stock that their applicability is only relative and by no means unconditional. In what follows I shall attempt to give a comprehensive idea of what I saw among the Ostiaks whom we observed.

The Ostiaks are of middle height, somewhat slender in general build, their hands, feet, and limbs generally well-proportioned, the hands perhaps

rather large, the calves of the legs almost always thin; their features seem intermediate between those of the other Mongols and those of the North American Indians: for their brown eyes are small and always set obliquely, though by no means very strikingly so; the cheek-bones are not very prominent, but the lower portion of the face is so compressed towards the narrow pointed chin that the whole has an angular appearance, indeed, as the lips are also sharply cut, it is often really cat-like, especially among women and children, though the nose is, on the whole, slightly, and in many cases not at all flattened. The rich, smooth, but not stiff, hair is usually dark brown or black, rarely light brown, and still more rarely blonde; the beard is scanty, but this is chiefly in consequence of the habit young dandies have of pulling out the hairs; the eyebrows are thick, often bushy. The colour of the skin is not much less white than that of a European who is much in the open air and exposed to wind and weather, and the yellowish look which it usually has is sometimes entirely awanting.

Though the above holds good of most Ostiaks, I do not mean to imply that one can have any doubt about their racial affinities if one examines them closely. In a few individuals the Mongolian traits are apparent on the most cursory glance; these types are small in stature, the lively brown eyes are elongated and obliquely set, the cheek-bones are very prominent, the stiff hair is deep black, and all the exposed parts of the body have a decided copper-red or leather-brown colour.

I can offer no opinion as to the language of the Ostiaks; I can only say that it embraces two dialects which can be readily distinguished even by strangers.

That in use on the middle Obi is euphonious, if somewhat drawling and sing-song, while that prevailing on the lower Obi, probably because of the general habit of preferring the softer Samoyede tongue, is much more rapid and flowing, though there is still distinct enunciation of the syllables.

The Christian Ostiaks, as has already been mentioned, imitate the dress of the Russians, and the clothing of their women only differs from that of the Russian fisher-women in being decorated in many places with glass beads, and in the addition of special sash-like ribbons, like the stole of a Catholic priest, embroidered all over with such beads. The heathen Ostiaks, on the other hand, use nothing but the skin of the reindeer for clothing, and only employ the furs of other animals for the occasional decoration of the reindeer, or, as the Russians call them, stag skins. Their dress consists of a close-fitting skin coat reaching to the knee; in the men it is slit down the breast, in the women it is open down the whole front, but held together with leather thongs; a hood of the same material is usually attached to or forms part of the dress; mittens also are sewn on; leather breeches reach below the knee; and leather stockings, which fasten over the knee, complete the attire. The fur garment worn by the women is edged down the sides of the opening with a carefully pieced border of variously-coloured little squares of short-haired fur, and has always a broad band of dog-skin round the foot; that worn by the men has at most a border of dog-skin, and has always a hood; the leather stockings, if they are decorated at all, are composed of many prettily-combined, diversely-coloured stripes of skin from the leg of a reindeer, with a stout shoe partly sewn on, partly laced over the foot. A broad leather belt, usually studded with

metal buttons, confines the man's garment at the waist and holds his knife; a gaily-coloured head-wrap, with long fringes, which replaces the hood in summer, falls down over the woman's dress. Shirts are unknown; but, on the other hand, the woman wears a girdle, of a kind unknown among us. By way of ornament, the woman puts on her fingers as many brass, or, where circumstances permit, silver rings as the lower joint will wear, so that that portion of the hand is literally mailed; a more or less handsome string of glass beads is hung round the neck, and very heavy tassel-like ear-rings of glass beads, twisted wire, and metal buttons, are hung rather over than in the ear; finally, the hair is plaited into two rope-like braids reaching to the middle of the calf, and interwoven with woollen threads. The Ostiak dandy dresses his hair in the same way—a proof that fools are alike all the world over—while the ordinary man usually wears his hair long, but loose.



Fig. 62.—“Heathen” Ostiaks, Reindeer, and Tshums.

Still simpler than the dress, but equally well adapted to its purpose,—for their costume, though not beautiful, is suited alike for summer and winter use,—is the dwelling of the Ostiak, a cone-shaped, movable hut covered with birch-bark, the tshum of the fisher-folk and wandering herdsmen. The framework is formed of twenty or thirty thin, smooth poles, from four to six yards in length, and pointed at both ends. These are fixed in a circle, which is very exact though measured only by the eye, two of them bent towards each other are fastened near their tops

with a short cord, and serve as a support for all the rest. The outer covering consists of from five to eight sheets cut to the convex curve of the cone, and composed of little pieces of birch-bark previously boiled and thus rendered pliant. On the least exposed side is an opening which serves as a door, and which can be closed at will with another sheet of bark; the pointed top of the tent is always left uncovered to admit of the free passage of smoke. From the door straight to the opposite side of the hut runs a passage, in the middle of which the fire is built; over this two horizontal poles, fastened to the supports of the hut, serve as a drying-stand, from which also the cooking-kettle hangs. To right and left of the passage, boards, or at least mats, are laid down, and serve as flooring and also to mark off the sleeping places, whose head-end is towards the wall. Mats, made of bundles of sedge, long-haired, soft reindeer skins, and cushions stuffed with reindeer hair or dried moss, form the bed, and its coverings are of fur. A mosquito tent, under which the whole family creeps in summer, protects the sleepers more effectually against the winged tormentors than the smoky fire of rotten willow wood which is kept constantly burning in the entrance of the tshum. Cooking vessels, tea and drinking kettles, bowls, leather bags for holding flour and hard-baked bread, little chests with locks for holding the most valuable possessions, especially the tea-set, an axe, a gimlet, leather scrapers, a bowl-like work-box, a bow, crossbow or gun, snow-shoes, and various implements of the chase, make up the domestic plenishings. A household god replaces the crucifix, which is rarely absent from the huts of the Christian Ostiaks.

The tshum is protected against the cold and storms of

winter by a leather covering of worn-out skins sewn together, or, more effectually, by spreading a second layer of sheets of birch-bark over the first.

If the owner of the tshum be a fisherman, one may see in front of his dwelling drying-stands for hanging up the nets, and others for drying fish, all very carefully made; also exceedingly light, daintily-wrought fishing-baskets, several excellent little boats, and other fishing apparatus; if he be also a huntsman there are in addition all kinds of implements of the chase, such as bows and spring-crossbows; if he be a reindeer-herdsman there are several well-made sledges with their appropriate harness, and the boat which is also indispensable.

Every Ostiak is experienced in fishing, almost all hunt or set snares, but not all are herdsmen. To possess reindeer means, among them, to be well-to-do, to possess many is to be rich; to live by fishing alone is poverty. Horses and cows are to be seen in some of their settlements, though in very small numbers, and only in the district about the middle of the river-basin; sheep, and sometimes even a cat may be kept; but the real domestic animals are the reindeer and dog. Without these, especially without the reindeer, a well-to-do man would scarcely think life possible, and it is indeed to them he owes all that makes up what he looks on as the joy of existence. As the Bedouin, the wandering herdsman of Central Africa, deems himself superior to those of his race who till the fields; as the Kirghiz looks down almost contemptuously on those who strive to wrest subsistence from the soil, so the possessor, or even the herdsman of reindeer, only uses net and hook to supply his own necessities, while the fisherman casts his nets and sets his baskets not for himself alone,

but in the service of others. The wealth of a man is calculated by the number of his reindeer; with them his prosperity and his happiness are alike bound up. And when the deadly murrain annihilates his herds, he loses not wealth and happiness alone, but much more: esteem and rank, self-respect and confidence, even, it may be, his religion, manners, and morals, in short—himself. “As long as the plague did not ravage our herds,” said the district governor, Mamru, the most intelligent Ostiak whom we met, “we lived joyously and were rich, but since we have begun to lose them, we are gradually becoming poor fishermen; without the reindeer we cannot hold out, we cannot live.” Poor Ostiaks! in these words your doom is pronounced. Even now the reindeer, which once were counted by hundreds of thousands, have dwindled to a total of fifty thousand, and still the Destroying Angel passes almost yearly through the antlered herds. What will be the end? The Russian priests will gain more and more Christians, the Russian fishermen more and more hirelings, but the Ostiaks will be Ostiaks only in name, and that at no far distant time.[82]



Fig. 63.—Ostiaks with Reindeer and Sledge.

The reindeer of Northern Asia is an essentially different creature from that of Lapland, for it is not only larger and more stately, but it is a domestic animal in the best sense of that term. We all imagined we knew the reindeer; for in Lapland we had examined it precisely and carefully with the eye of the naturalist; but in Siberia we were obliged to admit that till then we had gained a very imperfect idea of this most remarkable of domestic animals. In Lapland we had known the deer ceaselessly resisting, submitting with visible reluctance to the yoke of the little men, and always apparently bent on regaining its freedom; here in Siberia we found a docile, willing animal, attached to man, and trusting in him. Certainly the Ostiak knows well how to deal with it. Though he does not treat it with the tenderness he bestows on his dog, he is, on the whole, not unkind to it, and he is very rarely rough or brutal. Unlike the Laplander, he refrains from milking it, but he harnesses it more frequently; for, winter and summer, it must draw him and his family, the tshum with its appurtenances, and all the other requisites for the continual migrations. The Lapp, on the other hand, only harnesses the reindeer to his sledge in winter. Like the Lapp, the Ostiak makes use of every portion of the carcase of a slaughtered animal, with the sole exception of the stomach and intestines. The flesh serves him as food, the bones and horns make all sorts of implements, the tendons supply twine for sewing his clothing, that, and whatever else he requires in the way of leather, is furnished by the skin; even the hoofs are utilized. On a light sledge, drawn by the reindeer, the Ostiak travels, in summer and in winter, from place to place—to weddings, to festivals, to the chase, and to the burial of his

friends; with it he draws his dead to their last resting-place; he slaughters the reindeer and eats it with his guests, or in honour of his dead, whom he wraps up in its skin, as he does himself. Truly, without the reindeer he cannot endure, cannot live.

Of scarcely less importance than his horned herds is the Ostiak's second domestic animal, the dog. It is possessed and cared for not only by the wandering herdsman, but by every Ostiak—fisher as well as huntsman, settler as well as nomad. The Ostiak dog is represented by two different breeds, whose chief difference, however, is only in size. Whether our dog-fanciers would find it beautiful I cannot say. For my part, I must pronounce it beautiful, because, with the sole exception of the colour, it possesses all the characteristics of a wild dog. It most resembles the Pomeranian dog, but is usually larger; indeed, it is often so large as to approach the wolf in size; and its slender build also distinguishes it from the Pomeranian. The head is elongated, the muzzle moderately long, the neck short, the body long, the limbs slender, the tail moderately long, the brassy eyes obliquely set, the short pointed ears held erect, the hair extraordinarily long and thick, consisting of a mixture of decidedly woolly and bristly hairs. The colour varies, but is predominantly pure white, or white with deep black, usually regular markings on both sides of the head, including the ears, on the back and on the sides of the body; or it may be wolf or mouse gray, or dun-coloured, watered and waved, but never striped. The slightly bushy tail is always carried hanging, or extended, but never curled, and the resemblance to a wild dog is thereby greatly increased.

Constant and intimate association with man has

transformed the Ostiak dog into an exceedingly good-natured animal. He is watchful but not given to biting, brave but not pugnacious, faithful and eager but not hostile to strangers nor violent. Though he hastens suspiciously, if not exactly with unfriendliness, towards a stranger, he becomes confiding as soon as he hears him speak with his master, or sees him step into the tshum. He is in no way pampered, for though he loves to share the dwelling of his master or mistress, he exposes himself without apparent discomfort to wind and weather, throws himself unhesitatingly into the cold water of the river and swims straight across a broad arm, or, when on a journey, trots on uncomplainingly under the sledge to which he is chained, whether the way lead over bog or morass, among dwarf-birch bushes or through water. Intelligent and cunning, ingenious and inventive, clever and active, he knows how to make his life comfortable, and to adapt himself to all situations. In the tshum he lies self-denyingly beside much-desired foods; outside of his master's hut he is a bold and greedy thief; among the dwarf-birches of the tundra he trots indifferently under the sledge, but over smooth or other easy ground he places himself with all four legs together on the runners of the sledge and lets himself be carried. While hunting he is a faithful and useful assistant to his master, but he snaps away the game which he has scented and a stranger shot, and devours it with such an air of inoffensive enjoyment that one cannot be angry with him. In tending the herds he shows himself acquainted with all the peculiarities and tricks of the reindeer, and he is docile enough; but he is never quite so trustworthy as our sheep-dog, for he allows himself an opinion of his own, and only yields his services without resisting when it appears to him

absolutely necessary.

The Ostiak dog is at once playmate, sentinel of the tshum, guardian of the herds, and draught animal, and he is made use of even after death. He is only harnessed to the sledge in winter, but the harness is so awkward that if he has to exert himself much he becomes in a few years weak in the loins or hip-shot. After death his splendid coat is much prized; indeed, many of the Ostiaks evidently keep a disproportionately large number of dogs solely to have skins at their disposal every winter.

It is probably for the same or some similar reason that the various mammals and birds, such as foxes, bears, owls, crows, cranes, swans, &c., which one sees chained in or before the tent of the fisherman or the herdsman, are taken from the nest and reared. As long as they are young they are tended carefully and kindly; whenever they are full-grown and in good fur or feather they are killed, the edible parts are eaten, and the skin or feathers made use of or sold, the former especially often fetching an astonishingly high price.

Here, as everywhere else, the dog submits to man's will, but man must adapt himself to the requirements of the reindeer. These requirements, and not the will or humour of the herdsman, determine the wanderings of the nomad Ostiak, as the coming and going of the fishes influences the doings of his relatives in fixed abodes, to a considerable extent at least. The migrations of the reindeer herdsmen and their herds take place for almost the same reasons and in the same direction as those of the Kirghiz, and are distinguished from them chiefly by the fact that they do not cease in winter, but rather become more constant and varied. When the snow begins to melt,

the Ostiak herdsman travels slowly towards the mountains; when the mosquito plague begins he ascends their sides, or at least betakes himself to the shoulders of the ranges; when it ceases again—and even the open heights are not entirely free from it—he gradually descends to the low tundra to pass the winter, if possible on his native river-bank. This is the course of his life one year after another, unless he is visited by that most terrible of disasters, the reindeer plague.

Before the short summer comes to the inhospitable land, before even the first breath of spring is stirring, when a thick sheet of ice lies still unbroken over the mighty river, its tributaries, and the innumerable lakes of the tundra, the reindeer bring forth their calves; it is therefore more than ever necessary to seek out a place which offers sufficient pasture for both mothers and young. Our herdsman migrates, therefore, not to the deepest valleys, but to the heights from whose crests the raging storms of winter have blown away much of the snow, and here, in the best available spot, he erects his tshum. For days, even weeks, he remains there until all the exposed reindeer moss has been eaten up, and the broad hoof of the reindeer itself, which has been used to clear away the snow, almost refuses duty. Then the herdsman breaks up his camp, and wends his way to some not far distant spot, which offers the same attractions as the first. Here, too, he remains until pasturage becomes too scarce, for this is still what he looks on as the good season. The herds feed in dense troops; among the stags, whose antlers have just begun to sprout, the deepest peace reigns; the calves are never lost sight of by their anxious parents; the herd neither scatters nor wanders out of hearing of the loud call which summons them to the

tshum at sundown. At night, indeed, the greedy wolf, which has been driven by winter from the mountains, prowls around them, but the brave dogs keep sharp watch, and resist the cowardly robber; and our herdsman therefore is as little troubled about the wolves as he is about winter, which he, like all the peoples of the far north, looks on as the best season of the year. The days—still very short—are gradually lengthening, the nights becoming shorter, and the dangers threatening his defenceless herds are gradually diminishing. The river throws off its winter covering; and with the floods warmed in the steppes of the south, soft winds blow through the land; one hill-top after another is laid bare of snow, and here, as well as in the valleys, where the buds are sprouting luxuriantly, the weather-hardened animals find food in abundance. The low tundra has become a paradise in the eyes of our herdsman. But this comfortable life lasts only a short time. The quickly-rising sun, which shines longer and becomes hotter every day, soon melts the snow in the more level valleys and the ice in the broad lakes, thaws even the surface of the frozen earth, and calls into life, along with other harmless children of the spring, milliards of torturing gnats and persecuting gadflies, whose larvæ were snorted out of the reindeers' nostrils only a few weeks before.[83] Now wandering begins in earnest; the herdsman travels, in short daily marches, but still hastily, towards the mountains.

As soon as the dew is dry on the moss, lichens, grasses, and the young leaves of the dwarf bushes, the women take to pieces the tshum they erected only the day before, and load the sledges which were only then unladen. In the meantime the herdsman himself, on his light sledge drawn by four strong

stags, goes in search of the herd scattered about to find pasture, or resting contentedly in groups, collects them and drives them towards the camping ground, where the rest of the family are prepared to receive them. Holding in their hands a thin rope, over which the reindeer seldom venture to jump, they form a circle round the herd; the herdsman, with his lasso in his right hand, goes in among the reindeer, throws his noose almost unfailingly round the neck or antlers of the chosen stags, secures and harnesses them, orders that all the others be let loose, mounts his sledge again and drives away in the direction of the next camping-ground. All the other sledges, driven by different members of the family, follow him in a long train, the whole free herd follows them, lowing or grunting, their hoofs crackling at every step. The dogs run about the whole procession, barking continually and collecting the animals that are inclined to wander. They cannot, however, prevent a few from breaking off from the sides of the herd and remaining behind. The herd spreads out more and more, picturesquely adorning all the heights; now and again they pause in groups over some favourite food; importuned by the calves the mother deer perform their maternal duties, and then, to please their satisfied offspring, lie down beside them till the eagle eye of the herdsman spies them, and, taking a wide circuit round the laggards, he drives them by a word of command, or by the help of the dogs, to join their fellows trotting briskly on ahead. Amid renewed general grunting, and loud barking from the dogs, the reassembled herd surges onwards; a very forest of antlers presses forwards, and something akin to sportsman’s joy stirs the heart of the spectator who is unfamiliar with the sight.

The sun is declining; the draught animals groan heavily, their tongues hanging far out of their mouths; it is time to allow them rest. At a short distance, beside one of the innumerable lakes, there rises a low flat hill. Towards it the herdsman directs his course, and on its summit he brings his antlered team to a stand. One sledge after another arrives; the herd also soon comes up and immediately betakes itself to the best grazing-ground, quickly followed by the unharnessed draught animals.

The women select a suitable spot for erecting the tshum, place the poles upright in a circle, and cover them with the sheets of bark; the herdsman in the meantime takes his already prepared noose, and with experienced eye picks out a young, fat stag from the herd. Quickly he casts the lasso over its horns and neck. In vain the animal struggles for his freedom; the huntsman comes nearer and nearer, and the reindeer follows him unresisting towards the tshum, which has now been erected. An axe-stroke on the back of the head fells the victim to the ground, and a knife is plunged into his heart. In a couple of minutes the animal is skinned and dexterously cut up. A minute later all the members of the family, who have assembled hastily, are dipping strips of cut-up liver into the blood collected in the breast-cavity, and the "bloody meal" begins. Crouching in a circle round the still warm stag, each cuts himself a rib or a piece of the back or haunch; lips become red as if they had been badly painted; drops of blood flow down over chin and breast; the hands, too, are stained, and, dripping with blood, they smear the nose and cheeks; and blood-stained countenances meet the astonished stranger's gaze. The baby leaves its mother's breast to share in the meal, and after he has swallowed a piece of liver, and reddened face, hands, and

whatever else he can reach, he crows with joy as his careful mother breaks a marrow-bone and gives it to him to suck. The dogs sit in a circle behind the feasting company, ready to snap up the bones which are thrown to them. One after another rises satisfied from the meal, wipes his blood-stained hands on the moss, cleans his knife in the same way, and retires into the tshum to rest. But the housewife fills the cooking-kettle with water, puts into it as much of the flesh of the half-eaten animal as it will hold, and lights the fire to prepare the evening meal.

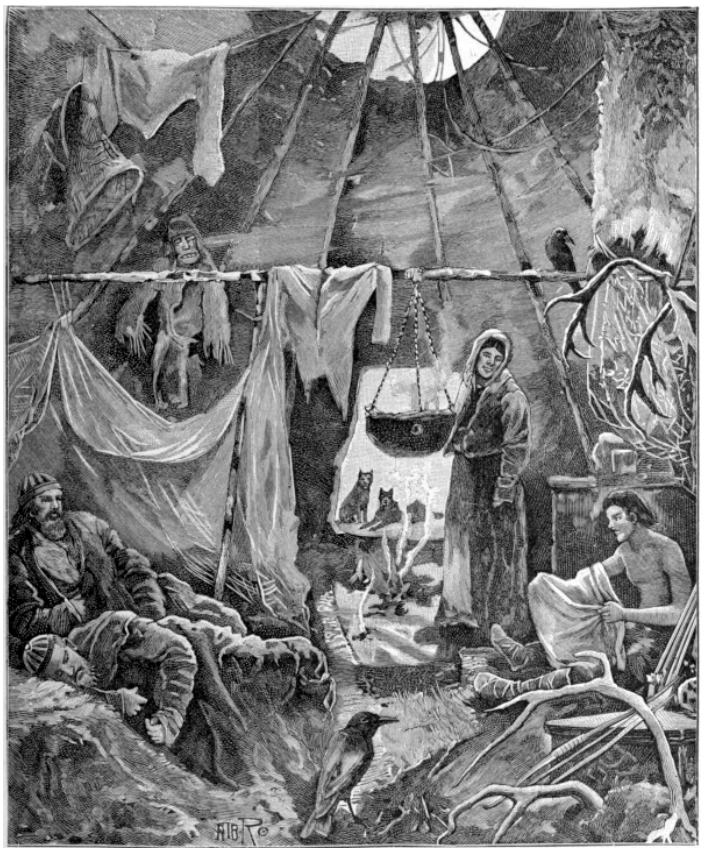


Fig. 64.—Interior of an Ostiak Dwelling (Tshum).

Meantime the herdsman has thrown off his upper garment and looked through it hastily, yet not without result, and he has drawn near the fire so that the flames may play with full effect on the naked upper portion of his body. He feels comfortable, and begins to think of another enjoyment. A wonderful man who is travelling towards the mountains in his company, a German, perhaps even a member of the Bremen exploring expedition to West Siberia, has not only presented him with tobacco—horrible stuff, it is true, yet at any rate strong—but he has also given him a great sheet of paper, a whole *Kölnische Zeitung*. From this he carefully tears off a small square piece, twists it to a pointed cornet, fills this with tobacco, bends it in the middle, and the pipe is ready. A moment later it is alight, and it smells so pleasant that the wife distends her nostrils, and begs to share the enjoyment. Her wish is at once granted, and the little pipe wanders round so that every member of the family may enjoy it in turn.

But the contents of the pot begin to bubble, the supper is ready, and all "raise their hands to the daintily prepared meal". Then the herdsman stands outside the door and utters a far-sounding call of long-drawn notes, to collect the restless herd once more. This done, he returns content into the tshum. Here his wife has spread the mosquito tent and is still busy stuffing its lower edge under the coverlets. While waiting for this work to be finished the man on his couch amuses himself by seizing one of the dogs and nursing it like a baby, the dog enduring it patiently in the consciousness that it is a high honour. Then the man creeps half-naked under the mosquito net, his fifteen-year-old son follows his example, the little thirteen-year-old wife of the latter does the same, the anxious mother sees to the safety

of the little one in the cradle, the nursling already mentioned, lays more decayed wood on the smoky fire at the entrance to the tshum, shuts the door, and lies down like the rest. A few minutes later loud snoring announces that all are sleeping the sleep of the just.

The next morning the same daily round begins again, and so it goes on until the mountain heights permit of a longer sojourn in one place. The snow, which falls very early, warns them to return even in August, and again, this time more slowly and leisurely, herdsmen and herds journey back to the low grounds.

With the disappearance of the ice the activity of the fishermen on the river begins. Many of the Ostiak fishermen work in the pay of, or at least in partnership with the Russians, others only sell to them the superfluous portion of their catch, and fish on their own account. Immediately after the ice has broken up, the former class pitch their tshums beside the fisher huts of the Russians, and the others settle by the river banks in their summer dwellings—log-huts of the simplest construction. Where a tributary flows into the river, they raise across it, or across the mouth of an arm of the stream, a barricade which leaves only one channel, and in the deep water they place baskets and set bottom-lines; beyond that they use only drag- and seine-nets.

Bustling activity prevails about all the fishing-stations when the catch is good. On a shaky stand above the opening in the barricade the young men, more boys than men, are crouching, peering keenly into the dark flood beneath them to see whether the fish are going into the draw-net which they are holding so as to close the channel. From time to time

they lift their burdened net, and empty its contents into their little boat. The men fish together on a sand-bank with the drag-net, or in shallower parts of the river with the seine. In the afternoon, or towards evening the fishermen return home, and the fish are distributed among the different households. Next morning the women's work begins. Singly, or in groups, they sit beside a great fish heap, each provided with a board and a sharp knife, and scale, gut, split, and crimp the fish, afterwards stringing them on long thin sticks, which are hung up on the drying-stands to dry. With dexterous and certain strokes the abdominal cavity is opened and the side muscles separated from the backbone, a few touches more separate the liver and other viscera from the head, ribs, and more valuable side portions of the body. Liver after liver slips between the smacking lips; for the women have not yet broken their fast and they take the titbits as a preliminary snack. If they are still unsatisfied, a fish is scaled, gutted, and cut in long strips, the end of one of these is dipped into the trickling blood and, thus seasoned, is put into the mouth, divided into suitable mouthfuls with quick knife-strokes which seem to pass perilously near the point of the eater's nose. The children playing about their busy mothers receive pieces of liver or strips of muscle according to their size; four-year-olds use the knife to cut the pieces almost as cleverly as their elders, who invariably divide their fish or strips of reindeer flesh in this manner. Soon the faces of mothers and children shine with fish blood and liver oil, and the hands glisten with adhering fish-scales. When all the fishes are scaled, split, and hung up to dry, the dogs which have been sitting, covetous but not importunate, beside the women, receive their portion also—the scales and

debris, which are thrown into a heap amid which the black muzzles burrow eagerly.

The morning work is over, and a short period of rest has been earned. The mothers take their children on their laps, suckle the nurslings, and then proceed to a work which is absolutely necessary, not only to the little ones' comfort but to their own—the hunt for parasites. One child after another lays its head in its mother's lap, and finally she lays her own in that of her eldest daughter or of a friend who hopes for a similar service, and the hunt proves productive. That the booty secured is put between the lips, and if not actually eaten, at least bitten to death, is nothing new to a naturalist who has observed monkeys, and it confirms those who see more than a mere hypothesis in Darwin's doctrine, or in the belief that men may exhibit atavism, or a reversion to the habits of a remote ancestor.

The sun is sinking, the men, youths, and boys come back with a new and rich harvest. They have eaten raw fish as they required, but now their souls long for warm food. A great steaming kettle of cooked fish, delicious salmonoids (genus Coregonus), the nearest relative of the salmon, is set before them; its accompaniment is bread dipped in and thoroughly saturated with fish fat. Brick-tea,[84] put on the fire with cold water and boiled for a long time, brings the meal to an end. "But when the desire for food and drink is appeased" the spirit also longs for satisfaction, and the musician with harp or zither of his own manufacture is eagerly welcomed, whether to play one of their strange, old, indescribable melodies, or an accompaniment to the quaint dance of the women, in which they raise themselves and sink again, throw one arm round the other, stretch

both out, and drop them to their sides. These amusements last until the mosquito-curtain is prepared, then here, too, old and young disappear beneath its folds.

The summer is past, and winter follows the short autumn. A new activity comes into play with the migration of the birds; a new, indeed the full, true life of the Ostiaks begins with winter. For the departing summer guests the treacherous net is spread. Gaps are cut in the dense willow growth of the banks on the direct course between two large sheets of water, and in each space is spread a thin, easily-moved limed net, into which fly not only ducks, but geese, swans, and cranes. These are welcome booty, both on account of flesh and feathers, for birds of all kinds form a considerable portion of the food not only of the Ostiaks but of all the dwellers in the river-basin. At the time when the bird-catcher begins his work the nomad herdsman sets out on the chase, and sets his fall-traps in the tundra for the red and Arctic foxes, or in the forest, in company with his more settled relatives, he sets snares, spring-bows, and self-acting cross-bows for wolves and foxes, sables and ermines, gluttons and squirrels. If snow has fallen, the experienced huntsman buckles on his snow-shoes, puts on his snow-spectacles, and betakes himself with his fleet dog to the tundra or the forest to seek out the bear in his den, to follow the track of the lynx, to chase the elk and the wild reindeer, now impeded by the snow, which will not bear their weight though it bears the huntsman's. He has never lied, never sworn falsely by the bear's tooth, never done a wrong, and the bear is therefore powerless against him, the elk and the reindeer are not fleet enough to escape him! When a bear has been shot he returns triumphantly

to the village, neighbours and friends gather round him in the tshum, rejoicing, and as the general jubilation infects him, he slips quietly away, disguises himself, puts on a mask, and begins the bear-dance, executing wonderful movements, which are meant to mimic and illustrate those of the bear in all the varied circumstances of his life.

The huts of the fisher-folk soon contain a rich treasure of skins, the tshum of the herdsman a still richer, for he has stored up the skins of all the reindeer slaughtered throughout the year. Now it is time to get rid of them. Everyone, far and near, prepares for the fair which is held every year, in the second half of January, in Obdorsk, the last Russian village, and the most important trading centre on the lower Obi. The fair is attended by natives and strangers, and during its progress the Russian government officials collect taxes from the Ostiaks and Samoyedes, settle disputes, and deal out justice generally; the Russian merchants are on the outlook for buyers and sellers, the dishonest ones among them, and the swindling Syryani, for thoughtless drunkards, and the clergy for heathen to be converted. Among the Ostiaks and Samoyedes all sorts of agreements are made, weddings arranged, enemies reconciled, friends gained, compacts with the Russians formed, debts paid and new ones contracted. From all sides appear long trains of sledges drawn by reindeer, and one tshum after another grows up beside the market-place, each tshum surrounded by heavily-laden sledges containing the saleable acquisitions of the year. Every morning the owner, with his favourite wife in gala attire, proceeds to the booths to sell his skins and buy other commodities. They bargain, haggle, and attempt to cheat, and Mercury, as powerful as of

yore, shows his might not only as the god of merchants but of thieves. Alcohol, though its retail sale is forbidden by the government, is to be had not only at every merchant's, but in almost every house in Obdorsk, and it blunts the senses and dulls the intelligence of Ostiak and Samoyede, and impoverishes them even more than the much-dreaded reindeer plague. Brandy rouses all the passions in the ordinarily calm, good-tempered, inoffensive Ostiak, and transforms the peaceable, friendly, honest fellows into raging, senseless animals. Man and wife alike long for brandy; the father pours it down his boy's throat, the mother forces it on her daughter, should they begin by rebelling against the destructive poison. For brandy the Ostiak squanders his laboriously-gained treasures, his whole possessions; for it he binds himself as a slave, or at least as a servant; for it he sells his soul, and denies the faith of his fathers. Brandy is an indispensable accompaniment to the conclusion of every business, even to conversion to the orthodox church. With the help of brandy a dishonest merchant can get possession of all an Ostiak's skins, and without these, with empty purse and confused head, the man who arrived in Obdorsk full of hope and pride, returns to his tshum cheated, not to say plundered. He repents his folly and weakness, makes the best of resolutions, becomes tranquil in doing so, and soon remembers nothing except that he enjoyed himself excellently with his fellow tribesmen. First they had drunk together; then men and women had kissed each other, then the men had beaten their wives, had tried their strength on each other, had even drawn their sharp knives, and, with flashing eyes, had threatened each other with death; but no blood had been shed; there had been a

reconciliation; the women who had fallen on the ground, stupefied with blows and brandy, were lifted up tenderly, and were tended by other women; to celebrate the reconciliation an important compact had been made, a bridegroom was sought for the daughter, a little bride for the son; even a widow had been married, and they drank again to the occasion; in short, they had had a splendid time. That the government officials had shut up all those who were dead drunk, that all, all their money had gone the way of things perishable, had certainly been disagreeable, very disagreeable. However, the prison had opened again; after a time, the loss of the money had been got over, and only the golden recollection, over which they could gloat for a whole year, and the betrothal, so satisfactory to all parties, remained as permanent gain from the delightful festival.

The bridegroom and bride had also been at the fair, had drunk with the rest, and thus made each other's acquaintance, and the bridegroom had agreed with his parents to choose the maiden as his wife, or rather had agreed to receive her. For it is the parents' decision, not the consent of the couple themselves, that concludes a marriage among the Ostiaks. They may perhaps have some regard for the bridegroom's wishes, may allow him to cast his affections on one or other of the daughters of his people, but they only send an agent to treat with the girl's father if their own circumstances correspond with his. The maiden herself is not consulted, perhaps because, at the time of her betrothal, she is much too young to be able to decide upon her own future with discretion. Even the future husband has not reached his fifteenth year when the agent begins to treat for the twelve-year-old bride. In this case the general exhilaration of fair-time had considerably hastened the course of

proceedings. The matrimonial agent had gained an immediate consent; the negotiations, often very protracted, had been at once begun, and thanks to brandy, which usually proves an evil demon, but in this case expedited matters, they were brought to a speedy conclusion. It had been agreed that Sandor, the young bridegroom, should pay for his little bride, Malla, sixty reindeer, twenty skins of the white and ten of the red fox, a piece of coloured cloth, and various trifles such as rings, buttons, glass beads, head-dresses, and the like. That was little, much less than the district governor, Mamru, who was scarcely better off, had to give for his wife; for his payment consisted of a hundred and fifty reindeer, sixty skins of the Arctic and twenty of the red fox, a large piece of stuff for clothes, several head-dresses, and the customary trifles. But times were better then, and Mamru might well pay what was equivalent to more than a thousand silver roubles for his wife, who was stately, rich, and of good family.

The amount agreed on is paid; the nuptials of the young couple are celebrated. The relatives of the bride's family come to her father's tent to bring presents and to receive others from the bridegroom's gift, which is laid out for everyone to see. The bride is arrayed in festive garments, and she and her friends prepare for the drive to the tshum of the bridegroom or of his father. Beforehand they have eaten abundantly of the flesh of a reindeer, fresh killed, according to custom. Only a few fish caught under the ice have been cooked to-day; the flesh of the reindeer was eaten raw, and when one began to grow cold a second was slaughtered. The bride weeps, as becomes departing brides, and refuses to leave the tshum in which she was brought up, but she is consoled and coaxed by all, and at last she is

ready. A prayer before the domestic idol solicits the blessing of the heavenly Ohrt, whose sign, the divine fire Sornidud—in our eyes only the flaming northern light—had shone blood-red in the sky the evening before. The daughter is accompanied by her mother, who keeps close by her side, and even remains near her during the night. Mother and daughter mount one sledge, the rest of the invited kinsfolk mount theirs, and, in festive pomp, to the sound of the bells which all the reindeer wear on their harness, the wedding procession sets forth.

In his father's tent the bridegroom awaits the bride, who modestly veils her face with her head-dress in the presence of her future father and brothers-in-law. This she continues to do after the marriage is consummated. A new banquet begins, and the guests, who have been joined by the bridegroom's relatives, do not disperse till late at night. But the next day the mother brings the young wife back to her father's tent. A day later all the bridegroom's relatives appear to demand her back again for him. Once more the low hut is filled with festive sounds; then the bride leaves it for ever, and is again conducted with pomp to the tshum which she is thenceforward to share with her husband, or with him and his father and brothers and sisters, or later on with another wife.

The sons of poor people pay at most ten reindeer for their brides; those of the fisher-folk only the most necessary furnishings of the tshum, and even these are often shared among several families; but their weddings, too, are made the occasion of a joyful festival, and there is as much banqueting as circumstances will allow.

The poorer Ostiaks marry only one wife, but the rich look upon it as one of the rights of their position to

have two or more. But the first wife always retains her privileges, and the others appear to be rather her servants than her equals. It is otherwise, however, if she should have no children; for childlessness is a disgrace to the man, and a childless wife in the tshum, as elsewhere, is much to be pitied.

The parents are proud of their children, and treat them with great tenderness. It is with unmistakable happiness in look and gesture that the young mother lays her first-born in her bosom, or on the soft moss in the neat birch-bark cradle with its lining of mouldered willow-wood and shavings; carefully she fastens the cover to both sides of the cradle, and envelops the head-end of the little bed with the mosquito curtain; but her ideal of cleanliness leaves much to be desired. As long as the baby is small and helpless she washes and cleanses it when she thinks it absolutely necessary. But when it grows bigger she only washes its face and hands once a day, using a handful of fine willow fibres as sponge, and a dry handful as towel, and afterwards looks on quite complacently when the little creature, who finds many opportunities for soiling itself, goes about in a state of dirt, to us almost inconceivable. This state of things comes gradually to an end when the young Ostiak is able to take care of himself; but even then, hardly anyone considers it necessary to wash after every meal, even should it have left stains of blood. The children are as much attached, and as faithful to their parents as these are to them, and their obedience and submission is worthy of mention. To reverence parents is the first and chief commandment among the Ostiaks, to reverence their god is only the second. When we advised Mamru, the district governor already mentioned, to have his children taught the Russian language and writing, he

replied that he saw the advantage of such knowledge, but feared that his children might forget the respect due to their father and mother, and thus break the most important commandment of their religion. This may be the reason why no Ostiak, who clings to the faith of his fathers, learns to do more than make his mark, a sort of scrawl binding on him and others, drawn upon paper, or cut in wood or reindeer-skin. Yet the Ostiak is capable and dexterous, able to learn whatever he is taught so quickly and easily that, at the early age at which he marries, he understands everything connected with the establishment and maintenance of his household. It is only in religious matters that he seems unwilling to trust to his own judgment, and on this account he, in most cases, shows unmerited respect for the shamans,[85] who profess to know more about religion than he does.

For our part, we regard the shaman, who claims the status of a priest among the Ostiaks as among the other Mongolian peoples of Siberia, as nothing short of an impostor. The sole member of the precious brotherhood with whom we came in contact, a baptized Samoyede, bore the sign of Christianity on his breast; according to report he had even been a deacon in the orthodox church, and yet he did duty as a shaman among the heathen Ostiaks. I learned later, on good authority, that he was no exception to the general rule; for all the shamans met with by my informant, Herr von Middendorf, during years of travel in Siberia, were Christians. I have already mentioned in the report of my travels that the shaman whom we met took us also for believers; but I have reserved my account of his performances and prophecies for to-day, as this description seems to me

a fitting frame for such a picture.

To begin with, he demanded brandy as a fee, but was satisfied with the promise of a gift, and retired into a tent, saying that he would let us know when his preparations were finished. Among these preparations, apparently, was the muffled beating of a drum which we heard after a considerable time; of other arrangements we discovered nothing. On a given signal we entered the tshum.

The whole space within the birch-bark hut was filled with people, who sat round in a circle pressing closely against the walls. Among the Ostiaks and Samoyedes, who were there with wives and children, there were also Russians with their families. On a raised seat to the left of the entrance sat the shaman Vidli; at his right, crouching on the floor, was an Ostiak, the master's disciple at the time. Vidli wore a brown upper garment, and over it a kind of robe, originally white, but soiled and shabbily trimmed with gold braid; in his left hand he held a little tambour-like drum, in such a way that it shaded his face; in his right hand was a drum-stick; his head was uncovered, his tonsured hair freshly oiled. In the middle of the tshum a fire was burning, and now and again it blazed up and shed bright light on the motley throng, in the midst of which we sat down in the places reserved for us. A thrice-repeated, long-drawn cry, like a song from many voices, preluded by beating of the drum, greeted our entrance, and marked the beginning of the proceedings.

"That you may see that I am a man of truth," said the master's voice, "I shall now adjure the messenger of the heavenly will, who is at my behest, to appear among us and communicate to me what the gods have determined concerning your future. Later, you

yourselves will be able to determine whether I have told you the truth or not."

After this introduction, which was translated to us by two interpreters, the favourite of the gods struck the calf-skin, or rather reindeer-skin of his drum, with quick strokes which followed one another at equal intervals, but were indefinitely grouped, and accompanied his drumming with a song which, in the usual Samoyede fashion, was half-spoken, or rather muttered, and half-sung, and was faithfully repeated by the youth, whom we may call the clerk. The master held the drum so as to keep his face in shadow, and he also shut his eyes that nothing might distract his inward vision; the clerk, on the other hand, smoked even while he sang, and spat from time to time, just as he had been doing before. Three slow, decided strokes brought the drumming and the song to an end.

"I have now," said the master with dignity, "adjured Yamaul, the heavenly messenger, to appear among us, but I cannot say how much time must pass before he arrives, for he may be far off."

And again he beat his drum and sang his incantation, concluding both song and accompaniment as before.

"I see two emperors before me; they will send you a writing," spoke the messenger of the gods through his lips.

So Yamaul had been kind enough to appear in the tshum to oblige his favourite. Then the individual sentences of the heavenly message, with the invariable prelude of drumming and song, were uttered as follows:—

"Once again, next summer, you will traverse the same route as this year."

“Then you will visit the summit of the Ural, where the rivers Ussa, Bodarata, and Shtchutshya begin their course.”

“On this journey something will befall you, whether good or evil I cannot tell.”

“Nothing is to be achieved at the Bodarata, for wood and pasture are lacking; here something might be accomplished.”

“You will have to render an account to your superiors; they will examine you and will be satisfied.”

“You will also have to answer to the three elders of your tribe; they also will examine your writings, and then come to a decision about the new journey.”

“The course of your journey will henceforward be happy and without accident; and you will find your loved ones at home in the best of health.”

“If the statements of the Russians who are still at Bodarata corroborate yours, two emperors will reward you.”

“I see no other face.”

The performance was at an end. On the Ural Mountains lay the last glow of midnight. Everyone left the tent, the faces of the Russians showing the same credulity as those of the Ostiaks and Samoyedes. But we invited the shaman to accompany us to our boat, loosened his tongue and that of his disciple with brandy, and plied him with all manner of cross-questions, some of them of the subtlest kind. He answered them all, without exception, without ever getting into a difficulty, without hesitation, without even reflection; he

answered them full of conviction, and convincingly, clearly, definitely, tersely, and to the point, so that we recognized more clearly than before the extreme craftiness of the man with whom we had to deal.

He described to us how, even in his boyhood, the spirit had come upon him and had tortured him till he became the disciple of a shaman; how he had become more and more intimate with Yamaul, the messenger of the gods, who appears to him as a friendly man, riding on a swift horse, and carrying a staff in his hand; how Yamaul hastened to his help, and even, if need were, called down aid from heaven when he, the shaman, was struggling with evil spirits often for several days at a time; how the messenger of the gods must always communicate the message to him just as he received it, for that otherwise he felt every drum-beat as a painful stroke; how Yamaul, even to-day, though visible to him only, sat behind him in the tshum and whispered the words in his ear. He also informed us that, by his own art, or by the grace bestowed upon him, which even his conversion to Christianity could not weaken, he could reveal what was hidden, find what was stolen, recognize diseases, prophesy the death or recovery of the sick, see and banish the ghosts of the dead, work much evil, and prevent much evil, but that he did nothing but good, because he feared the gods; he gave us a clear and detailed, if not quite correct picture of the religion of the Ostiaks and Samoyedes; he assured us that all his people, as well as the Ostiaks, came to him in their troubles to ask advice, or to have the future unveiled, and that they did not doubt, but trusted in him and believed him.

The last statement is not correct. The great mass of the people may regard the shaman as a wise man,

perhaps even as an intermediary between men and the gods, and possibly as the possessor of mysterious power; but many believe his words and works as little as other races do those of their priests. The real faith of the people is simpler and more child-like than the shaman approves of. It is here as elsewhere; the priest, or whoever acts as such, peoples heaven with gods, and councillors and servants of the gods, but the people know nothing of this celestial court.

According to the belief of the people there is enthroned in heaven Ohrt, whose name signifies “the end of the world”. He is an all-powerful spirit, who rules over everything but Death, and he is benevolently inclined towards men. He is the giver of all good, the bestower of reindeer, fish, and furred animals, the preventer of evil, and the avenger of lies, severe only when promises made to him are not fulfilled. Feasts are held in his honour, sacrifices and prayers are offered to him; the suppliant who prostrates himself before a sacred symbol thinks of him. The symbol, called a *longch*, may be of carved wood, a bundle of cloth, a stone, a skin, or anything else: it possesses no powers, affords no protection, it is in no sense a fetish! People assemble before a *longch*, place it in front of the tshum, lay dishes of fish, reindeer flesh, or other offering before it, place valuables before it, or even pack them inside it; but they always look up to heaven, and both their offerings and their prayers are intended for their god. Evil spirits dwell in heaven as on earth; but Ohrt is more powerful than they all; only Death is mightier than he. There is no everlasting life after death, and no resurrection; but the dead still wander as ghosts over the face of the earth, and have still power to do good or evil.



Fig. 65.—The Burial of an Ostiak.

When an Ostiak dies his spirit-life begins at once; so his friends proceed immediately to arrange for his burial. They had all assembled before his death, and as soon as life is extinct they kindle a fire in the tshum in which the body lies, and keep it burning until they set out for the burial-place. A shaman is called to ask the dead where he wishes to lie. This is done by naming a place, and attempting to raise the head of the corpse. If the dead man approves he lets his head be raised; if he does not, three men cannot

move it. Then the question must be repeated until the man gives his consent. Skilled persons are despatched to the chosen spot to prepare the grave, for this work often requires several days.

The burial-places are always in the tundra, on elevated spots, usually on a long ridge; the coffins are more or less artistically wrought chests, which are placed above the ground. Failing solid planks to construct the coffin, a boat is cut up and the corpse is laid in that; only the very poor people dig in the ground a shallow hollow in which to bury their dead.

The corpse is not washed, but is arrayed in festive garments, the hair anointed, and the face covered with a cloth. All the rest of the deceased's clothing is given to the poor. The Ostiaks never touch the dead body of a stranger with their hands, but they do not hesitate to touch a loved relative, and even to kiss his cold face with tears in their eyes. The corpse is brought to the burial-place on a sledge, or in a boat, and is accompanied by all the relatives and friends. A reindeer-skin, on which the dead is to rest, is laid in the chest or coffin. At the head and sides are placed tobacco, pipes, and all manner of implements which the dead man was wont to use in his lifetime. Then the corpse is lifted with cords, carried to the chest, and laid on the bed thus prepared; the face is covered for the last time, a piece of birch-bark is spread over the open top of the chest, which, if the family be a rich one, is perhaps first covered with costly skins and cloths, the lid of the chest is put on above the sheet of bark, or at least heavy branches are laid close together upon it. Around and under the chest are laid such implements as could not be placed within it, but they are first broken up and thus rendered useless for the living, or, according to

Ostiak ideas, made the ghosts of what they were.

Meanwhile, a fire has been kindled in the neighbourhood of the grave, and one or more reindeer slaughtered, and now the flesh is eaten, raw or cooked, by the funeral company. After the meal, the skulls of the slaughtered reindeer are fixed upon a pole, their harness is hung on the pole or on a tree, the bells they have worn on this, as on all solemn occasions, are hung on the top of the coffin itself, the sledge is broken to pieces and thrown beside the grave as its last ornament. Then the company travels homewards. Mourning is now silenced, and the daily round of life begins again.

But in the shades of night the ghost of the dead, equipped with his ghostly tools, begins his mysterious spirit-life. What he did while he walked among the living, he continues to do. Invisible to all he leads his reindeer to pasture, guides his boat through the waves, buckles on his snow-shoes, draws his bow, spreads his net, shoots the ghosts of former game, catches the ghosts of former fishes. During night he visits the tshum of his wife and children, causing them joy or sorrow. His reward is to be able to show beneficence to his own flesh and blood; his punishment, to be obliged continually to do them injury.

Such in outline is the religion of the Ostiaks, whom the Greek Catholics despise as heathen. But a just estimate of these honest people, with their child-like nature, inclines us rather to wish that they may ever remain heathen, or at least may never be other than they are.

THE NOMAD HERDSMEN AND HERDS OF THE STEPPES.

Though the steppe of Central Asia is really rich, and may even seem gay to one who visits it in spring, and though it contains much fruitful land, it is nevertheless only its most favoured portions which admit of a settled life, of a continued residence on any one particular spot. Constant wandering, coming and going, appearing and disappearing, is the lot of all the children of the steppe, men and animals alike. Certain portions submit to the labours of the husbandman; in others, towns and villages may be established, but the steppe as a whole must for ever remain the possession of the nomadic herdsman, who knows how to adapt himself to all its conditions of life.

Among these nomadic herdsmen the Kirghiz take the first rank, by virtue both of numbers and of civilization. Their domain extends from the Don and the Volga to the mountains of Thianshan, and from the middle Irtish to south of the Balkhash Lake, indeed, almost to Khiva and Bokhara; they are divided into tribes and hordes, into steppe and mountain herdsmen, but they are one in descent, in language and religion, in manners and customs, however much the various tribes may appear to differ. The smallest or youngest horde wanders throughout the steppe of Orenburg; a branch of the same, calling itself the Buka tribe, traverses the

steppe between the Volga and Ural rivers, especially in the governments of Turgai and Ural; the middle or elder horde inhabits the steppes and mountains of the Irtish and Balkhash regions; and finally, extending from beyond the river Ili towards Khiva and Bokhara are to be found the ever-changing dwelling-places of the mountain Kirghiz, who describe themselves as the great, or eldest horde. No branch of these people applies the name Kirgis or Kirghiz to itself, for that is a term of infamy equivalent to “freebooters”. The proper designation of our people is Kaisak, Kasak, or, as we should read it, Cossack, although even the Russians apply the name Cossack to a people quite distinct from the inhabitants of the steppe.

The Kirghiz, as I shall call them nevertheless, are a Turkish people, about whose racial affinities different opinions are held. Many, if not most, travellers look upon them as true Mongolians, while others regard them, probably more correctly, as a mixed race, suggestive of the Mongolians in some particulars, but, on the whole, exhibiting the characteristics of Indo-Germans, and especially resembling the Turkomans. All the Kirghiz I saw belonged to the middle horde, and were well-built people, small, or of medium height, with faces, not beautiful indeed, but not of the caricature-like Mongolian type, neat hands and feet, clear or transparent light-brown or yellowish complexions, brown eyes, and black hair. The cheek-bones are seldom so prominent, or the chin so pointed, as to give an angular or cat-faced appearance; the eye, of medium size, is usually most arched centrally, and drawn out horizontally at the outer angle; it is thus almond-shaped, but not obliquely set; the nose is usually straight, more rarely hooked; the mouth

moderate in size and sharply cut, the beard thin, without being actually scanty. True Mongolian features are certainly to be met with also, more especially among the women and children of the poorer class; but, though I have seen very few really beautiful Kirghiz women, I have met with quite as few of the grotesque faces so common among other undoubted Mongols. The characteristics are unmistakably more suggestive of a mixed race than of any one sharply defined stock. I have seen men whom I should unhesitatingly have pronounced to belong to the nobler Indo-Germans if I had known nothing of their kinship, and I have become acquainted with others about the Mongolian cut of whose faces there could be no possible doubt. The members of the older families usually possess all the essential marks of the Indo-Germans, while men of lower descent and meaner extraction often remind one of the Mongols in many details, and may sometimes resemble them completely. The power of Islam, which permits to slaves who have become converts all the rights of the tribe, may in the course of time have made Kirghiz out of many heathen Mongols, and thus not only have influenced, but actually destroyed the racial characteristics of the Kirghiz.

Although the chief features of the Kirghiz dress are Turkish, it is, as a whole, by no means suited for displaying their figure to advantage. In winter the fur cap, fur coat, and thick-legged boots hide all the details of the figure, and even in summer these do not come into prominence. The poorer Kirghiz, in addition to his fur coat and the inevitable fur cap, wears a shirt, kaftan, and wide trousers; the higher class rich man, on the other hand, wears a great many articles of dress one above the other, like the

Oriental; but he stuffs all those which envelop the lower part of his body, with the exception of his fur coat, into his wide trousers, so that he may not be impeded in riding. Consequently, the more richly attired he is the more grotesque he looks. They prefer dark colours to light or bright ones, though they do not despise these, and they are fond of decorations of gay embroideries or braiding. Nearly every Kirghiz wears at his girdle a dainty little pocket, richly decorated with iron or silver mountings, and a similarly ornamented knife; beyond these, and the indispensable signet-ring, he wears no decoration unless the Emperor has bestowed one upon him, in the shape of a commemorative medal.

Of the dress of the women I can say little, first, because modesty forbade me to ask about more than I could see, and secondly, because I did not see the women of the upper class at all, and never saw the others in their gala attire. In addition to the fur coat, boots and shoes, which are exactly like those of the men, the women wear trousers which differ very slightly, a shift, and over it a robe-like upper garment, falling below the knee and clasped in the middle; on the head they wear either a cloth wound in turban-fashion, or a nun-like hood which covers head, neck, shoulders, and breast.

The clothing of both sexes is coarse, except the riding-boots and shoes, which are always well made. Very characteristic, and obviously adapted to the climatic conditions, are the extraordinarily long sleeves which both men and women wear on their upper garment; these fall far beyond the hands, and cover them almost completely.

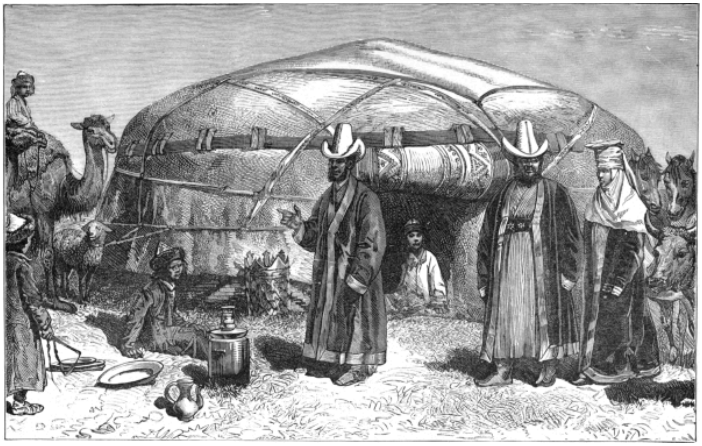


Fig. 66.—The Home of a Wealthy Kirghiz.

The roving life to which the Kirghiz are compelled by the necessity of finding sufficient pasturage for their numerous herds, involves a style of dwelling which is easily constructed, can be taken down at one spot and erected again at another without special difficulty, and which must yet afford a sufficient protection against the hardness and inclemency of the climate. These requirements are fulfilled more thoroughly by the *yurt* than by any other movable dwelling, and it is not too much to say that this is the most perfect of all tents. Thousands of years of experience has made the *yurt* what it is—a home for the nomadic herdsman, or any other wanderer,—which, in its own way, cannot be surpassed. Light and easily moved, readily closed against storms, or thrown open to admit air and sunshine, comfortable and commodious, simple, yet admitting of rich decoration without and within, it unites in itself so many excellent qualities that one appreciates it ever more highly as time goes on, and finds it more and more habitable the longer one lives in it. It consists of a movable lattice-work which can

be extended or contracted, and which forms the lower upright circular walls of the framework, a coupling ring which forms the arch at the top, spars inserted into both these, and a door in the lattice-work; light mats of tschi-grass, and large wads or sheets of felt, cut to shape, and most ingeniously laid on, compose the outer covering of the whole framework, and thick carpets of felt cover the floor. With the exception of the door-frames, which are mortised together, and of the spars, the upper ends of which are inserted into holes in the coupling-ring, the whole structure is held together simply by means of cords and bands; and it is thus easily taken to pieces, while its form—circular in cross section, and cupola-like longitudinally—renders it capable of great resistance to violent storms and bad weather of all sorts. The work of putting it up scarcely requires more than half an hour, that of taking it down even less; the strength of a single camel conveys it from place to place, but its construction and decoration take up much of the time and all the ingenuity of the housewife, to whose share falls the chief work of making it, and the whole labour of setting it up.

The yurt forms an important part of the movable property of a Kirghiz. A rich man owns six or eight, but he spends money rather on the decoration of a few than on the construction of many, for he is assessed and taxed not according to the size of his herds but the number of his yurts. The high-class Kirghiz certainly shows his wealth through his yurt, by fitting it up as richly as possible, making it out of the most valuable felt, and decorating it without and within with coloured pieces of cloth; but he sets store rather by the possession of costly rugs, and beautifully sewn and embroidered silken coverlets, with which he decorates the interior of the living-

room on festive occasions. Such rugs are handed down from father to son, and the possession of them ranks scarcely below that of uncoined silver.

The real wealth of the nomadic herdsman cannot, however, be estimated by such secondary things; it must be calculated by his herds. Even the poorest owner of a yurt must possess numerous beasts to enable him to live, or survive in the struggle for existence; for the herds he tends form the one indispensable condition of life; they alone stand between him and ruin. The rich man's herds may number thousands upon thousands, those of the poor man at least hundreds; but the richest may become poor, if disease breaks out among his herds, and the poor man may starve if death visits his beasts. Wide-spreading murrain reduces whole tribes to destitution, causes thousands of human beings literally to die of starvation. Little wonder, then, that every thought and aspiration of the Kirghiz is bound up with his herds, that his manners and customs correspond to this intimate connection between man and beast, that the man is, in short, dependent on the animal.

Not the most useful, but the noblest and the most highly prized of all the domesticated animals of the Kirghiz is the horse, which in the eyes of its owner represents the sum and essence of domestication, and the climax of all beauty; it is a standard by which to reckon, according to which wealth or poverty is determined. He does not call it a horse, but simply the domestic animal; instead of the words "left and right" he uses the expressions, "the side on which one mounts a horse", and "the side on which one carries the knout". The horse is the pride of youth and maiden, of man and woman, whether young or

old; to praise or find fault with a horse is to praise or blame its rider, a blow given to a horse one is not riding is aimed not at the horse but at its owner.

A large number of the Kirghiz songs refer to the horse; it is used as a standard of comparison to give an estimate of the worth of men and women, or to describe human beauty.

> "Little bride, little bride,
> Dear foal of the dark brood-mare!"

the singer calls to the bride who is being led into the bridegroom's yurt;

> "Say where is the play of the white locks
> And where the play of the foals,
> For kind as is the new father,
> He is not the old father to me,"

the bride answers to the youths who sing the "Jarjar", the song of consolation to the departing bride, referring by the words "Foal-play" to the time of her first love.

The wealth of a man is expressed in the number of horses he possesses; payment for a bride is made in the value of so many horses; the maiden who is offered as a prize to the winner in a race is held as being worth a hundred mares; horses are given as mutual presents; with horses atonement is made for assassination or murder, limbs broken in a struggle, an eye knocked out, or for any crime or misdemeanour; one hundred horses release from ban and outlawry the assassin or murderer of a man, fifty, of a woman, thirty, of a child. The fine imposed by the tribe for injuring any one's person or property is paid in horses; for the sake of a horse even a respectable man becomes a thief. The horse carries

the lover to his loved one, the bridegroom to the bride, the hero to battle, the saddle and clothing of the dead from one camping-place to another; the horse carries man and woman from yurt to yurt, the aged man as well as the child firmly bound to his saddle, or the youthful rider who sits for the first time free. The rich man estimates his herds as equivalent to so many horses; without a horse a Kirghiz is what a man without a home is among us; without a horse he deems himself the poorest under the sun.

The Kirghiz has thoroughly studied the horse, he knows all its habits, its merits and defects, its virtues and vices, knows what benefits and what injures it; sometimes, indeed, he expects an incredible amount from it, but he never exacts it unless necessity compels him. He does not treat it with the affectionate care of the Arab, but neither does he ever show the want of consideration of many other peoples. One does not see anything of that careful and intelligent breeding of horses which is practised by Arabs and Persians, English and Germans, but he does constantly endeavour to secure the improvement of his favourite breeds by only placing the best stallions with the mares, and castrating the rest. Unfortunately his choice of breeding-horses is determined solely by form, and does not take colour into consideration at all, the consequence being that many of his horses are exceedingly ugly, because their colouring is so irregular and unequal. The training of the horse leaves much to be desired; our wandering herdsman is much too rich in horses for this to be otherwise.

We found the Kirghiz horse a pleasant and good-natured creature, although it by no means fulfilled

our ideal of beauty in all respects. It is of medium size and slender build, with a head not ugly though rather large, decidedly ram-nosed, and noticeably thickened by the prominent lower jaw-bones, a moderately long and powerful neck, a long body, fine limbs, and soft hair. Its eyes are large and fiery, its ears somewhat large, but well-shaped. Mane and tail have fine, long hair, always abundant, the hair of the tail growing so luxuriantly that it sweeps the ground; the legs are well formed, but rather slim, the hoofs are upright, but often rather too high. Light colours prevail and very ugly piebalds often offend the eye. The commonest colours are brown, light-brown, fox-coloured, dun, and bay, more rare are dark-brown and black, and one only occasionally sees a gray. The mane and tail greatly increase the beauty of all the light-coloured horses, because they are either black or much lighter than the body hairs.

The temper of the animal is worthy of all praise. The Kirghiz horse is fiery, yet extremely good-natured, courageous in the presence of all known dangers, and only nervous, skittish, and timid when it is bewildered for a moment by something unusual; it is spirited and eager in its work, obedient, docile, willing, energetic, and very enduring, but it is chiefly valuable for riding, and requires long breaking-in to make it of use as a draught animal, in which capacity it is much less valuable than as a riding-horse.

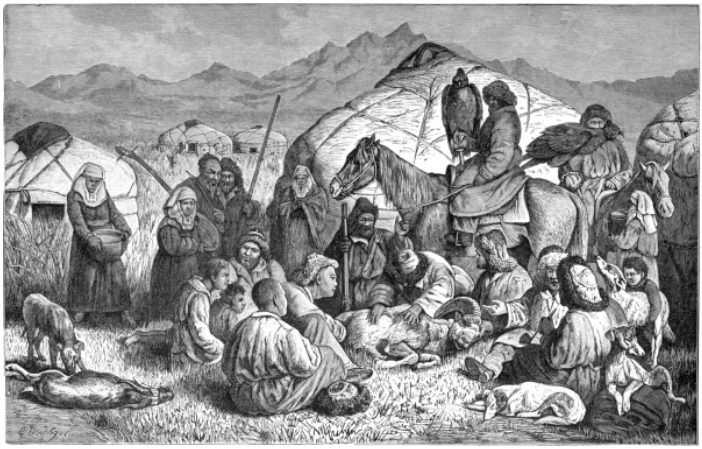


Fig. 67.—Life among the Kirghiz—the Return from the Chase.

It has a particularly disagreeable habit, for which the Kirghiz is certainly more to blame than the animal, of constantly eating or at least nibbling on the way; it even attempts to satisfy its appetite in the most difficult situations, as in wading through rocky mountain torrents or climbing steep precipices. It is as insatiable as all other domesticated animals accustomed to roam freely over the steppe, but in its association with others of its species, except in the breeding season, it is as peaceable as it is obedient and submissive to its master.

The poorer Kirghiz possess only horses enough to provide a mount for each member of the family, and to ensure the continuance of their stock. The richer dwellers on the steppe, on the other hand, have four or five, indeed I have often been assured as many as ten or twelve thousand head, which feed in separate herds, and at different places, and therefore, naturally enough, thrive better than those of their poorer brethren. Each herd consists of at least fifteen, or at most fifty individuals; in the latter case it comprises one fully-grown stallion, nine brood-

mares, and as many young foals, eight two-year-olds, six or eight three-year-olds, and five or six four-year-olds, besides some older animals or geldings. The stallion is absolute lord and master, guide, leader, and protector of the herd, and he never lets himself be deprived of a single foal by the wolf, but attacks that cowardly robber boldly and successfully, striking him to the ground with his hoofs if he shows fight. But he will not tolerate a rival, and drives out all other stallions from the herd as soon as they come to maturity; when he enters on his leadership he drives away his own mother, and later his own daughters. This proud wilfulness necessitates the greatest watchfulness on the part of the herdsman during the pairing time, lest he lose the expelled mares which are seeking a new sultan, or the stallions which are striving for their own independence. The young mare reaches maturity in her fifth year, and the following spring, usually in March, she brings forth her first foal. She is not at once separated from the rest of the herd, but in May she and her foal are brought into the neighbourhood of the yurt, and for four months she is regularly milked to provide the famous koumiss or milk-wine. In autumn, mother and young are allowed to rejoin the herd. Both are received without hesitation, and they enjoy their newly-recovered freedom to the full.

Apart from the horse, the most useful, and therefore the most important domestic animal of our nomadic herdsman, is the sheep. This animal is very large and well-built, but very much disfigured by the protuberances of fat on the rump. The massive body rests upon long but powerful legs; the head is small, the nose narrow and blunt, the ears pendulous or erect, the horns weak, the skin hard but thick, the

udder very much developed, the fat rump often so enormous that the creature can no longer carry it, but bending its knees lets it drag on the ground, unless the herdsman comes to its aid by fixing a little two-wheeled cart under the tail, and placing the burdensome appendage on that. When the Kirghiz rams are crossed with sheep without this protuberance, their descendants acquire the singular appendage in two or three generations, while if smooth-tailed rams be paired continuously with fat-rumped sheep the reverse takes place.

Though the character of the Kirghiz sheep resembles that of our sheep in all important respects, it cannot be disputed that the free life on the steppes, the long journeys which have to be made, and the difficulties which have to be surmounted in the course of these have developed its physical and mental capacities to an incomparably higher degree than is attained by our domestic sheep. Nevertheless, even in the steppe the clever goat acts as leader and guide to the relatively stupid sheep, and it is therefore only right that I should describe the goat next.

The Kirghiz goat is of medium size, massive and well-built, the body powerful, the neck short, the head small, the limbs well-proportioned, the eye large and bright, the glance full of expression, the erect ear pointed, the horns comparatively weak, and either directed backwards and outwards or half turned on their axes, the hair abundant, especially on beard and tail, that on the forehead being long and curled; the prevailing colouring is beautiful pure white with black markings.

The Kirghiz always treat sheep and goats exactly alike, and they feed together in flocks. The poor Kirghiz of one aul make up a flock among them, the

rich man, whose beasts are numbered by many thousands, has often several. The shepherd, usually a biggish boy, rides on an ox beside his flock, but he understands so well how to manage his steed and make it trot, that he can overtake the fleetest goat. Once as we were returning from a hunting expedition, we met a shepherd who, by way of amusement, rode along for quite a quarter of an hour beside our briskly-trotting horses, yet his singular steed showed no signs of fatigue. Only the shepherds belonging to the Tartar sheep-owners ride on horses. In hazardous parts of their journeys, such as crossing a rapid stream, or climbing among the mountains, the goats take the lead, and here, as everywhere else, the sheep follow them blindly.

As hay can only be gathered and stacked in the most favoured spots, the birth of lambs and kids in autumn is prevented; it therefore always takes place in spring, and the young ones have thus every chance to thrive well and grow rapidly. New-born lambs and kids are taken into the yurt at once, and they soon become so well accustomed to it that they only quit the comfortable tent with piteous bleatings when circumstances render it necessary. Later on they are put into a shelter near the winter-dwelling. In the open steppe this shelter is a simple hollow in the ground, over which the cold wind blows almost unfelt; finally they are secured to the rope called a *kögön*, which is stretched between strong poles in front of every yurt. As soon as they begin to graze they are driven out in flocks by themselves to the open steppe, and brought back to the yurt towards evening. Thus they become accustomed from their earliest youth to the free life of the steppes, to wind and tempest, storm and rain.

In comparison with horses, sheep, and goats, cattle play a very subordinate part. Herds of them are certainly to be seen in the neighbourhood of every aul, but they are quite out of proportion to the numbers of sheep and goats. The ox is larger and better built than that of the Russian and Siberian peasants, but it is far behind the Chinese ox, and cannot for a moment be compared with any noteworthy breed of Western Europe. It is of medium size and fleshy, its coat is short and smooth-haired, its horns long and curved, its prevailing colour a beautiful, warm red-brown. The cattle are sent out to graze in rather large herds, with no supervision of any kind, the milch cows being enticed back to the yurt solely by the calves which are tied up and tended there, while the bulls roam about as they please, and often remain away from the aul for several days at a time.

Though all the large auls possess camels, by no means every Kirghiz owns one, and even the richest among them seldom possess more than fifty head. For the camel is rightly considered the most perishable of all the stock owned by the nomadic herdsmen of this steppe; its real home lies farther to the south and east. In the part of the steppe through which we travelled only the two-humped camel is reared, but south of the Balkhash Lake and in Central Asia preference is given to the dromedary. The two species cross here and produce strange hybrids in which the two humps are almost fused into one.

The camel of the central steppe belongs to one of the lighter breeds, and is therefore not nearly so massive and awkward as those which are to be seen in most zoological gardens, but it is quite as thickly covered with hair. Nevertheless, it does not stand cold nearly

so well as the other domestic animals of the Kirghiz, and requires a felt mat to kneel down or rest on, and even then it often takes cold and dies. While shedding its hair it has to be enveloped in a felt covering, and in summer it has to be protected from mosquitoes and gadflies else it will succumb; in short, it is the object of constant anxiety, and is therefore not suited to a poor man, who feels every loss with threefold force. It resembles the dromedary in being easily satisfied in the matter of food, and in displaying the blind rage characteristic of the pairing-time, when it menaces even its usually loved master, but, for the rest of the year, it differs from the dromedary, very much to its own advantage, in docility and gentleness. Having been accustomed to the dromedary for many years, I was particularly struck by these excellent qualities in the steppe camel; I hardly recognized the race. The camel allows itself to be caught without resisting, and kneels down to be laden, if not altogether without grumbling, at least without the horrible, nerve-shattering bellowing of the dromedary. Even at a trot it carries light burdens uncomplainingly, covering twenty miles or more in the course of a day; if its load slips, it stops of its own accord. With a rider it can cover about thirty miles a day; with a weight of eight cwts. on its back, compelling it to a slow but striding step, it should manage at least half that distance. It grazes almost always in the vicinity of the yurt, in company with all its fellows of the aul, and in the eyes of the Kirghiz it is to a certain extent a sacred animal.



Fig 68.—Kirghiz with Camels.

The dog, which is the least valued animal owned by the Kirghiz, is always large but not always beautiful, though the difference between it and the hideous curs to be met with elsewhere in Siberia and Turkestan is very marked and greatly in its favour. The head is long but rather heavy, the limbs more like those of a greyhound than a sheep-dog, the hair long and woolly, the colouring very varied.

Watchful and courageous in the highest degree, he is a worthy adversary of the wolf, an efficient and careful protector of the weaker herds, a suspicious sentinel towards strangers, the faithful slave of his master, an unsociable recluse as far as grown-up

people are concerned, but the willing playmate of the children. He has many of the virtues of his race, and is therefore to be found in every yurt or at least in every aul.

The whole life of the Kirghiz centres in his herds,—making use of them and their products, and to that end tending them carefully. The former is the chief occupation of the women, the latter the most important work of the men. With the exception of the bones, which are thrown away unheeded, every portion of the body of every one of their animals is used, just as every female among the live stock is milked as long as possible. The quantity of vegetable food used by the Kirghiz is extremely small; milk and meat form his chief diet in all circumstances, and vegetable products are merely accessory. Bread, in the real sense of the word, he scarcely uses at all, and even the little lumps of dough which may be reckoned as such, are sodden in fat, not baked. Flour and rice,—the latter a frequent dish only among the rich,—also serve to give variety to the everlasting monotony of milk and meat dishes. Little wonder then that death from starvation threatens the Kirghiz, indeed too often overtakes him, when general murrain breaks out among his beasts in the midst of the steppe.

The wealthier people keep the milk of sheep and goats separate from that of cows, and of mares and camels; poor people mix all the milk in one vessel, and thus get only the effect of sheep's milk, while the rich secure some differentiation of palatal pleasure. From the milk of sheep and goats, which is invariably milked into the same vessel and collected in the same leathern bottle, they prepare not only various dishes, which are eaten at once with or

without flour, but also butter, small, sour or bitter, gritty cheeses, most distasteful to a European palate, and a yellow curd very agreeable even to our taste, which, like the cheese, is stored up for use in winter, when it is dissolved in water to make a sort of soup. Cow's milk, on the other hand, they use chiefly as sour milk, and only rarely make into curds, cheese, or butter, while that of mares and camels is used for making the koumiss so often described. This is a milk-wine made by allowing milk to ferment for four days, and by constantly shaking and beating it. It is much appreciated, and indeed justly prized among the Kirghiz, and the well-to-do among them often drink it to intoxication on festive occasions.

During summer even the wealthier Kirghiz live almost entirely on milk in various forms, for they only kill a member of their herd for a festival or on some specially important occasion. When winter sets in, however, sheep and goats, horses and cattle, even camels are killed. The flesh of the horse, especially of the mare, is looked on as the noblest, that of cattle as the worst and poorest food. The flesh of sheep ranks next to horse flesh; camel flesh is good for the soul's health; goat flesh is a mark of poverty, or is set before a guest in expression of contempt. Of the slaughtered horse the loins are most highly prized, and the breast of the sheep. A dainty of the first order is the belly fat of a young horse; this is therefore salted, made into smoked sausages, and set before the honoured guest with as much ceremony as the koumiss itself.

The Kirghiz turns to profit not only the edible portions but every usable part of the animals he rears. From the wool of the sheep he prepares the indispensable felt; he weaves and spins the hair of

the camel, and the mother lays her new-born babe in its soft down-like under wool. The long hair of the goat is made into fringes for rugs and cloths, or into tassels or cords; the short woolly hair is spun and woven into bands for the yurt, and the hair of the horse's mane and tail is plaited into much-prized leading-reins or cords for the yurt. Sheep-skin furnishes the ordinary winter fur coat; the skins of lambs and kids make valuable fur-trimmings; the flocks of wool rubbed off make good wadding for lining other garments, and the skins of all the animals supply leather of different kinds. The Kirghiz barters the superfluous or little-prized fat of his beasts, and some of his sheep, cattle, and horses for various other commodities of the general market; with the proceeds of the sale of his herds he pays his taxes and tributes, buys the uncoined silver with which he loves to make a display, the iron which he works, the rugs, garments, and silk stuffs with which he decks his person and his yurt. The herds are and must remain the sole support and source of wealth of the nomadic herdsman; the little land which he occasionally ploughs, sows, waters, and reaps is hardly worth taking into account.

It is not their own humour, but the necessity of satisfying the requirements of their stock, that regulates the roamings and sojournings of the Kirghiz, that compels them to wander this way to-day and that to-morrow, to rest for a little in one place, and shortly afterwards to leave it for another. The journeyings of these people are therefore by no means aimless wanderings about the vast steppe, but carefully-considered changes of residence determined by the season, and by the species of animal requiring fresh pasture. The steppe allows no planless roaming either in summer or winter, autumn or spring;

aimless roving would expose the herds in winter to the most terrible storms, in summer to the danger of drought; in spring there would probably be an embarrassing superfluity of fodder, and by autumn the supply would have unpleasantly diminished. So the Kirghiz begins his journey from the low-lying plains, ascends slowly to the higher ground and even to the mountains, then moves slowly back to the low grounds again. But the various herds have different needs: sheep and goats like hard, fragrant plants such as are to be found on the salt steppe; horses prefer the mountain plants, especially those growing among masses of rock, while the favourite grazing-ground of cattle is soft meadow-land, and camels, besides eating the hard salt steppe plants, appear to look upon thorns and thistles as an indispensable part of their food. The well-to-do, who can group the different animals in separate herds, let each herd wander and feed by itself, and only the poorer people move from one place to another with all their stock together. Finally, the movements of one party are influenced by those of another. There are, indeed, no landmarks nor boundary stones, but even in the open steppe rights of possession and definite boundaries are recognized by ancient agreement; every horde, every branch of a horde, every community, the members of every aul, claim a right to the land traversed by their forefathers, and suffer no strange herd or herdsman to encroach on it, but take to arms and wage bloody warfare with every intruder, even with other members of the same tribe. This explains the fact that the nomad herdsman not only travels along definite routes, but restricts himself to a strictly limited range. His path may occasionally cross that of another herdsman, but it is never the same, for each respects the rights of the

other, and is prevented by the rest of his tribe from encroaching upon them.

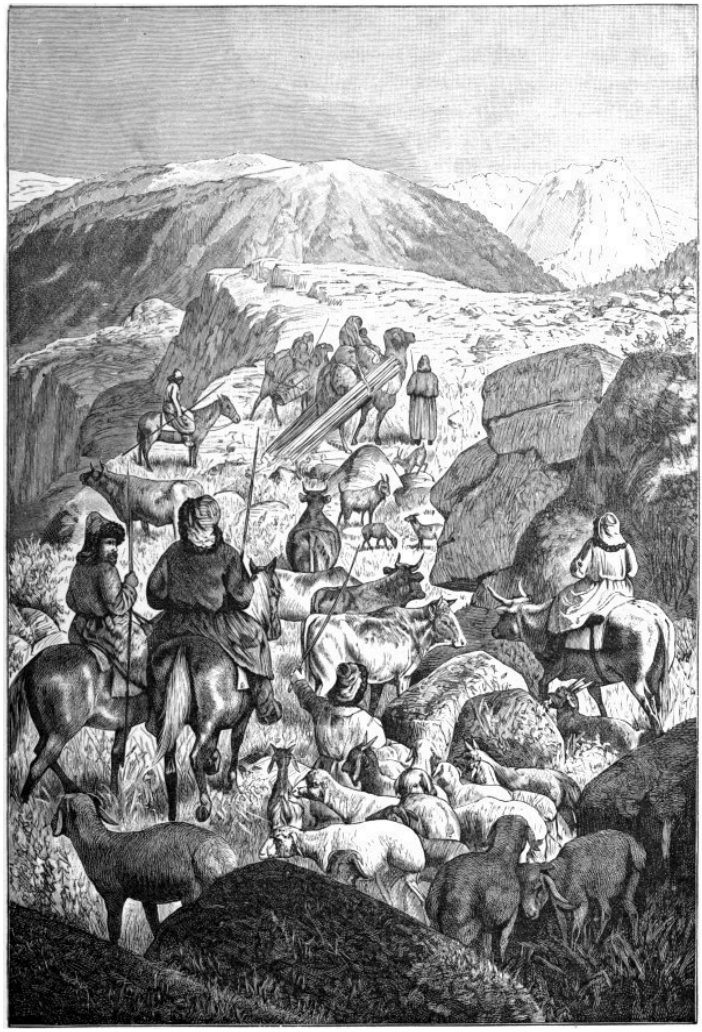


Fig. 69.—Kirghiz and their Herds on the March in the Mountains.

"Settled", in our sense of the word, the Kirghiz never is, unless in the grave, but he is not without a home. In the wide sense, his home is the district through

which he travels, in most cases the basin and valley of a small stream or brook, or, in a more restricted sense, his winter camping-ground from which he sets forth on his journeys, and to which he always returns. In the neighbourhood of this camping-ground rest nearly all, if not all his dead; here he may even have a fixed dwelling; hither the government sends its messengers to collect his taxes or appraise his possessions and count the members of his family and of his herds; here he spends, if not the happiest, at least the largest part of his life; here, gay and careless as he usually is, he passes through his severest and most serious trials. The exact locality of the winter dwelling may vary, but the camping-ground does not. Indispensable conditions are, that it be as much as possible protected from the cold, deadly, north and east winds, that the yurt can be erected on a sunny spot, that fixed houses may be built without much difficulty, that the necessary supply of water be certain, and that sufficient pasturage be available within easy distance. These conditions are best fulfilled by the valley of a river whose tributaries have cut deeply into the surrounding country, where the grass does not dry up in summer, so that hay can be cut at the proper season and yet enough food be left for the herds in winter, and where, in addition to the dung used for fire-lighting, fuel may be procured from the willow-bushes and black poplars on the river-bank. Other localities are only selected when it is a question of taking advantage of some place, such as the salt steppe, which has to be avoided in summer because it lacks water, that being supplied in sufficient abundance for man and beast as soon as snow has fallen. Though the winter dwelling may be a fixed one, it is always truly miserable, a musty, damp,

dark hut, so lightly built that the inmates depend on the snow for thickening the walls and roof, and protecting them from storms. These walls are occasionally made of piled-up tree-trunks, oftener of rough stones, but most frequently of plaited willows or bundles of reeds. The roof and thatch are always of reeds. Close beside the dwelling-house is a similarly-constructed stable for the young animals, and at some distance there is a shelter for the rest of the herds.

In the beginning of winter the Kirghiz moves into such a winter dwelling, unless, as is perhaps usually the case, he prefers the much more comfortable yurt. The fuel for either has been long ago prepared, for in the preceding spring he, or rather his wife, upon whom falls all the heavier and more disagreeable work, mixed the dung of the herd animals with straw, and worked it into square cakes, which were then piled in heaps and dried in the sun. All the grass in the immediate neighbourhood has been carefully spared, so that the herds may graze as near the dwelling as possible; here, too, the hay which has been mown at a distance has been collected. If the winter be a good one, that is, if not much snow falls, the herds find food enough, but if it be severe, it often renders all precautions futile, and levies a toll on his herds heavier than is counterbalanced by the spring increase. Thus, in a good winter, cheerfulness prevails even in the dark hut of the wandering herdsman, but in a severe one, which reduces his beasts to walking skeletons, black care and grief visit even the pleasant yurt. In hut and yurt alike there is either comfort and plenty or bitter want during that much-dreaded season of the year.

It is not till towards the end of April, in many years

not before the end of May, that the herdsman leaves his winter camp and begins to travel. The horses, tended by special herdsmen, move on in advance, so as not to annoy the smaller animals. It is not the lively foals, born, like the kids, a few weeks before, that cause so much anxiety; it is the young stallions and mares which are just reaching maturity. The foals spring about the whole herd in wanton playfulness, but they do not go far from the mother mares, who are quietly grazing, and only look up at them now and again. The young stallions and mares, on the other hand, cause continual uneasiness, and call for the greatest watchfulness on the part of the herdsmen, whose numbers are doubled for the time. Now the young males fight with the old, dignified, and domineering leader of the herd; now the young females throng about the sire till he is compelled to drive them away with bites; now one or another of them attempts to escape, and rushes, with head against the wind and dilated nostrils, out into the steppe. The herdsman at once urges the horse he is riding to a gallop, and pursues the fugitive in mad haste up hill and down dale; in his right hand he holds the long herdsman's crook, with a noose attached to one end; nearer and nearer he presses on the young mare. The dreaded lasso is thrown, and is about to descend on her head, when she suddenly swerves to one side, and throwing her hind-legs into the air, as if teasing or mocking her pursuer, she is off again with renewed speed, and the wild chase begins anew, and goes on, until at length the herdsman succeeds in catching her, and leading her slowly back to the herd. Entertaining though this spectacle may be for the unconcerned spectator, perhaps even for the herdsman himself, such mad hunts would disturb the quiet and regular progress of

the smaller animals, and therefore the owner does not let his different herds travel together, if it can be avoided. Nor could sheep and goats cover such distances as the horses do, for not only are they much enfeebled by the hardships of winter, but the lambs and kids are not yet strong enough. Separation of the herds is therefore doubly necessary.

The Kirghiz, when journeying with his smaller animals, at first only traverses a short distance, a so-called “sheep’s journey” each day, and he stops wherever there is good pasture, as long as his flocks graze with avidity. On the journey the flock of sheep, with its shepherd riding on an ox, leads the way. The sheep proceed at a tolerably quick pace, now crowding close together, now scattering widely, here and there stopping their march to enjoy to the full some specially dainty plant, but eating, or at least nibbling, all the time, and the herdsman’s steed also grazes uninterruptedly. The flock of ewes and mother-goats follows that of the lambs and kids, but at such a distance that they see and hear nothing of each other. The flock of wethers, if such still exists, or has just been formed, takes a different route. After all the flocks and herds have set out, the women take down the yurt, load camels or oxen with it and the few household requisites, mount their own horses with their children and other members of the family, and ride slowly after the milk-giving flocks. By mid-day they overtake them, milk them, and, carrying the milk in leathern bottles, continue their journey till sundown, when they set up the yurt again. One day passes like another. When the spring has brought fresh verdure, they remain for days, later on for weeks, in the same spot, until the pasturage around is growing scarce; then they move on again. When advancing spring calls to full life the slumbering

insect larvæ, when swarms innumerable of gnats, flies, gadflies, and other pests fill the air, they direct their steps, if it be at all possible, towards the mountains, and climb gradually to the highest plateaus just below the snow-line. For the shepherd, who gets no assistance from the dogs, it is a hard enough task to guide the flocks over the plains; but in the mountains the difficulty of completing his daily "sheep's journey" is immense, and it is impossible for him to get over some obstacles without the aid of other riders. As long as there is a beaten track the journey goes smoothly on, whether the path winds through flowery plains or over slopes and precipices. The leading goats survey such places for a little, as if deliberating, then choosing their path they go on their way, and the sheep follow them trustfully. But it is a different matter when, instead of a murmuring brook, a rushing torrent bars the way, and must be crossed. At sight of the decidedly hostile element even the bold goats hesitate, ready though they are to adapt themselves to all circumstances; but the sheep recoil from it in terror, and even climb the nearest rocks as if to save themselves. In vain the shepherd rides through the rushing flood; in vain he returns and collects his flock on the banks. The sheep express their anxiety in loud bleatings, even the goats bleat hesitatingly, till the shepherd's patience is exhausted. For one moment the fateful sling hangs over the head of one of the sheep; the next, it feels itself caught by the neck, pulled up to the saddle, and hurled into the seething waters. Now it must shift for itself. Swimming spasmodically, or rather making a series of springs, it struggles on from one mass of rock to another, but before it can gain a footing, it is hurried on by the torrent, and kicks, flounders, leaps, and

swims again, is every now and then carried away by the flood, but eventually reaches the opposite bank, exhausted more by terror than by exertion. Trembling in every limb, it satisfies itself that it is really on dry land again, shakes its dripping fleece, looks back timidly once more, and then begins to feed greedily to make up for the discomfort it has suffered. Meanwhile the rest of the flock have crossed the torrent one after another, either of their own accord or compulsorily, and when all have been collected again the march is resumed. In this manner the nomadic herdsman gradually reaches the mountains. When it begins to grow cold, when perhaps a slight fall of snow suggests the approach of winter, herdsman and herd turn downwards again, this time through the shadiest gorges, till the low-lying plain is reached, and the circle is completed at the winter camping-ground. This is the regular yearly routine.

All the Kirghiz domestic animals accustom themselves very quickly to the different districts in which they graze, wherever the place may be. After having gone to a pasture once or twice, all know the way thither again, they find it unfailingly without the herdsman, and return of their own accord to the yurt to be milked. There is certainly a strong inducement for them to do so, for from May onwards the young of all milk-yielding animals are kept from their mothers, and yet allowed to graze in the neighbourhood of the aul, so that longing for their young is kept alive in the maternal hearts. Thus milking can always take place at the same hour, and the mistress of the yurt can regulate her work and portion out her day.

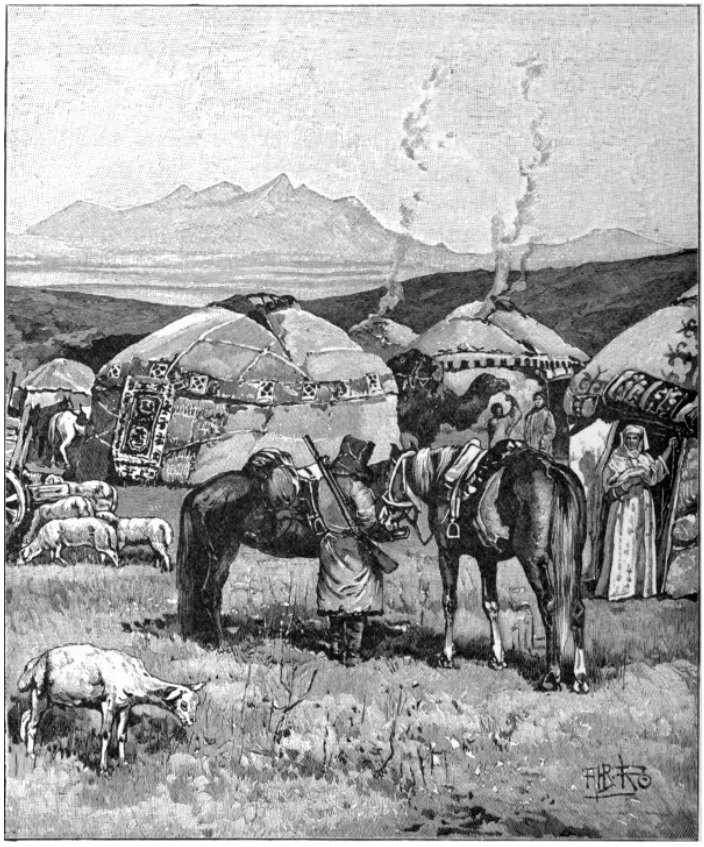


Fig. 70.—Kirghiz Aul, or Group of Tents.

With the exception of the mares, which are always milked by men, and often require the attention of at least two, and not rarely of three during the process, all the milking is done by the women. Early in the morning the calves, lambs, and kids are allowed to suck a little under strict supervision, and are then separated from the mothers, old and young being driven to their respective pastures. At mid-day the mothers, without the young, are brought to the yurt to be milked, and again in the evening the mothers are brought in before the young for the same

purpose. With the help of the dogs, which render no other service, the whole flock is gathered into a limited space, and the work begins. The mistress and servants of a yurt, or those who live together as neighbours in an aul, appear with their milk vessels, and dexterously seizing one sheep after another, drag it to a rope stretched between poles, pass a sling formed by the rope itself round the neck of each, and thus force the animals to remain standing in rows with the heads turned inwards, the udders outwards. In this manner thirty or forty head of sheep and goats are fastened together in a few minutes, and the so-called “kögön” is formed. Taught by experience, the animals stand perfectly still as soon as they feel the string, and submit passively to all that follows. The women, sitting opposite each other, begin at one end, or if there are many sheep, at both ends of the double row, seize the short teats between forefinger and thumb, and exhaust the milk with rapid pulls. If it does not flow freely they shake the udder with a blow from the left hand, exactly as the sucking young ones do, and only when even by this means nothing more can be obtained do they proceed to the next sheep. The men of the yurt or aul, who may perhaps have helped to catch and fasten the sheep and goats, sit about in all sorts of positions, impossible and almost inconceivable to us, and allow their “red tongue” the fullest freedom. Some of the little boys make their first venture at riding on the sheep, unless they prefer the shoulders of their mothers for that purpose. The latter are as little distracted by these doings of their offspring as by any other little incidents. Whether they sit on the dry ground or in fresh sheep’s dung, whether some of that falls into their poplar-wood vessels, affects them little, for the vessel is in any case as dirty as the hand

which milks; and though sheep's dung may be unclean in our eyes it is not so in those of the Kirghiz, who believe in the Koran. At length the milking is at an end and the animals, which have been tethered all this time and have been ruminating for want of better employment, can be released; a quick pull at one end of the cord, all the slings are undone, and the sheep and goats are free.

A general, simultaneous bleating is the first expression of their delight in their newly-recovered freedom; a short, quickly-repeated shaking throws off the last recollections of their undignified servitude; and then they run off as quickly as possible, in the plains as far away from the yurt as the herdsman allows, in the mountainous districts towards the hills, as if they could only there breathe the air of freedom. In reality they are longing to meet their young ones as soon as possible. All day long they have been away from them, but now, according to all their experience, the little ones must appear. The sheep run about bleating continuously, and even the intelligent goats look longingly all around as if they wished to find out whether the expected flock is already on the way, or at least whether it is visible in the far distance. The bleating grows louder and louder, for every newly-released row excites all the sheep assembled in the neighbourhood of the aul; and the impatience of the mothers, which is increasing every minute, finds vent in piteous, almost moaning bleatings. The longer the suspense lasts the more restless do the mothers become. Aimlessly they wander hither and thither, sniff at every blade of grass on the way, but scarcely crop any, lift their heads expectantly and joyously, let them droop again in disappointed sadness, bleat, and bleat again. The

restlessness increases almost to frenzy, the bleating becomes a perfect bellowing.

From the distance are heard weak, shrill, bleating sounds. They do not escape the attentive ears of the mothers. A loud and simultaneous call from every throat is the answer; all the maternal longing, increased to the utmost by the long waiting, is condensed in a single cry. And from the distance, down from the hills towards the yurt, the eager lambs and kids come rushing to find their mothers; the biggest and strongest in front, the youngest and weakest behind, but all hurrying, running and leaping, almost enveloped in a cloud of dust; and stretching out into a longer procession the nearer they approach their goal. An apparently inextricable confusion arises, old and young, united at last, run hither and thither, touching each other lightly as they pass, to find out, by touch as well as by smell, whether they have found their own or not; both run on if this is not the case, the lambs and kids, however, in most cases only after they have been made aware of their mistake by a push or tread from the mother animal. Gradually the dense crowd dissolves, for by degrees, in a much shorter time than one would imagine, every mother has found her child, every child its mother, and the young one now kneels down under its parent, eagerly drawing from the udder what milk remains. And if the bleating still continues, the sounds are now indicative only of the liveliest satisfaction.

But this state of mutual delight does not last long. The udders, already milked, are quickly exhausted, and, in spite of all the thrusts of the suckling, the fountain will flow no longer. But mother and young still enjoy the pleasure of being together. The mixed

flock spreads out in all directions, the complaisant mother following the lively youngster as it climbs the nearest height after the manner of its kind, or looking contentedly on when a little kid tries its strength in playful combat with another of its own age. The whole space round the yurt is picturesquely decorated by the lively flocks, a most charming picture of peaceful and comfortable pastoral life lies before the eyes of those who have feeling and understanding to enjoy it.

The women now allow themselves a short rest, take their children in their laps, and fulfil their maternal duties or desires. But more work awaits them. A lowing announces the approach of the cows, also eager for their share of maternal joy, and the industrious women rise hastily, bring the calves which were tied up beforehand to the cows, let them suck for a little, wrench them from the udder again, and only after milking allow the calves full freedom. Meanwhile the shepherds and dogs have once more collected the sheep and goats, and now old and young, men and women, boys and girls, unite in the work of catching the lambs and fastening them in rows, with nooses which are firm without being too tight, to a cord in front of the yurt, so that the mothers cannot suckle. As may be supposed, this is not completed without much bleating and noise, and mingled with it are the cries and wailings of the children wearying for their mothers, the lowing of cows, and the barking of dogs. Only the lambs and kids just tied submit quietly to the inevitable. A few kids still try their sprouting horns in playful duels, but they soon tire, and lay themselves peaceably down opposite their quondam rivals. Before the long row is fastened most of the young ones have tucked in their legs and given themselves up to repose. One

mother-sheep and goat after another sniffs at the little ones till she has found her own, but returns to the flock when she has satisfied herself that it is impossible to lie down beside her offspring.

The sun has long since disappeared from the horizon, and twilight has given place to darkness. It becomes quieter and quieter in the yurt. Men and animals have sought and found rest; only the dogs begin their rounds under the guidance of a watchful herdsman; but even they only bark when there is a real reason for it, when it is necessary to scare away some prowling wolf or other thief. A cool, but fragrant, dewy summer night descends upon the steppe, and the refreshing slumber of this richest and most beautiful season blots out the hardships of winter from the memory of man and beast alike.

FAMILY AND SOCIAL LIFE AMONG THE KIRGHIZ.

To escape the threatening hand of justice, four thieves fled from the homes of honest men, and sought refuge and concealment in the vast steppe. On their flight, they fell in with two beggar-women, driven out, like themselves, from among their industrious fellows. The beggar-women found favour in the eyes of the thieves, and they married them, two thieves taking one woman. A great many children resulted from these alliances, so contrary to the laws of God and man, and the children became the parents of a numerous people who spread over the hitherto uninhabited steppe. But they were faithful to their origin—thieves like their fathers, beggars like their mothers, and like both in being without religion or morals. This people is the Kirghiz, whose name signifies “Robber”.

Thus a religious Tartar poet pictures the origin, and describes the character of a people closely related to his own, who speak the same language, and worship the same God according to the precepts of the same prophet. He speaks thus, solely because the Kirghiz, in matters of religion, cling less slavishly to words, and think less narrowly than he does. His words simply illustrate the old and ever new story; the offence which the poet’s words express is constantly repeated among every people, the pious lie, which no sect has shrunk from uttering, to lower the credit of those who think differently from themselves.

But the traveller who sojourns among the Kirghiz, the stranger who seeks and receives hospitality under the light roof of their yurt, the scholar who endeavours to investigate their manners and customs, the official who lives among them as guardian of the law, or as representative of the State; in a word, everyone who has much intercourse with them, and is unprejudiced, gives an account of them widely different from that of the Tartar poet.

There was a time when the Kirghiz in general justified their name, but this time has long gone by, at least as far as most branches of the different hordes are concerned. The sentiments, the adventurous expeditions, and brigand exploits of their fathers may awaken an echo in the breast of every Kirghiz; but, on the whole, these horsemen of the steppe have submitted to the laws of their present rulers, live at peace among themselves, as well as with their neighbours, respect the rights of property, and do not rob and steal oftener or more than other people, but rather more rarely and less. Under Russian dominion the Kirghiz of to-day live in such satisfactory circumstances, that their fellow-tribesmen beyond the boundaries look with envy on the Russian subjects. Under the protection of their government they enjoy quietness and peace, security of property, and religious freedom; they are almost entirely exempt from military service, and are taxed in a manner which must be acknowledged as reasonable in every respect; they have the right of choosing their own district governors, and many other privileges to the enjoyment of which the Russians themselves have not as yet attained. Unfortunately, these governors are not so reasonable as the government, and they hamper, oppress, and overreach the Kirghiz whenever and in whatever

way they can. But, happily, they have not been able in any way to influence the manners and customs of the people.

The Kirghiz are a race of true horsemen, and can scarcely be thought of apart from their horses; they grow up with the foal and live with the horse till death. It is not, indeed, on horseback only that the Kirghiz is at home, for he understands how to ride every kind of animal which can bear him at all: but the horse is always, and under all circumstances, his favourite bearer and most cherished companion. He transacts all his business on horseback, and the horse is looked upon as the only steed worthy of a man. Men and women ride in the same fashion, not a few of the women with the same skill as the men. The position of the rider is lazy and comfortable, not very pleasing to the eye of the spectator. The Kirghiz rides in short buckled stirrups, without a leg-guard, touching the front edge of the saddle with the knees only, and thus balancing himself freely; trotting, he raises himself in the stirrups, often standing upright in them, and bending his head so far forward that it almost touches the horse's neck; when the horse walks or gallops, as it usually does, he holds himself erect. He holds the reins with the whole hand. The knout, which is held by the loop or knot, he uses with the thumb, index and middle fingers. Falling out of the saddle is by no means a rare occurrence, for he takes not the slightest heed of ways and paths, but leaves the horse to find these for itself. And even if he be of more careful mood, he will take any path which the beast can tread, with as little hesitation as he mounts the wildest, most intractable horse. Difficult paths do not exist for him; in fact, path simply means the distance across a given area; what may lie between the beginning and the end of the

journey is to him a matter of the utmost indifference. As long as he is in the saddle he expects incredible things of his steed, and gallops uphill or downhill, over firm ground or through bog, morass, or water; without giddiness or any of the fear which seizes him when afoot, he climbs precipices which any other rider would deem impassable, and looks calmly down from the saddle into the abyss by the side of the goat-track, which he calls a road, where even the most expert mountaineer would be unable to repress a shudder. When he has dismounted, he acts upon all the rules deduced from long experience for the care of an over-strained horse, and is as careful of it as he had previously been inconsiderate. On festive occasions the Kirghiz performs feats of horsemanship for the amusement of the spectators, who are never awanting; he raises himself erect in the stirrups, which are crossed over the saddle, and springs from them without falling, he holds fast to the saddle or stirrups with his hands, and stretches his legs into the air, or hangs from one side of the saddle, and attempts to pick up some object from the ground, but he does not seem to practise the military sports of his Turkish relatives. Racing is to him the greatest of all pleasures, and every festival is celebrated by a race.

To the race, which is called “Baika”, only the finest horses, and of these only amblers are usually admitted. The distances to be traversed are always considerable,—never less than twenty, and frequently forty kilometres: the riders make for a certain point in the steppe, such as a hillock, or a burial-place, and then return as they went. Boys of seven, eight, or at most ten years of age, sit in the saddle, and guide the horses with remarkable skill. The spectators ride slowly to meet the returning horses, give help, called “guturma”, to the steed

which seems to have most chance of winning, by taking off the little rider, seizing reins, stirrups, mane, and tail, and leading, or rather dragging it to the goal between fresh horses. The prizes raced for consist of various things, but are always reckoned as equivalent to so many horses. Two or three thousand silver roubles are frequently offered as the first prize: among the richer families the stakes are one hundred horses or their equivalent. Young girls, too, are sometimes offered as prizes, the winner of one being allowed to marry her without making the usual payment to her family.

While the race-horses are on their way, the men often pass the time by exercising their own physical powers. Two men divest themselves of their outer garments, baring the shoulders and upper parts of the body, and begin to wrestle. The mode of attack varies. The combatants seize one another, bend towards one another, turn about in a circle, each always watching the other carefully, and seeking to parry every effort, real or feigned, till suddenly one of them exerts his full strength, and the other, if he has not foreseen this, is thrown to the ground. Others begin the attack more impetuously, but meet with such strenuous resistance that the struggle lasts a long time before one succeeds in vanquishing his opponent. The spectators encourage them, praise and blame, cheer and scoff, betting among themselves the while, and becoming more and more excited as the balance inclines to one side or the other. At length, one lies on the ground, laughed at by the whole company, ashamed and humiliated, in his secret heart probably embittered. Cries from every throat fill the air, pieces of cloth, perhaps only rags of cotton, are torn up and distributed to balance accounts; reproaches mingle with shouts of applause,

and the match is over, unless the vanquished one suddenly seeks his revenge, and attacks his Opponent once more. A wrestling match never comes to an end without noise, screaming, and wrangling, but actual fighting seldom takes place.



Fig. 71.—Hunting the Wolf with the Golden Eagle.

Hunting must be reckoned among the equestrian sports of the Kirghiz. When a sportsman gets on the track Of a wolf, he follows it with such eagerness and persistence that he takes little heed though the cold, doubly felt when riding quickly, should seriously

imperil him, that is, if his face and hands should become frozen; for, if his horse holds out, he almost certainly succeeds at length in throwing his heavy club at his victim's head. But his favourite mode of hunting is with eagles and greyhounds. Like his forefathers, he understands how to tame and carry the golden eagle, and with the bird sitting on his thickly-gloved hand, which is supported on a wooden rest fastened to the saddle, he ascends some hillock from which he can command a wide view. Meanwhile, his companions beat the surrounding steppe for game. The game may be wolf or fox, unless the eagle is not yet thoroughly trained, in which case it is either a marmot or a fox. No very special training of the eagle is required; it is only necessary that it be taken young from the nest, that it be always fed by the sportsman himself, and that it be taught to return to its master at his call: inherited habit does the rest. As soon as the beaters have started a fox, the huntsman unhoods and unchains his bird, and lets it fly. The eagle spreads its wings, begins to circle, and rises in a spiral higher and higher, spies the hard-pressed fox, flies after him, descends obliquely upon him with half-closed wings, and strikes its outspread talons into its victim's body. The fox turns round in a fury, and attempts to seize his foe with his sharp teeth; if he succeeds, the eagle is lost. But almost all these birds of prey, which are as strong as they are bold, have an instinctive feeling of such danger, and the skill to avoid it. The very moment the fox turns, the eagle lets go its hold, and an instant later its talons are fixed in its quarry's face. Triumphant acclamations from its much-loved master, who now draws near, encourage the eagle to hold fast, and a few minutes later the fox, felled by the huntsman, lies dying on the ground. Many an

eagle has to pay for the boldness of its first venture with its life; but if the first attempt is successful, it soon becomes so skilful that it can be flown at a wolf. Though the attack on the wolf is made in precisely the same manner, the eagle's bearing is, from the very beginning, perceptibly more cautious; the size of the wolf teaches it that it has to do with a much more dangerous foe. But it learns to vanquish even the wolf, and its fame, as well as its master's, spreads abroad among the people, and as its renown becomes greater its value increases. An eagle which can kill a fox is worth thirty or forty silver roubles; one which can vanquish a wolf is valued at twice or three times as much, if, indeed, its master would sell it at all. It is not possible to hunt with two eagles, as one would disturb the other; but one alone often enters into the chase with so much ardour that it makes it very difficult for its master to help, especially if it will not willingly let go its hold of the quarry it has seized.

If the Kirghiz who is hunting with an eagle requires to bring all his powers of horsemanship into play, that is still more necessary when hunting antelopes with greyhounds. These rather long-haired dogs run like shot arrows when they have sighted the game, and the rider courses after them up hill and down dale until he and they have overtaken the fleet fugitive. If anyone falls on such a ride, he earns only a half-pitying, half-mocking smile, as the mad hunt rushes past him.



Fig. 72.—Kirghiz in pursuit of Wild Sheep.

Even when driving game among the mountains, the Kirghiz do not dismount from their horses. It was a magnificent sight to see the horsemen who were driving wild sheep for our guns in the Arkat mountains begin their break-neck ride. Here and

there on the highest points, as well as in the hollows, valleys, and ravines between them, one horseman after another showed up clearly against the clouds, and was lost to view again between masses of rock, to appear shortly afterwards upon the stony slopes. None dismounted, none hesitated an instant to choose his path. It was easier for them to ride among the mountains than to walk.

The sportsman's endurance is on a par with his boldness. Not only on horseback, but while stalking and lying in wait for his game, he shows marvellous perseverance. That he follows a trail for several days is not remarkable, when we take his love of riding into account; but with the matchlock, which he still uses as often as the flintlock, in his hand, he will creep for five or six hundred yards along the ground like a stealthy cat, or lie in wait for hours in storm and rain until the game comes within range of his gun. He never shoots at long range, and never without resting the barrel of his gun on the fork attached to it, but he aims with certainty, and knows exactly where to send his bullet.

Though the Kirghiz is thus persistent and untiring as horseman, sportsman, and herdsman, he is very unwilling to do any other kind of work. He tills the fields, but in the most careless manner, and never more than is absolutely imperative. Tilling the soil appears to him as inglorious as every other employment not connected with his flocks and herds. He is remarkably skilful in turning water aside for purposes of irrigation, has a highly-developed sense of locality, and can mark out his drains without using a surveyor's table or water-level. But it is only in his boyhood that he takes up such work with any willingness; after he has attained to possessions of

his own he never touches pick or shovel again. Still less does he like to work at any trade. He knows how to prepare leather, to fashion it into all kinds of straps and saddlery, and to decorate these very tastefully with iron or silver work, and he can even make knives and weapons, but when he does such work, it is always unwillingly and without taking any pleasure in it. Yet he is by no means a lazy or careless workman, but is diligent and conscientious, and whoever has succeeded in gaining his skilful hand has seldom reason to be dissatisfied with it.

He rates mental work much more highly than physical. His eager, active mind demands occupation, and thus he likes not only light conversation, but serious discussions of all kinds, chiefly, perhaps, because of the variety they give to his monotonous life. So he amuses himself in converse with others of his tribe, and he can become a perfect bore to a stranger with his glibness of speech, which often degenerates to mere chatter. With this love of talking is closely connected a thirst for knowledge, which in the same way often degenerates into inquisitiveness, for the “red tongue” is never allowed a holiday. Whatever the wind blows over the steppe the listening ear of the Kirghiz picks up and the “red tongue” clothes in words. If anything is discussed which the Kirghiz understands or does not understand, if any conversation takes place in a language with which he is acquainted, he has no hesitation in making his way to the yurt and, invited or otherwise, pressing his ear to its walls, so as to lose no syllable. To keep to himself an occurrence which differs from the everyday routine by a hair’s-breadth, an event of any kind, a piece of information, or a secret, is to the Kirghiz an utter impossibility. Does the noble horse keep silence when he sees

anything which excites his interest, or the sheep and the goat when they meet with their fellows? Does the lark soar up from its nest on the steppe in silence? And shall the lord of the steppe be more silent than they? Never! “Speak on, red tongue, while thou hast life, for after death thou shalt be still.” An uninterrupted stream of speech flows from the lips of every Kirghiz. Two men never ride silently together, even though their journey lasts for days. The whole time they find something to talk about, some communication to make to each other. Usually it does not nearly satisfy them to ride in pairs; three or four of them ride abreast wherever the path admits of it. This way of riding is so deeply rooted in them that the horses press close together of their own accord, and a European is obliged to rein them in to prevent their doing so. In a yurt filled with Kirghiz there is a buzzing like that about a bee-hive, for everyone wishes to speak, and does everything he can to gain a hearing.

One good result of this love of talking, so unusual among men, is the command of language which they acquire. In this they seem all alike, rich and poor, high and low, educated and uneducated. Their rich, sonorous, but rather hard language, though only a dialect of the Tartar, is remarkably expressive. Even a foreigner who is unacquainted with it can feel that every word is distinctly pronounced, every syllable correctly accented, so that one can almost make out the sense from the sound. Their way of speaking is very sprightly, the cadence of each phrase corresponding to its meaning, and the pauses correctly observed, so that a conversation sounds somewhat broken, though the flow of speech is never arrested for a moment. An expression of face which speaks for itself, and very lively gestures, add to the

effect of their speech. If the subject be particularly interesting, their vivacity is apt to increase to such a pitch of excitement that one begins to fear that from words they will go on to blows. But even the most heated wordy strife invariably ends in quietness and peace.

It will be readily understood that the bard holds a prominent place among such a people. Everyone who distinguishes himself above his fellows by his fluency of speech gains respect and honour. The presence of a singer who can improvise is indispensable to every festival. His creative power need not be of a very high order; but his words must flow without interruption and in a definite and familiar metre to gain him the reputation of a poet. But every Kirghiz bard has at his command a store of poetic ideas which is by no means scanty, and to clothe these ideas in words is easy enough to him. The nomadic pastoral life, though on the whole monotonous, has its charms, and certain chords only require to be struck to give keen pleasure to every hearer. Numerous sagas and legends, which live in the minds of all, yield abundant material for filling up blanks; and thus the bard's narrative flows on like a calm stream whose springs never dry up: it is only necessary to keep it in the proper metre to make him a poet for ever. Even this is made easy to him; for every bard accompanies his recitative on the three-stringed Kirghiz zither, and as he links on each measure to the next by playing on this, he can make the interlude last until the next verse has taken shape in his mind. The speed and skill with which this is done determines his rank as a poet. But if a woman is inspired to poetry she is sure of universal admiration, and if she consents to sing in competition with a man, the enthusiastic listeners

extol her above all others of her sex.

The vast steppe is much less favourable to regular instruction than it is to poetry. This explains why so few Kirghiz are able to write, and why there is so little written literature. Only the sons of the wealthiest and highest in rank among them are taught to read and write. In the two schools founded by the government in Ustkamenegorsk and Zaizan Kirghiz boys are taught,—indeed, they only are admitted to that in the first-named town,—but the influence of these institutions does not reach to the heart of the steppe. There a boy only learns if he happens to come in contact with a mollah who has as much desire to teach as the boy has to learn. But even then his instruction is confined to the simplest things, and consists chiefly in learning to read and form Arabic characters. The contents of the principal, if not the only text-book, the Koran, are not usually intelligible to the mollah himself; he reads the sentences without knowing their meaning. I have only known one Kirghiz who understood Arabic, and he was a sultan. Everyone else who was distinguished above his fellows by his knowledge of the sacred writings, and who, as a faithful adherent of Islam, performed the five prescribed prayers, understood at most the words of the call to prayer and of the first sentences of the Koran; the rest he repeated with the seriousness of all Mohammedans, but without understanding the meaning. And yet I was deeply impressed when, in the midst of the vast steppe, where no minaret towered up towards heaven, the voice of the mueddin uttered the call to prayer, and the faithful knelt in long rows behind the Iman or leader, and pressed their foreheads to the ground in prayer, as the law of the Prophet ordains.

The consciousness of strength and dexterity, of skill in riding and hunting, of poetic talent and general mental activity, and the feeling of independence and freedom caused by the vastness of the steppe gives confidence and dignity to the bearing of the Kirghiz. The impression he makes upon an unprejudiced observer is therefore a very favourable one, and it increases the more intimately one becomes acquainted with him. So it was in my case, and it is also the opinion of Russians who have associated with Kirghiz for years, in particular, of the government officials, and of other travellers who have lived among them. It is scarcely too much to say that the Kirghiz possesses very many good qualities and very few bad ones, or reveals very few to strangers. Mentally wide-awake, shrewd, vivacious, intelligent where things known to him are concerned, good-humoured, obliging, courteous, kindly, hospitable and compassionate, he is, of his kind, a most excellent man, whose bad qualities one can easily overlook if one studies him without prejudice. He is polite without being servile, treats those above him respectfully but without cringing, those beneath him affably but not contemptuously. He usually hesitates a little before replying to a question, but his answer is quiet and clear, and his sharply-accented way of speaking gives it an expression of definiteness. He is obliging towards everyone, but does more from ambition than from hope of gain, more to earn praise and approval than money or money's worth. The District Governor, Tamar Bey Metikoff, who gave us his escort for almost a month, was the most obliging, polite, kindly man under the sun, always ready to fulfil a wish of ours, untiring in our service or for our benefit, and all this solely in the hope of gaining our approval

and that of the Governor-general. He told us so in the clearest language when we tried to force presents upon him.

In harmony with such ambition is the pride of the higher-class Kirghiz in his descent and family. He boasts of distant ancestors, and occasionally traces back his pedigree to Chingis-Khan, only marries with those of equally good birth, suffers no spot on his honour, and forgives no insult to it. But in addition, he exhibits a personal vanity which one would scarcely expect of him. Not only authority and wealth, dignity and rank, but youth and beauty are, in his eyes, gifts to be highly esteemed. But he differs from many handsome young men among us in that he never descends to coxcombry. He boasts openly and without reserve of the gifts bestowed on him by nature or acquired by his own skill, but such boasting is quite natural to him, and is not distorted by any show of false modesty. As far as his means will permit he clothes himself richly, ornamenting his coat and trousers with braiding, his fur cap with the feathers of the horned owl; but he never becomes a mere dandy. The women, as may be imagined, are still more anxious to set their charms in the best possible light, and I was not at all surprised to learn that they prepare from the juice of a certain root a delicate, fragrant, and lasting colouring which they apply to their cheeks—in other words, that they paint their faces.

As a natural outcome of his desire to please, the Kirghiz gives a willing adherence to all the manners and customs of his people. His culture and good breeding manifest themselves chiefly in a strict observance of all those customs which have been handed down to him from the past, and have been

materially influenced by Islam. This implies a certain formality and ceremoniousness in all mutual intercourse, but it also puts a check on undue arrogance, and banishes everything unseemly, almost everything awkward, from their social relations, for everyone knows exactly what he has to do to avoid giving offence or making himself disagreeable.

Even mutual greeting is attended with a certain amount of ceremony which is observed by everyone, and is therefore, of course, quite clearly defined. If two parties of Kirghiz meet, a considerable time is always taken up in the exchange of greetings. The members of both bands simultaneously lay their right hands over the region of the heart, and stretch the left hand towards the right of the other, whereupon each draws his right hand from his heart and joins it with the left, so that now for an instant all four hands are in contact. At the moment of embracing, both pronounce the Arabic word “Amán” (peace), while beforehand they exchanged the usual Mohammedan greeting, “Salám alëik” or “alëikum” (Peace be with thee, or with you), and the reply, “Alëikum el salám”. In this manner every member of one band greets every member of the other; both bands, therefore, when they meet, range themselves in rows, along which one after another runs hastily, so as to give the temporarily-restrained “red tongue” its full freedom as quickly as possible. The shorter method, which, however, is only used in the case of large gatherings, is to stretch out the hands towards each other and clasp them together.

If the Kirghiz visit each other in their auls, another form has to be gone through before the customary greeting takes place. Within sight of the yurt the approaching visitors rein in their horses, walk them

for a little, and finally stand still. At this sign some one comes to meet them from the aul, greets them, and conducts them to the yurt, which the women have in the meantime decorated by spreading out their most valuable rugs. Strangers who are unknown in the aul must, before greeting, answer inquiries as to their name, station, and whence they have come; but they are received and hospitably treated in any case, for the Kirghiz shows hospitality towards everyone, irrespective of station and religion, though he always prefers distinguished guests. The guest enters the yurt with the customary greeting, pulls off his shoes at the door, but of course keeps on his soft riding-boots. If he is of equal standing with his host, he sits down in the place of honour; but if of humbler degree, he keeps modestly in the background, and lets himself down on the rug in a kneeling posture.

In honour of an esteemed guest the host orders a sheep to be killed, but has it first brought to the yurt to be blessed by the guest. At this sign all the neighbours assemble to take part in the sumptuous feast. The head and breast of the sheep are roasted on the spit, the rest of the flesh is cut into pieces and boiled in a cauldron, and loin, ribs, shoulders, and haunches, whenever they are cooked, are set before the guest in a vessel. The guest washes his hands, cuts the flesh from the bones, dips it in the salt broth, and says to the host, who has till then remained standing, “It is only through the host that the meat gains flavour; sit down”; but the host replies, “Thanks, thanks, but eat”, and does not at once accept the invitation of the guest. Thereupon the latter cuts a piece from the ribs, calls the host to him, and puts it into his mouth; then cutting a second piece, he lays it in a bowl and hands it to the

housewife. The host then sits down, but it is still the guest who distributes the meat to the members of the company. He cuts it into pieces of a convenient size for the mouth, mixes them with fat, dips three of them at a time into the broth, and puts them into the mouth of one of his fellow-feasters after another. It would be an insult to the giver if the receiver did not at once swallow the pieces, even though, if they be large, he chokes so frightfully that he becomes blue in the face, and urgently requires the assistance, which his neighbours immediately give by striking him on the back with their fists, to render the process of swallowing easier. The guest, on the other hand, must never give more than three pieces, for if he exceeds this number, if he stuffs five at a time into the mouth of a man, and if the man is choked in the attempt to swallow the too generous gift at once, the giver must compensate the bereaved family to the value of one hundred horses, while if anyone chokes over the three pieces, he is not held responsible. After the meat has been consumed, the chief guest hands round the vessel containing the broth, and each drinks from it according to his necessities or desires. At the close of the meal, though not until all have washed their hands, every well-to-do host, whose mares are yielding milk at the time, hands round koumiss, and this much-loved beverage is received by everyone with obvious reverence. If anyone has not yet taken part in the meal, he comes now to refresh himself with this nectar. They drink to intoxication, for the Kirghiz has as great a capacity for drinking this highly-prized milk-wine as he has for eating, and in both respects he is anything but modest or moderate.

But the ceremony attending ordinary visiting is nothing compared with that observed in connection

with all important family events, such as weddings or burials. In the case of the former, the joy finds vent in much practical joking; in the latter, mourning is accompanied by ceremonies indicative of respect to the dead. Wooing and weddings, burial and memorial celebrations give rise to a whole chain of festivals.

As among all Mohammedans, the father woos on behalf of his son, and pays the future father-in-law a varying, and often very considerable sum. A matrimonial agent, who is proclaimed as such by the fact that he wears one leg of his trousers over and the other under his boot, makes his appearance in the yurt in which a daughter is blossoming into womanhood, and prefers a request for her in the name of the father of a marriageable youth. If the bride's father is agreeable, he demands that the sender of the message, with the elders of his aul, shall come to treat with him on the subject. These comply, and, according to custom, rein in their horses within sight of the aul. A messenger from the bride's father rides to meet them, greets them formally, and conducts them to the festive yurt decorated in their honour. There they are at once regaled with koumiss, and a bard arrives to contribute to their entertainment. He is rewarded by loud applause, and incited to further effort by magnificent promises. They praise the depth of his thought, the finished style of his execution; they promise him a horse, an *Iamba*, or four pounds of uncoined silver as his reward. The master of the yurt protests against this, insisting that he alone has the right to reward the singer; but the guests promise so much the more, for they know that their host will not permit the fulfilment of their promises. When the song is ended a lively conversation takes place

between the host and his neighbours and guests; they talk about everything imaginable except the object of the visit, and at length they disperse, and the guests ride to their homes again.

The next morning the father of the bride with his train return the visit, and after being greeted and feasted in the same manner, request to see the young man's mother. They at once repair to the yurt of the housewife, and greet her with much ceremony and courtesy. Then the father produces the roasted brisket of a sheep, and distributes pieces of this much-prized meat to his guests with the words, "Let this sheep's breast be a pledge that our plans will be successfully carried out". Then begins a discussion over the amount of the "kalüm" or price to be paid for the bride. A mare of from three to five years of age is the unit of calculation; an ambler or a camel is considered equivalent to five mares, and six or seven sheep or goats make up the value of one.

The bride's father demands 77 mares, but lets himself be beaten down to 57, 47, 37, 27, according to his means and those of the bridegroom's father. If both are poor they come even farther down till they are agreed. As soon as the bargain is concluded, the bride's father declares the betrothal fixed, and prepares to go, leaving a present in or before the yurt. But the bridegroom's father, if it is possible at all, sends half the kalüm with him, and pays the remaining half as soon as may be.

A fortnight after payment of the kalüm, the bridegroom is at liberty to visit his bride for the first time. Accompanied by as many friends of his own age as possible, he sets out under the guidance of an older friend of the family, who is familiar with all the customs to be observed, but he dismounts in the

neighbourhood of the bride's aul, erects a small tent, and retires into it, or conceals himself in some other way. His followers go on to the aul, and, after having been ceremoniously welcomed, enter it and distribute, amid much jesting, all sorts of little presents, rings, necklaces, sweets, ribbons, and pieces of coloured cloth, among the crowd of women and children. Then they enter the festive yurt with all the young people of both sexes. The host provides meat and drink; first, the breast of a sheep, which he cuts with the words already mentioned, then "meibaur"—small pieces of the heart, liver, and kidneys smeared with fat. The dishes are placed before the elderly leader of the party, who, as chief guest, proceeds in the manner before described, but as he puts the pieces into the mouth of the first young man, he smears his face with the fat broth. This is the signal for the beginning of all manner of practical jokes, and the youths, maidens, and younger women indulge in them freely. A very common one among the girls is to sew the clothing of the young men with rapid stitches to the rugs on which they are sitting.

When the meal is over the youthful guests are allowed a short interval of repose, but only to give them time to collect their ideas. Then the girls and women challenge the young men to a singing competition, and giving them the place of honour, sit down opposite them; then one begins her song. It fares ill with the youth whom she addresses if he is not ready with his reply. The merry troop falls upon him, they nip him and pinch him, drive him from the yurt, and hand him over to the young men of the aul, who are congregated outside on the watch for such victims. A bucket of water is poured over the unfortunate blunderer, and thus bathed and humiliated, he is led back to the yurt to undergo

another trial. If he fails in this also he is condemned to be dressed as a woman, and put in the pillory. Woe to him if he is thin-skinned, it will be a day of torture for him. Joking is the order of the day, and no surly person will be tolerated. Whoever can best enter into the spirit of it is the hero of the day; whoever is unable to take his share is the general sacrificial lamb.

During these amusements the bride sits concealed behind a curtain in the back of the yurt. The young people of the aul take advantage of her solitude to steal her away, while the bridegroom's friends are occupied with the singing competition. They make an opening between the pieces of felt covering the yurt, drag her through it, put her on horseback, and carry her off unresisting to the yurt of one of her relatives, where she is given into the hands of the assembled older women. If the robbery succeeds, the robber challenges the youths to find the bride and to deliver her from the women. The company hastily breaks up, and they beg her guardians to restore the bride to them. But, however persuasive their words may be, their request is refused. The bride sits before their eyes in a yurt from which a portion of the felt cover has been removed, but violence is out of the question, so the youths begin to bargain. The women demand nine different dishes prepared by the young men's own hands, but, after a time, they agree to accept nine gifts instead, and they give up the bride, stipulating that she shall be taken back to her father's yurt.

Meanwhile the bridegroom sits waiting in his tent. He has not been quite alone, for some of the young married women had gone to seek him as soon as his companions arrived, and had been received by him

with a respectful greeting called “taschim”. He had bowed so low before them that his finger-tips had touched the ground, and had then raised himself slowly, letting his hands glide up his shins until he had reached his full height; the women had accepted his homage, and had borne him company all day, giving him food and drink, and whiling away the time with talk and jesting, but not allowing him to leave the tent. Not before sundown, and only after much coaxing does he receive permission to sing a song within the aul and before the bride’s yurt. He mounts his horse, rides into the aul, sings his greeting to the inhabitants, and, stopping before the yurt of his bride-elect, expresses his lover’s plaint in a song, original or otherwise.

Sweetheart, my love brings me dule and pain,
For it’s thrice that I’ve tried to win thee;
Thou would’st not waken; my heart is fain;
For it’s thrice thou would’st not hear me.

But late in night, when the camels rest,
All fixed by their hairy tether,
My heart shall fly to its own warm nest,
Our hearts shall be one together.

Let me but see thy face, sweetheart,
And I shall be brave and strong;
Thou hast stolen away my peace, sweetheart,
And left me with only a song.

I pray for a draught of koumiss, love,
For dry and parched is my soul;
Thou wilt hearken and give me bliss, love,
And make my bleeding heart whole.

But should all my pleading tease thee,
And thine ear be deaf to my song,
The friends will help me to please thee,
And the wedding shall be ere long.

Without entering the yurt he returns to his tent. Soon an old woman comes to him and promises that she will take him to the bride if he will make her a present. He at once agrees, and they set out together. But they do not attain their object without having to overcome various obstacles. Another woman lays the fork which is used to lift the ring of the yurt to its place, across his path; to step over it would be unlucky, for the person who laid it down must take it away again. A gift overcomes this difficulty, but a second is met with very soon. A woman, apparently dead, lies on the path; but a second gift calls the dead to life again, and the way is clear to within a short distance of the yurt. But there stands a figure which snarls like a dog. Shall it be said that the dog snarled at the bridegroom? Never! A third gift closes the snarling mouth, and the much-tried youth reaches the yurt without further hindrances. Two women keep the door shut, but do not refuse to open it when a gift is offered; within, two others hold the curtain fast; on the bride's couch lies her younger sister; but he succeeds in getting rid of them all; the yurt is almost empty; the old woman lays the bridegroom's hands in those of the bride and leaves them. At last they are alone together.

Under the supervision of the old woman, who is called "dyenke", the bridegroom visits the bride many times, without, however, presenting himself before her parents until what remains of the kalüm is paid. Then he sends a messenger to the bride's father to ask if he may take his bride to his own yurt. Permission is given, and the bridegroom sets out for the aul, once more with a large following and many gifts, pitches his tent at a suitable distance, receives visits from the women as before, spends the night alone in the tent, and, next morning, sends from it to

the aul all the necessary woodwork for the erection of a yurt, which he has to provide. Thereupon the women assemble and hastily finish the sewing together of the felt covering supplied by the bride, if it is not already done, and then they set to work to erect the new yurt. The favourite woman of the aul has the honour of lifting the roof-ring, and holding it in position until the spars are fitted into it; the others share the rest of the work of setting up and covering it. While this is going on the bridegroom makes his appearance; the bride, too, is brought upon the scene, and both are told to walk from their places to the yurt to decide the great question as to who shall be supreme within it. The mastery will fall to the lot of the one who reaches it first.

A sheep brought by the bridegroom has been slaughtered, and a meal prepared to be eaten within the new yurt. During the course of the meal, the young master wraps up a bone in a piece of white cloth, and throws it, without looking upwards, through the hole at the top of the yurt into the open air. If he succeeds in doing so, it is a sign that the smoke from this yurt will always rise straight to heaven, which betokens happiness and prosperity for the inhabitants.

After the preliminary repast in the new yurt, the guests repair to that of the bride's father, where a second meal awaits them. The younger people remain in the new yurt, and for them the bride's mother prepares food and drink; and she must provide it bountifully, lest the young people should break up the light structure over their heads, and, to punish her niggardliness, scatter its parts in all directions far away in the steppe. Not even the abundantly filled dish itself is safe from the

boisterous spirits of these unruly wedding guests; one of them pulls it from the hostess, and rides away with it; others attempt to catch him and secure the spoil, and so the fun goes on till the dishes are in danger of becoming cold.

The following morning the bride's father asks for the first time to see the bridegroom, invites him to his yurt, greets him warmly, praises his looks and talents, wishes him happiness in his married life, and gives him all sorts of presents as the bride's dowry. This takes place in the presence of the whole company who had assembled in the yurt before the bridegroom's entrance. Finally, the richly adorned bride enters it also. If there is a mollah in the aul, or if one can be procured, he pronounces a blessing over the young pain.

Then the farewell song, the "jar-jar", is sung to the bride, and, with tearful eyes, she responds to every verse, every strophe, with the lament of departing brides.

When this is at an end, camels are brought up to be loaded with the yurt and the bridal presents, and gaily caparisoned horses to carry the bride and her mother to the bridegroom's aul. The young man himself rides in advance of the procession, and, assisted by his companions, he urges the camels to their utmost speed, so as to have time to erect the yurt in his aul with the same ceremonies as had been previously observed. The bride, having taken tearful leave of her father, relatives, and companions, the yurt, and the herds and flocks, rides closely veiled by a curtain which completely envelopes her, and which is carried by her attendant riders, till she reaches the yurt in which she is henceforth to reign as mistress. Her father-in-law, who has meantime inspected the

dowry, and praised or found fault with it, calls her soon after her arrival to his yurt, and she enters it with three such deep inclinations, that she is obliged to support herself by laying her hands on her knees; these are to signify that she will be as obedient to her father and mother-in-law as to her lord and master. During this greeting, her face remains veiled, as it does thenceforward before her father and brothers-in-law, and for a year before every stranger. Later, she veils herself in the presence of her husband's eldest brother, but of no one else, for she must marry the brother if her husband dies, and she must not rouse or foster evil desires in his heart.

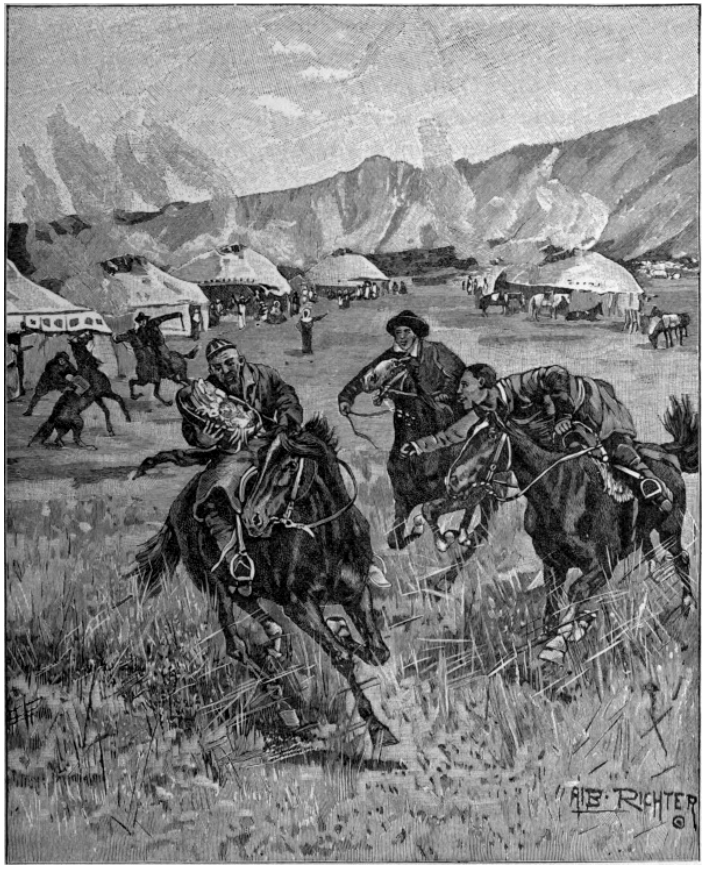


Fig. 73.—Frolics at a Kirghiz Wedding.

In the case of a second marriage, the Kirghiz woos for himself and without special formalities. If he marries a second wife during the life of his first, and lets her live in the same yurt, as usually happens where the man is not very well-to-do, her lot is a pitiable one. The first wife insists upon her rights, condemns the second to a certain part of the yurt, and only allows her lord himself to exercise his conjugal rights within strict limits. The wife is held in high esteem among the Kirghiz: “We value our

wives as we do our ambling nags, both are priceless," my Kirghiz friend Altibei said to me. The men seldom leave their wives, the women still more rarely run away from their husbands; but even in the steppe, love does sometimes break all the bonds of tradition and custom. Abductions also occur, and are not considered disgraceful. To carry off a maiden whose father's claims are exorbitant is considered by many as praiseworthy rather than blameworthy on the part of both the abductor and abducted.

Among the Kirghiz, a new-born infant is washed in very salt water as soon as it opens its eyes on the world. The washing is repeated for forty days in succession, and then given up entirely. The suckling is laid at first in a cradle filled with warm, soft, down-like camel wool, so that it is completely covered, and does not suffer from cold in the severest winter; later, it is dressed in a little woollen shirt, which the mother holds over the fire about once in three days, to free it from the parasites abundant in every yurt, but she never changes it for another as long as it holds together. In winter, the careful mother adds a pair of stockings, and, as soon as the child can walk, it is dressed like a grown-up person.

Both parents are exceedingly fond of their children, treat them always with the greatest tenderness, and never beat them, but they take a pleasure in teaching them all kinds of ugly and unseemly words as soon as they begin to speak, and when these are repeated by the child's innocent lips, they never fail to cause general amusement. The different ages of the child are described by the name of some animal; thus it may be "as old as a mouse, a marmot, a sheep, or a horse". When a boy reaches the age of four years, he is placed for the first time on the back of a horse

about the same age, richly adorned and saddled with one of the children's saddles which are usually heirlooms in a family. The happy parents promise all sorts of pretty things to the independent little rider, who has, for the first time, escaped from the protecting arms of his mother. Then they call a servant or some willing friend, and give horse and rider into his charge to be led from one yurt to another, to announce the joyful event to all their relatives and friends. Wherever the little boy goes, he is warmly welcomed and overwhelmed with praises and dainties. A festival in the father's yurt celebrates the important day.

The child's instruction in all that he requires to know begins about his seventh year. The boy, who in the interval has become an accomplished rider, learns to tend the grazing herds, the girl learns to milk them, and to perform all the other work of a housewife; the son of rich parents is taught to read and write by a mollah or anyone able to impart such knowledge, and later he is instructed in the laws of his religion. Before he has completed his twelfth year his instruction is at an end, and he himself is ripe for life.

The Kirghiz honours his dead and their memory even more than he does the living. Every family is ready to make the greatest sacrifices to celebrate the funeral and memorial feast of a deceased member of the family with as much pomp as possible; everyone, even the poorest, strives to decorate as well as he can the grave of his departed loved ones; everyone would consider it a disgrace to fail in paying full respect to any dead person, whether relative or not. All this they have in common with other Mohammedans; but the ceremonies observed at the death and burial of a

Kirghiz differ materially from those customary among others of the same faith, and they are, therefore, worthy of detailed description.

When a Kirghiz feels his last hour approaching, he summons all his friends, that they may make sure that his soul gets into Paradise. Pious Kirghiz, who are expecting death, have the Koran read to them long before the end comes, though the words sounding in their ear may be quite unintelligible. According to the custom among true believers, the friends of a dying man gather round his bed and repeat to him the first phrase of the confession of faith of all the Prophet's followers, "There is but one God", until he responds with the second, "And Mohammed is his prophet". As soon as these words have passed his lips the angel Munkir opens the gates of Paradise, and therefore all who have heard the words exclaim, "El hamdu lillahi",—Praise be to God!

As soon as the master of a yurt has closed his eyes in death, messengers are sent in all directions to bear the tidings to his relatives and friends, and, according to the rank and standing of the dead man, these messengers may ride from ten to fifty or sixty miles across the steppe from aul to aul. A relative in one aul may also carry on the news to those in another. While the messengers are on their way, the corpse is washed and enveloped in its "lailach", which last every Kirghiz procures during his lifetime, and stores up with his valuables. When this duty has been fulfilled, the corpse is carried out of the yurt and laid upon a bier formed by a half-extended yurt-trellis. The mollah, who has been sent for, pronounces a blessing over the dead; then the trellis with its burden is lifted up and fastened to the saddle

of a camel, and the train of assembled friends and kinsmen sets out on its way to the burial-place, which is often far distant.

Whenever the dying man has breathed his last, the women begin the lament for the dead. The one most nearly related to him begins the song and gives vent to her heart's grief in more or less deeply-felt words; the others join in simultaneously at the end of every phrase or verse, and one after another does her best to clothe her ideas in fit words. The dirge becomes more and more mournful up till the moment when the camel rises with his burden, and not by sounds and words only, but by their whole conduct the women testify to their increasing grief. At length they tear their hair and scratch their faces till blood flows. Not till the funeral procession, in which the women take no part, has disappeared from sight, do the cries and tears gradually cease.

Some men on swift horses have been sent in advance of the funeral train to prepare the grave. This is an excavation, at most reaching only to a man's breast; at the end which points towards Mecca, it is vaulted to receive the head and upper part of the body. When the corpse has been laid to rest, the grave is covered with logs, planks, bundles of reeds, or stones. It is not filled with earth, but a mound is heaped up on the top of the covering and decorated with flags or the like, unless when a dome-like structure of wood or bricks is built over the grave. When a child dies its cradle is laid upon its grave. After the burial the mollah pronounces a blessing over the corpse for the last time, and all take part in heaping up the mound of earth. But the ceremonies do not end here.

Whenever the head of a family dies, a white flag is

planted beside the yurt and left for a whole year in the same place. Every day during the year the women assemble beside it to renew their lamentations. At the time the flag is planted the dead man's favourite horse is led up, and half of its long tail is cut off. From that time forward no one mounts it; it is "widowed". Seven days after the death, all the friends and relatives, even those from a distance, assemble in the yurt, hold a funeral banquet together, distribute some of the dead man's clothing among the poor, and consult as to the future of those he has left behind and the guardianship of the property. Then the bereaved family is left alone with its sorrow.

When a woman dies almost the same ceremonies are observed, except that, of course, the body is washed and dressed by women. But even in this case the women remain within the aul to sing the mourning song. The departed woman's riding-horse has its tail cut, but no flag is planted.

When the aul is taken down, a youth selected for the honourable service leads up the "widowed" riding-horse, puts the saddle of its former master reversed on its back, loads it with his clothing, and leads it by the bridle to its destination, carrying in his right hand the lance which bears the mourning-flag.

On the anniversary of the death all the friends and relatives are summoned once more to the bereaved yurt. After greeting and condoling with the women, who are still shrouded in mourning garments, they fetch the horse, saddle and load it in the same manner as when moving the aul, and lead it before the mollah to be blessed. This done, two men approach, seize its bridle, unsaddle it, throw it to the ground, and stab it through the heart. Its flesh serves

as a meal for the poor of the company, its skin falls to the mollah. Immediately after the horse has been killed, the lance is handed to the most important man among the relatives; he takes it, pronounces a few words, breaks the shaft in pieces, and throws these into the fire.

Now the horses come snorting up, eager to prove their speed in the race; the young riders who guide and bridle them start off at a given signal and disappear in the steppe. The bard takes the mollah's place, and commemorates the dead once more, but also extols the living and seeks to gladden their hearts. The women lay aside the singular head-dress, which serves as a sign of mourning, and don their gala attire. After the abundant repast, the vessel of intoxicating milk-wine circulates freely, and sounds of joy mingle with the tones of the zither.

Mourning for the dead is over; life asserts its rights once more.

COLONISTS AND EXILES IN SIBERIA.

Those who regard Siberia as merely a vast prison are as far from the truth as those who look upon it as one immeasurable waste of ice. Russia does indeed send thousands of criminals or others under sentence of punishment to Siberia every year; and there are among these some who, having been convicted of serious crimes against life and property, are not free during the whole of their enforced sojourn. But only a very small proportion of all the criminals are really in confinement for the whole period of their sentence, and every one of them has it in his power to render this confinement less severe, or even to free himself from it altogether by his behaviour, and thus he enjoys advantages which do not fall to the lot of the inmates of our prisons and houses of correction. Wide tracts of the vast territory which is governed by the Russian sceptre, great countries according to our ideas, have never been used as penal colonies at all, and will probably always remain free of those forced immigrants, who cause the settled population much more disagreeableness, not to say suffering, than they have to endure themselves. And along the same paths, which formerly were never trodden save in sorrow, there now pass many free human beings, hoping and striving to better their lot in the distant East. Voluntary colonists join the compulsory ones even in such districts and tracts of country as were formerly dreaded and shunned as the most inhospitable

regions on earth. A new era is opening for Siberia; for blinding fear is gradually being replaced by illuminating knowledge even among those classes of society which are more prone to fear than desirous of knowledge.

The descriptions of Siberia with which we are familiar come, for the most part, from the mouth or the pen of educated exiles, that is to say, from people whom the settled inhabitants call “unfortunate”, and treat as such. Probably only a very small proportion of the descriptions in question are untrue, but they are, nevertheless, inaccurate in most cases. For misfortune clouds the eyes and the soul, and destroys that impartiality which is the only possible basis of a correct estimate of the conditions of life. These conditions are much better than we are accustomed to believe, much better, indeed, than they are in more than one of the mountainous districts of our Fatherland; for the struggle for existence in Siberia is an easy one as far as man is concerned. Want in the usual sense of the word, lack of the ordinary necessaries of life, is here almost unknown, or at least, only affects those whose power of work has been weakened by illness or other misfortune. Compared with the hardships against which many a poor German dwelling among the mountains has to contend during his whole life, without ever emerging victorious from the struggle, the lot of even the convict in Siberia appears in many cases enviable. Privation oppresses only the mental, not the bodily life of the residents in Siberia, for whoever is faithful to the soil receives from it more than he needs, and if any one forsakes it for some of the other occupations customary in the country, he can earn quite as much by the honest work of his hands as he could have reaped from the soil itself. Thus do the present

conditions of life appear to one who studies them with unprejudiced eyes.

I have honestly striven to form an unbiassed judgment on the present conditions of life among the inhabitants of the parts of Siberia through which we travelled. I have descended into the depths of misery, and have sunned myself on the heights of prosperity, I have associated with murderers, highwaymen, incendiaries, thieves, swindlers, sharpers, vagabonds, scoundrels, insurgents and conspirators, as well as with fishermen and huntsmen, shepherds and peasants, merchants and tradesmen, officials and magistrates, with masters and servants, educated and uneducated, rich and poor, contented and discontented, so that I might confirm my observations, widen my knowledge, test my conclusions, and correct erroneous impressions; I have begged the police officers to describe the exiles' lot to me, and have questioned the exiles themselves; I have sought out criminals in their prisons, and have observed them outside of these; I have conversed with peasants, trades-people, and colonists generally, whenever and wherever it was possible, and have compared the statements made to me by these people with the detailed communications made to me by the government officials: I may therefore believe that I gathered as much information as was possible, taking into account the speed and shortness of our journey. In any case, I have collected so much material that I may confine myself solely to the results of my own investigations in attempting to give a rapid sketch of the life of exiles in Siberia. My description will not be free from errors, but it will certainly be a just estimate of the state of affairs.

With the exception of government officials, soldiers,

and enterprising trades-people, chiefly merchants, the stream of emigrants from Russia to Siberia was made up, until 1861, solely of those who went under compulsion: serfs of the Czar who worked in his own mines, and criminals who were sent, chiefly, to those of the state. With the suppression of serfdom, which had a deeper influence on the state of society than was supposed, or than is even now recognized, the emigration of the former class ceased at once. Millions of men were set free by a word from their mild and large-hearted ruler; thousands of them forsook the mines and turned their attention to the fruitful soil, which their relatives had already been cultivating; the Czar's mines were almost depopulated, and even now they have scarcely recovered from the effects of the blow. But the great imperial or crown-estate of the Altai gained, instead of its former colonists, a new element which it had lacked, a free peasantry, not indeed possessing heritable property, but yet at full liberty to cultivate the rich soil. The suppression of serfdom also altered the condition of those tracts of country which had been chiefly colonized by convict exiles, for there, too, it became possible to establish a free peasantry. But here the continuous emigration-stream proves rather a hindrance than an advantage; for in most cases the convicts who are exiled to parts of the country already peopled introduce an element of disquiet among the settled inhabitants, and prevent such hopeful and prosperous colonization as in the crown-estate of the Altai, which has never been used as a convict settlement, and never will be so used as long as it remains the property of the Czar. On the other hand, many voluntary emigrants make their way to the Altai, and on that account the population increases more rapidly there than in the rest of

Siberia.

It is a magnificent tract of country this crown-estate of the Altai, and, as a landed property, it is also remarkable as being the largest which can be found anywhere. For its superficial area may be stated in round numbers at 400,000 square versts, or about 176,000 English square miles. It includes within itself mountain ranges and plains, hill chains and table-lands; it lies between navigable rivers, and contains others which could be made navigable without special difficulty; it still contains vast and utilizable forests, and wealth immeasurable above and beneath the ground. Ores of various kinds have been discovered at no fewer than eight hundred and thirty different places within its boundaries, without taking into account other two hundred and seventy spots at which it has been found, but which have never been thoroughly examined. In the Altai, one literally walks upon silver and gold; for auriferous silver-ore as well as lead, copper, and iron intersect the mountains in veins, more or less rich, but usually worth working; and the rivers flowing from them carry down golden sand. A stratum of coal, whose extent has not yet been determined, but in which a depth of seven or eight yards has been proved in various places, underlies such an extensive tract, that, judging from the composition of the exposed masses of rock, one is justified in concluding that the whole northern portion of the estate stands above a great coal-basin.[86] And yet the real wealth of the estate of the Altai lies, not in its subterranean treasures, but in its rich black soil, which spreads over mountain slopes and plains, and is swept together in river-basins and hollows, so that it covers them to the depth of a yard and a half. Beautiful, often grand, mountain districts alternate with

pleasing hilly tracts of arable land, and gently-undulating plains, which the farmer prefers above all else, steppe-like landscapes with fruitful valleys watered by a brook or river, forests of luxuriantly sprouting trees, low and tall, with groves or park-like shrubbery. The climate, though not mild, is by no means intolerable, and nowhere hinders profitable cultivation of the exceedingly fertile, and, for the most part, virgin soil. Four months of hot, almost unvarying summer, four months of severe continuous winter, two months of damp, cold, and changeable spring, and a similar autumn, make up the year, and though the mean warmth of the best half of the year is not sufficient to mature the grape, it ripens all the kinds of grain which we grow in Northern and Central Germany; and in all the southern portions of the crown property the temperature is high enough to admit of melon culture.

Such is the character of the land which has been free, for more than two generations, from exiled criminals, and which now harbours such colonists as, within certain limits, one would like to see throughout the whole remaining and not less rich and fertile southern portion of Siberia. Of course these farmers of the Altai cannot be compared with our peasants who inherit their land; but they compare favourably with any ordinary Russian peasants. One can see that their fathers and grandfathers have been serfs of the greatest and most exalted Lord of the Empire, not half-slaves of a master who, powerless himself, demands the most absolute subjection; one can also assure oneself in many ways that the lack of landed property has in no wise hindered them from becoming prosperous, that is, from earning more than enough to supply their necessities.

From the time that the Altai was declared the property of the Czar, the lot of its inhabitants was comparatively fortunate, not to say happy. Until their release from serfdom, they had all been employed either in mining, or in some work connected therewith. Those who were not actually in the mines were occupied, some with the felling and charring of trees, others with conveying of the charcoal to the smelting-houses, and others again with the transport of the metal. With the increase of the population the burden of compulsory service became lighter. In the fifties, there were so many able-bodied men available, that the compulsory service to their lord, the Czar, was limited to one month in the year, with the condition, however, that each serf-workman should furnish a horse. The distance which a workman had to cover with his horse was taken into account according to its length. As compensation for absence from home, each serf-workman received 75½ *kopeks* for the period of his work, but, in addition to this nominal pay, he had the right to cultivate as much of the Czar's land as he could, and to till it as he pleased, as well as to cut down as much wood in the Czar's forests as he required for building his house, and for fuel, and he was burdened with no taxes or tribute whatever. The number of workmen which a village was obliged to furnish was in proportion to the number of its inhabitants; the distribution of the burden of service among the different heads of families was left to the members of the community themselves.

The work of the miners was less easy. They were drawn from the towns and villages of the crown-estate, instead of the soldiers levied elsewhere, were treated like soldiers in every respect, and were only freed after twenty-five years of service. They were

divided into two classes: the miners proper, who worked in regular relays, and the workers connected with the mine, who were obliged to perform a certain prescribed amount of work each year, the time being left to their own choice. The latter were engaged in charcoal-burning, felling trees, making bricks, transport, and the like, and they received 14 roubles yearly. Having yielded the required service, they were free for the rest of the year, and might do as they pleased. Those who worked in the mines, on the other hand, were compelled to give their services year in, year out. They worked in twelve-hour relays, one week by day, the next by night, and every third week they were free. Each miner received, according to his capability, from six to twelve roubles a year for such necessaries as had to be paid for in money, but in addition he was allowed two *pood* (72 lbs.) of flour a month for himself, two *pood* for his wife, and one *pood* for each of his children. He was also at liberty to till as much land, and breed and keep as many cattle as he could. Each of his sons was obliged to attend school from his seventh to his twelfth year; from his twelfth to his eighteenth he was engaged as an apprentice, and rewarded at first with one, later with two roubles a year. At the age of eighteen his compulsory service in the mines began.

On the first of March, 1861, the day of the emancipation of all the serfs in the Russian Empire, there were in the crown property of the Altai 145,639 males, of whom 25,267 were at work in the mines or smelting works. All these were released from their compulsory service, not indeed in a single day, but within two years. No fewer than 12,626 of them forsook the mines, returned to their native villages and began to till the soil; the rest remained in the mines as hired labourers.

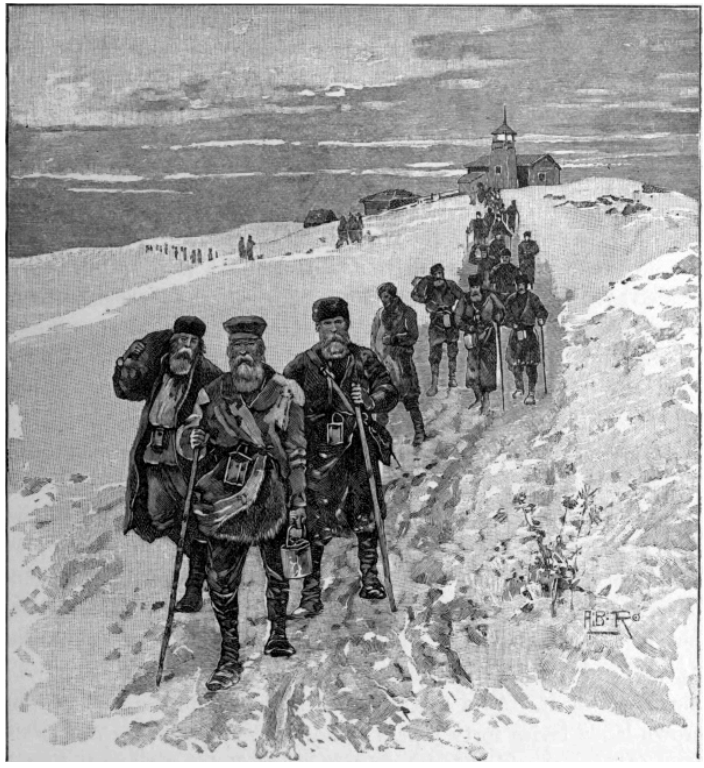


Fig. 74.—Miners in the Altai returning from Work.

I do not think I am mistaken in referring the more comfortable conditions of life on the crown-property of the Altai, as compared with the rest of West Siberia, back to its own past. The parents and forefathers of the present inhabitants, notwithstanding their bondage, never felt oppressed. They were serfs, but of the lord and ruler of the vast land in which the cradle of their fathers stood. They were obliged to labour for their master, and to yield up their sons for nearly a generation to his service; but this master was the Czar, a being in their eyes almost divine. In return, the Czar maintained them, freed them from all the obligations of citizenship,

permitted them to wrest from his land what it would yield, placed no hindrances in the way of their prosperity, protected them, as far as possible, from the oppressions of unjust officials, and was, besides, a benefactor to their children in that he compelled at least some of them to attend school. The officials under whose superintendence they were, stood far above the majority of the servants of the crown as regards culture; nearly all had studied in Germany, not a few were even of German extraction, and brought, if not German customs, at least widened views into the country over which they ruled in the name of the Czar. Even now, Barnaul, the capital of the crown-lands, is a centre of culture such as can be found nowhere else in Siberia; and, while the mining industry was at its best, it was the undisputed intellectual capital of Northern and Central Asia, and the light emanating from it shone the more brilliantly because it found in every mining centre a focus which helped to spread it more widely. Thus the royal domain of the Altai has always held a prominent position among the districts of Siberia.

It was probably never the intention of the administration of the Altai to specially favour the peasant class. Until the suppression of serfdom, at all events, the class was regarded much as a necessary adjunct to the working of the mines. But times have changed. From the day on which the serfs were emancipated, mining has retrograded as steadily as agriculture has advanced. The authorities have not yet been able to make up their minds to abandon the old routine of work, but they have to pay such high sums to get it carried on that the net profit from the mines is now inconsiderable. Throwing open the mines freely to energetic workers, probably the only thorough means of improving the present state of

things, has been proposed in some districts, but is still far from being an accomplished fact. The free use of the soil, as far as the plough penetrates, has been customary so long that it has become, to a certain extent, a prescriptive right. To be sure, as I have already pointed out, no one owns the land he tills, not even the spot on which his house stands, but, in the peasants' eyes, what belongs to the Czar belongs to the "good Lord God", and the latter willingly permits every believer to make use of it. As a matter of fact, the administration of the crown-lands levies forty *kopeks* of annual rent on every *hektar* of land (2½ acres) which is brought under the plough; but it is not particularly strict in the matter, and the peasant on his side does not feel it at all incumbent on him to be very precise. Thus each peasant, in reality, cultivates as much as he can, and chooses it wherever he pleases.

It is doing the peasant of to-day on the crown-lands no more than justice to describe him as well-built, wide-awake, handy, skilful, intelligent, hospitable, good-natured and warm-hearted, and it is not too much to say that his prosperity has given him considerable self-esteem and a certain appreciation of freedom. His bearing is freer and less depressed than that of the Russian peasants. He is polite and obliging, submissive, and therefore easily managed; but he is not servile, cringing or abject, and the impression he makes on a stranger is by no means unfavourable. But he possesses all the qualities which we call loutishness in a high degree, and several others as well, which are calculated to weaken the first impression. Although he has had more educational advantages than any others of his class in Siberia, he is anything but in love with school. He is strictly religious and ready to give up

what he possesses to the Church, but he looks upon school as an institution which spoils men rather than educates them. With a lasting recollection of a former state of things, when the old discharged soldiers, who held the educational sceptre in the times of his fathers, did not scruple to send the scholars for “schnaps”, and even to maltreat them while under its influence, he is exceedingly suspicious of everything connected with “education”. He also clings, peasant-like, to whatever has been in the past, and imagines that more knowledge than he himself possesses will be injurious to his children, and it is by no means easy to convert him from this opinion. The state of education is thus very low. It is only exceptionally that he has acquired the art of writing, and he invariably regards books as entirely superfluous articles. But he clings, on that account, so much the more firmly to the superstition which his Church countenances and promulgates. He rarely knows the names of the months, but can always tell off the names of the saints and their festivals on his fingers: God and the saints, archangel and devil, death, heaven, and hell occupy his mind more than all else. He cannot be described as easily satisfied, yet he is perfectly contented. He does not wish for more than the necessaries of life, and therefore only works as much as he absolutely must. But neither his farm premises nor the fields which he calls his can be too large, neither his family nor his flock too numerous.

“How is it with you here?” I asked, through an interpreter, one of the heads of a village whom we picked up on the way.

“God still bears with our sins,” was the answer.

“Are your wives good, faithful, kindly, and helpful to

you?”

“There are good and bad.”

“Are your children obedient, and do they cause you joy?”

“We have nothing to complain of in regard to them.”

“Is the land you till fruitful; does it yield you a rich harvest?”

“If it yields us corn tenfold, we are content.”

“Do your cattle thrive?”

“We are content.”

“How many horses have you?”

“Thirty-two; there may perhaps be thirty-five.”

“And how many of these do you require for your work?”

“Eight, ten, and sometimes twelve.”

“Then you bring up the rest to sell?”

“I may perhaps sell one of them some day.”

“And what shall you do with the others?”

“*Nitschewo.*”

“How many cows and sheep have you?”

“I do not know. My wife takes charge of the cows, sheep, and pigs.”

“Have you heavy taxes to pay?”

“I am content.”

“Have you anything to complain of?”

“I am content.”

“So you have no complaints whatever to make;

everything is quite satisfactory?"

"No, not everything; I have one complaint."

"What is that?"

"The land is becoming uncomfortable."

"Uncomfortable; what does that mean?"

"Why, it is getting too small for us."

"Too small; in what way?"

"Oh, the villages are springing up everywhere like mushrooms from the soil. One has scarcely room to turn now, and does not know where to lay out one's fields. If I had not been too old I should have left this part."

"The villages spring up like mushrooms from the soil? But where? I see none. How far is the next village from yours?"

"Fifteen *versts*" (ten miles).

Thus does the peasant of the crown estate speak and think. The vast land is not spacious enough for him, and yet the twentieth part of what he has at his disposal would suffice for him if he would cultivate it. For the land is so fertile that it richly rewards even a very small amount of labour. But if it does once fail, if the harvest does not turn out as well as usual, if the peasant suffers from want instead of from superfluity, he regards this not as the natural consequence of his own laziness, but as a dispensation of God, as a punishment laid upon him for his sins.

In reality, however, he is very comfortable in spite of his sins and their punishment, and has more reason to talk of his reward. For not scarcity but superfluity

troubles him. The government allows each peasant fifteen *hektars* of the best land, usually at his own choice, for every male member of his family; but of the 400,000 square *versts* of the crown-estate, only 234,000 had been taken up till 1876, so it does not matter much even now whether a peasant restricts himself to what he has a right to or not. Some families use not less than twelve or fifteen hundred *hektars*, and to these it is certainly a matter of indifference whether they keep only the number of horses necessary for their work, or twenty or thirty more. In reality, it often happens that the superfluous animals relieve the peasants from a heavy care—that of turning to account the over-abundant harvest which the extremely deficient means of transport prevent his converting into money. In a country in whose capital, under ordinary circumstances, the *pood* or thirty-six pounds of rye-meal is sold at sixpence, of wheat-meal at ninepence, of beef in winter at about one shilling and twopence at most; where a sheep costs four shillings, a weaned calf ten, a pig eight, and an excellent horse seldom more than five pounds of English money, an unusually good season lowers prices so far that the too-abundant harvest becomes a burden. When the peasant, who in any case works only when he must, can only get about one shilling and twopence for about two hundredweights of grain, the flail becomes too heavy in his hand, and the harvest, according to his limited ideas, becomes a curse.

These conditions, which apply to the present day, explain most of the vices as well as many of the virtues of our colonist: his laziness, his incorrigible contentment, his indifference to losses, his liberality to the needy, his compassion for the unfortunate. They also explain the intense desire, innate in all

Siberians, to increase the population. The vast land is hungry for inhabitants, if I may so speak. Therefore even now the Siberian looks with pride on a numerous family; and there is no foundling asylum in the whole country. Why should there be? Every woman who cannot bring up the child she has borne, or who wants to be rid of it, finds someone willing and anxious to take the little creature off her hands. "Give it to me," says the peasant to the faithless mother: "I will bring it up;" and he looks as pleased as if a foal had just been added to his stock. In former times, when the population was considerably less than it is now, children were married while still immature, or scarcely mature, so that they might become parents as soon as possible and gain other hands to help them; now youths do not usually marry until the beginning of their eighteenth year, but they frequently wed older women who give promise of early child-bearing, and the designs of such women upon marriageable youths are not only winked at but encouraged by the bridegroom's parents.

In order that romance may not be altogether awanting, I may mention that elopements of young girls with love-struck youths, and secret marriages, are by no means rare occurrences among the peasants of the Altai. But the great majority of these elopements take place with the consent of all concerned, thus also of the parents of both bride and bridegroom—to avoid the customary entertaining of the whole village at a meal, simple in itself, but accompanied by a great deal of brandy. As may be imagined, however, love overcomes all obstacles, particularly the disapproval of parents, on the crown-lands as elsewhere. The maiden, like every other on the round earth, is soon won over by the youth who

desires to run away with her; a holy servant of the Church can also be procured at all times by the payment of an exorbitantly high fee; but the angry parents are not so easily reconciled. The mother curses her daughter, the father his son; both swear by all the saints never to see their depraved children again.

> "And Heaven, full of kindness,
> Is patient with man's blindness."

But it is not from above that the reconciliation comes; that is brought about by a magic power beyond compare, known as *schnaps* among the races who inhabit German territory, as *vodki* among those living on the sacred soil of Russia. As soon as the father-in-law drinks, the young bridegroom has gained the day; for the mother-in-law drinks too, and the luscious nectar softens her inflexible heart also. If some friends arrive, as if by chance, to assist at the reconciliation festival, they are not denied admittance, for the cost of entertaining them is much less than if the whole village had assembled, and, drinking fervently, had called down the blessing of Heaven upon the newly-united pair. Who can deny after this that love, pure, holy love, makes even a peasant youth of the Altai inventive?

The bride of the Altai receives no dowry; her mother, on the other hand, expects a gift from the bridegroom, and sometimes demands it with much storming, weeping and howling, after the manner of women. Only under special circumstances, as, for instance, when, on the morning after the wedding, the nuptial linen does not fulfil the expectations of the assembled guests, the contrary takes place. The intelligent and experienced father-in-law makes use of the magic means already mentioned, produces an

inspiriting number of bottles thoughtfully laid in beforehand, promises the indignant, or at any rate downcast son-in-law a foal, an ox, a sucking-pig, and the like; the minds of all are made easy again, and the reconciliation is effected.

And why should the bridegroom be angry for ever? Others have fared no better, and the future will equalize much. Paternal joys often blossom even under irregular circumstances, and they are paternal joys all the same. For even the poorest couple have no cares about their household expenses, if they will use their hands at all; people are willing to help them with this and that, and if a bountiful Heaven will only be moderate enough for a few years in the outpouring of its blessings, so that the price of grain and stock may not fall too low, a tea-caddy and cups will adorn a corner table, and silk coverlets the big double-bed, shining images the right-hand corner, and indescribably noble pictorial representations of the hunting of the lion, tiger, bear, wolf, elephant, stag, and crocodile the walls of the cleanly-kept “best room”, which is never awanting in the better class of peasant houses.

A domestic life scarcely differing from that already described beckons to every convict who is exiled to Siberia, to one sooner, to another later, if he wishes to attain to it, if he lives long enough, and is to a certain extent favoured by fortune. While in Siberia I came to have views about exiles and banishment very different from those I had held before visiting the country; but I may remark at the outset that I am not one of those who bestow more sympathy upon a murderer, a robber, an incendiary, a thief, or any other scoundrel, than upon the industrious paterfamilias who strives, in the sweat of his brow,

to bring up a numerous family honestly, and that I have never been able to soar to that loftiness of view which seeks to mitigate all punishment and relax all confinement.

On an average, fifteen thousand people are sent from Russia, “verschickt”, as the expression is among the German Russians. Those who have been guilty of grave crimes are sentenced for life, of less serious offences for a number of years. It is not within my province to discuss the severities or deficiencies of the Russian penal code; but the fact that the penalty of death is imposed only for the gravest and rarest of all crimes does not suggest too great severity. But it is undoubtedly a hardship that exiles sentenced for political causes should be treated on the way to Siberia, and often when there, exactly like common criminals.

Condemned exiles are first transferred from the prison in the district town to that in the capital of the government, and thence transported by rail or by the ordinary peasant-wagon to Nijni-Novgorod, Kasan, or Perm. Whether criminals are still forced to march in chains, two abreast, and thus to carry their fetters for the whole journey, I do not know; I have never seen this, and I am firmly convinced that the well-known mildness of the late Czar would never have suffered this barbarous proceeding. In the towns already mentioned, as well as in Tjumen and Tomsk, there are spacious prisons, and, at intervals along such routes as have not been deserted because of the railway, there are less roomy buildings for the safe housing of the exiles during night. Whenever it can be avoided, the exiles are not compelled to travel on foot, but are conveyed to their destination by rail, by the wagons already referred to, or by regularly

plying steamers: thus from Nijni-Novgorod or Kasan to Perm, from Tjumen *via* Thura, Tobolsk, Irtish, Ob, and Tom, to Tomsk. The prisons are simple buildings, but thoroughly clean; the hospitals connected with, but sufficiently far apart from them, are model institutions; the river-boats are unusually long, two-decked vessels, which may best be described as gigantic floating cages, for the whole upper portion above the deck is latticed after the fashion of a bird-cage. Each of these boats, which is towed by a steamer, affords the necessary accommodation for six hundred persons, and contains also a large kitchen, a sick-room, a small dispensary, quarters for the accompanying soldiers and for the crew. Between Perm and Tjumen run wagons, which also resemble bird-cages, and which serve for the transport of dangerous criminals.

Every exile receives from government a cloak of heavy gray woollen material, in the middle of the back of which is fastened a diamond-shaped piece of cloth of colours varying with the length of the sentence, so that the soldiers in charge may be acquainted with it as far as is necessary. For procuring food on the journey, ten, or in the case of "unfortunates" of higher social standing, fifteen *kopeks* a day are allowed to each; but during a prolonged stay in prison the rate is seven and fifteen respectively. This sum is so liberal that, if spent with care, it suffices to procure all the necessaries of life, although every day, except during Lent, three-quarters of a pound of meat are served out to each. If wife and children accompany a condemned criminal, each of these receives a similar sum. Additional earning is permitted, and money gained by work or begging flows, though perhaps not quite untaxed, into the pockets of the condemned himself, or down

his throat in the form of vodki.

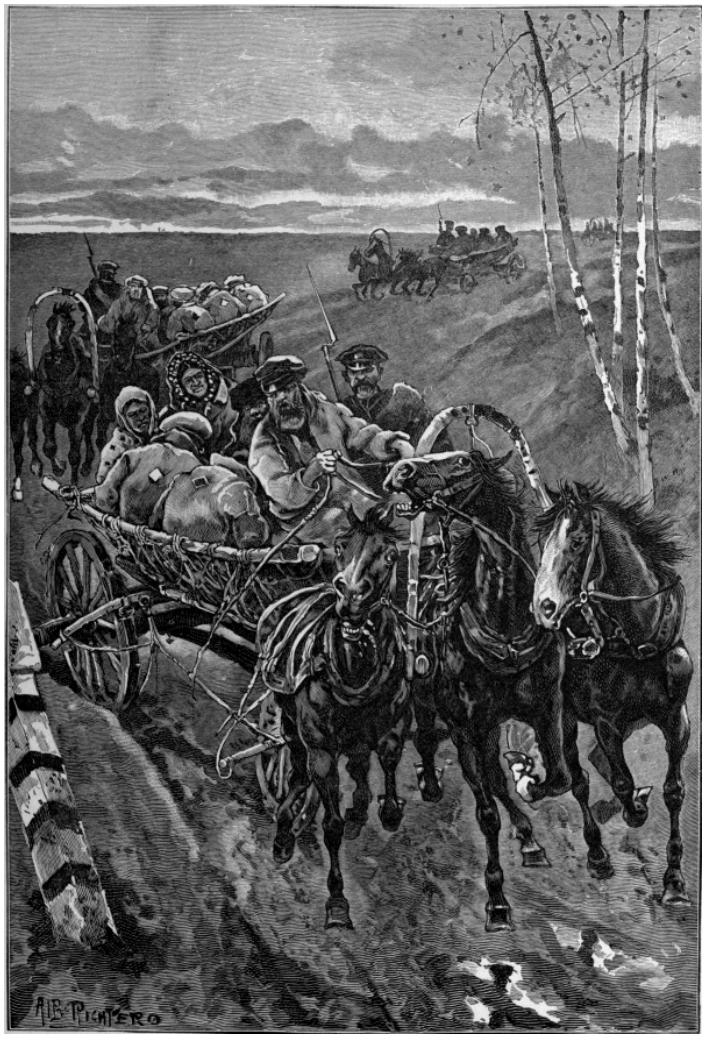


Fig. 75.—Exiles on the Way to Siberia.

I said that everyone was at liberty to take his wife and children with him into exile, and I may add that he usually does so. A long sentence of imprisonment for a serious crime is a ground of divorce even in

Russia; every married woman is, therefore, free to choose whether she will accompany her husband into exile, or remain in her native land. Even children who have attained their fourteenth year have the right to decide for themselves whether they will leave Russia for Siberia with their parents or not. But the government prefer that wife and children should accompany the criminal, and they encourage it in every possible way, therefore they give much consideration to the question of how far it is practicable to lessen the difficulties and disagreeablenesses of the journey.

That it is oppressive under all circumstances cannot be denied; but the journey of the exiles is by no means so indescribably dreadful as it has been depicted. Only those convicted of the gravest crimes are conducted to their destination in chains; the rest enjoy more freedom than our convicts. The portion of the journey which has to be performed in the steamers or the boats they tow is the worst. Here all the exiles and their families are cooped up together, and excesses of all descriptions are committed by the most degraded criminals, who are only, or can only, be kept under sufficient restraint in rare cases. The expert thief steals from the bungler in the same disreputable calling, the more violent overpowers the weaker, or takes the soles off the boots of a sleeper to possess himself of the bank-notes supposed to be hidden there; the incorrigible shakes the resolution of the penitent, or destroys utterly those who had previously given ground for hopes of improvement. Male and female criminals are now separated from each other, but the members of a family remain with their head, and the wife and daughters of an exile are always in danger during the journey, no matter what attempts are made to avoid this. On the other

hand, the steamer shortens the journey tenfold, and thus removes those who are not irretrievably ruined, and those who are not criminals, so much the sooner from evil influences. More difficult, certainly, yet less dangerous to the more hopeful criminals, is the journey by land. Driving along Russian roads in a Russian peasant-wagon drawn by galloping Russian horses is certainly a species of torture according to our ideas; but it is not so to those who have, from their youth upwards, been accustomed to no better conveyances or smoother roads. To be sure, the exiles are more closely packed in a wagon holding six or eight people than the peasant packs his when he drives with his family; the driver or the accompanying soldier is in no way more comfortable than the convicts, with the exception of the worst criminals, whose chains jar more uncomfortably than usual on such a journey. An exile belonging to a cultured family, and convicted, for instance, on political grounds, cries out under the torture of such a journey, and is fully justified in depicting it in the blackest possible colours from his own point of view; but if we take into account the local conditions, and the customs of the country, we must at least acquit the directors of these forced journeyings from the charge of cruelty under which they lie. And as for the journeys on foot, these never take place in winter, it is only strong and able men who are forced to make them, not more than forty *versts* a day are traversed, and every third day is spent in resting at one of the prisons on the way. The soldiers in charge walk too, they must keep constant watch over the prisoners for whom they are responsible, and must therefore exert themselves much more; for if the murderer has to drag his chains, the soldier has to carry his weapon, baggage, and ammunition. He,

however, is the irreproachable servant of the state, the other an outcast from society!

But it is certainly unjust that an exile of higher social position who has been convicted of a common crime should, if he has still means at his disposal, or can obtain them, be treated otherwise than one of lower degree, who is sentenced for the same crime. The former is permitted to travel to his place of banishment at his own time, and with every comfort, guarded only by two Cossacks, whom he must pay for the double journey.

While every unbiassed Russian or Siberian admits this injustice frankly, officials and exiles alike deny that there is cruelty on the part of the escorting soldiers, or of any other persons, whether of high or inferior rank, who are intrusted with the guardianship and government of the convicts. It does happen that mutinous exiles are shot or killed in some way on the journey; but such events occur very rarely, and only when all other means of quelling insubordination have failed. The Russian is not cruel like the Spaniard, the Turk, the Greek, or the Southern Slav; on the contrary, a mistaken compassionateness and sluggishness makes him mild and considerate rather than severe and harsh; he may force men and animals to exert themselves to the utmost, but he does not torture them in order to gloat over their torments. Even the name “unfortunate”, by which it is customary to describe all exiles, originates in a feeling deeply rooted among the people, and this feeling of compassion is shared by everyone, including soldiers and police-officers, and the inspectors and warders of the prisons. That even the most long-suffering and lamblike patience may now and again be excited to angry rage by one

or more miscreants is intelligible enough; that miserable wretches at the convict stations levy tax even on misfortune in order to gain more money than the state promises them in salary, I was informed by some of the exiles; that the rebels who were sentenced to exile after the last Polish rebellion were treated by the accompanying soldiers more harshly than other exiles, indeed with pitiless severity, was the complaint of a former gendarme who told me the story of his life through a German-Russian interpreter. But to make the present government responsible for such excesses, to reproach them with constant barbarity, to persist in talking about the knout, which was abolished years ago, and in general to represent our Eastern neighbours as incorrigible barbarians, is simply senseless, because in every respect untrue.

All the laws, regulations, and arrangements in force at present prove that the government takes all possible thought for the exiles, and strives to render their lot less hard, and moreover gives to each an opportunity of sooner or later improving his lot. To treat exiles with unjust severity is strictly forbidden and heavily punished; to take anything unjustly away from them is looked upon as a grave offence. Everywhere there reigns the desire to lessen the severity of the punishment if it can be done, to give the convict back to human society, if that be possible. But it is only those who really deserve help that receive it, not those who pretend improvement. For they do not make hypocrites in Siberia as we do in our prisons. The mania for making prisoners canting hypocrites, which is too often seen among us, is unknown among the Russians, for they take it for granted that everyone honours and reveres the Church and the “dear saints”, fasts at the proper

season, and generally performs what little is demanded by a church which is based wholly upon external forms. On the other hand, they deal with evil in the right way, and they achieve results which we might, nay, must envy.

Of the fifteen thousand banished, scarcely one thousand are sent to work in the mines each year; the rest are distributed among the different governments, being, as it is called, exiled to become colonists. In the larger prisons not only are men and women separately confined, but Christians, Mohammedans, and Jews are kept apart, and religion is taken into consideration in distributing the colonists. Whenever the convict sentenced to one of the lighter penalties has reached the place of his destination, he is presented, on behalf of the government, with a certificate of permission to reside there, and is thenceforward free to pursue any lawful calling; but he may not leave his district, or even his village, without the permission of the authorities, and he is under the constant surveillance of the police. About the reason for his banishment, or about his earlier life, he is never questioned, at least never with malevolent intentions, for “in the house of the hanged one does not speak of the hangman”. The people among whom he lives are, or have been, themselves unfortunates, or are descended from exiles; the few free settlers adopt the manners and customs of the other Siberians. The “unfortunates” are helped in every justifiable way. Even in the prisons on the way there are workshops where industrious prisoners may earn a little; schools also are established to prevent the ruin of the rising generation, and the orphans of criminals are brought up at such an expenditure of time and money that only the wilfully blind can fail to see this gleam of

light, only the maliciously dumb refrain from speaking of it. In the prison at Tjumen we visited the prison school, in which a young priest imparted instruction to Christian, Jewish, and Tartar children alike, and it was a good face, a veritable head of Christ, that this long-haired and bearded, though still youthful ecclesiastic showed us. To be sure, the Jewish and Tartar boys had to read and repeat the catechism of the Orthodox Church as well as the Christian children, and a quiet hope of winning one or another of the former to Christianity may perhaps have lived in the breast of the priest; but what harm could priest or catechism do compared with the advantage gained? The boys learned to read Russian by means of the catechism, and they learned writing and arithmetic as well; that was the main thing. In the same place we visited an orphan asylum founded, built, and for the most part maintained and conducted, by a wealthy lady, and destined for the children of exiles who died on the journey or in the town prisons. It was a model institution in the best sense of the term, with happy child-faces, beautiful school-rooms and dormitories, workshops and play-rooms, a little theatre with all the necessary appurtenances, the whole a work of mercy whose value cannot be gainsaid. But we were to learn more than this.



Fig. 76.—Interior of a Siberian Peasant's Dwelling.

In Tjumen, Omsk, Tobolsk, and not only in the towns, but throughout the various governments, we lived among and had constant intercourse with exiles who had for the most part been convicted of lighter offences, thieves, cheats, sharpers, tramps, and vagabonds, as well as with seditious Poles and other rebels. The bank director who received us hospitably was a Polish rebel sentenced to twelve years' banishment, and the joiner who made us some boxes had robbed the post; the coachman who drove us had been guilty of a serious theft; the waiter who

served us had picked the pocket of a guest in an inn; the friendly man from Riga who helped us to cross the Irtish had forged a document; Goldmacher, our Jewish valet, had sold little Russian girls to Turkish harems; the maid who cleaned our room had killed her child; the chemist in Omsk was said to have dealt in poisons with no good intentions. After a time we looked at every one in the light of the crime or misdemeanour which he might have committed, and we had only to inquire of the superintendent of police about some worthy men, among whom were merchants, notaries, photographers, actors, to hear of false coining, embezzlement, fraud, and so on. Yet all these people earned their daily bread, and something over, and many a one who wished to remain unknown would not have suffered inquiries as to his past to go unpunished, because he had completely broken with it.

That an exile who has been a criminal can thus break with his past is due entirely to his fellow-citizens and the government, who strive, by every means in their power, to further all honest endeavours to begin a new life. Those who desire work get it without mistrust; they are taken into service without anxiety; the former thief is employed as groom, coachman, or cook; the child-murderess is hired to wait upon children; the convict artisan plies his own trade when his services are required. And we are assured that those who employ them have seldom reason to regret it. Thus many a criminal is gradually restored to society as a respectable citizen, and his sins are not visited upon his children to the fourth, indeed scarcely to the second generation. What is practically impossible with us is quite possible in Siberia—to transform a criminal into an honest man. That this

does not always succeed, that there are incorrigibles in Russia as well as among us, is freely admitted by the Siberians themselves; but it is a noteworthy fact that the idler who is cast off by his community in Siberia falls into crime much more readily than the criminal who has suffered punishment relapses into his former habits.

While the class of exiles whom we have hitherto considered are allowed to follow any occupation they may choose, those who have committed graver crimes are compelled to labour in the mines. With regard to Nertschinsk, in which on an average four thousand of these unfortunate exiles work, I have obtained through General von Eichwald, the present superintendent of the mines on the crown-lands, the most precise information, and what I learned about the convicts themselves may be shortly related as follows:—

All the criminals who are condemned to the mines are brought thither in chains, and are obliged to perform the same amount of work in their fetters as the miners who are free. The intelligent overseer of the mine, under whose command and surveillance they are, treats them well if only to secure his own life and the lives of his family, for he has not sufficient forces at his disposal to quell an insurrection should one arise. The crime of each convict is made known to him; so he asks no questions of the convict himself with regard to his past. But after some time the great majority pour out their hearts to him and beg for a mitigation of punishment. The families of a criminal condemned to the mines are also allowed to follow him, or he is not prevented from forming family ties. If he is bound to humanity in this way, he often, very often, becomes

penitent, and with repentance awakens the hope that the past may be forgotten, followed by the endeavour to make it so. He works one, two years in chains, conducts himself well, and thus awakens confidence. His superior orders his fetters to be removed. He remains true to his resolutions, continues to work diligently, and begins to take thought for his family. This binds him fast to the land he had dreaded so unspeakably at first; it turns out not so bad as he had expected, and he begins to grow contented. Now is the time to restore him to society. The overseer gives him permission to till the soil. Years have passed since his crime was committed; he only remembers it like an evil dream. Before him he sees a growing peasant-estate, behind him his chains. His native land seems strange to him now, and he has become reconciled to the foreign one. He becomes a peasant, works, earns money, and dies a reformed man. With his death the bondage of his children ceases, and they continue as free Siberian subjects to till the piece of land with which the government presents them. This is no invention, but reality.

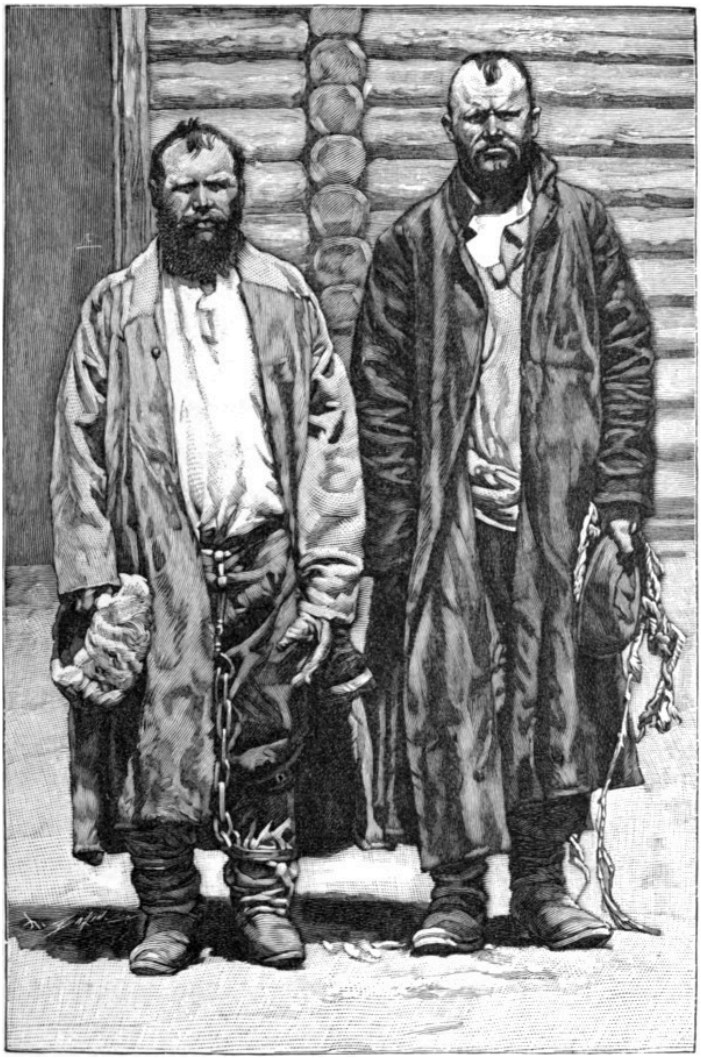


Fig. 77.—Types of Siberian Convicts—“Condemned to the Mines”.

Not every criminal, however, thus submits to his fate. Full of resentment against it and against all mankind, discontented with everything and everyone, tired of work, perhaps also tortured by home-sickness, or at least pining for freedom, one

finds out another in similar mood, and both, or several, resolve on flight. For weeks and months, perhaps for years, they watch for a favourable opportunity; one relates to the other over and over again the story of his life, describes to him in the most minute detail his native village, the locality and the house in which he spent his childhood, teaches him the names of his relations, of the people in the village, of the neighbouring villages and the nearest towns, omitting nothing, and impressing it all deeply on the mind of his comrade, who does the same to him, for they intend to exchange names and histories to render identification less easy in case of capture. A smith is bribed, won, persuaded to flight, and a tool to break the fetters is found, or, if need be, stolen. Spring has become a reality, the day of flight has come, and escaping without much probability of being missed for a few hours is very easy under the present system in the mines. If the fugitives reach the forests they are safe from recapture, but by no means from other dangers. For a wandering native Yakoot or Tungus hunting in the forest may be tempted by the sight of a fur-coat better than his own, and for its sake his sure bullet remorselessly ends a human life. Apart from such misadventures, the fugitive meets with scarcely any hindrance. For every Siberian, from innate good-nature, or compassion wrongly bestowed, perhaps also from fear or laziness, is more ready to help a fugitive than to hinder his flight. In all, or at any rate in many of the villages on the route, the villagers place a can of milk, a large piece of bread, and perhaps even a piece of meat behind an open window to furnish the fugitive who may pass through their village by night with food, and thus to prevent his stealing. So long as the fugitive takes only what is freely offered to him, so long as he

begs for what he needs, refrains from seizing things forcibly, and neither steals nor robs, even the district-governor shuts an eye when unknown people travel by night through his village, appropriate the food intended for unfortunates, and seek and find a night's rest in the baths, which are always warm, and always stand apart from the other buildings. And though an "unfortunate" should beg in broad daylight, no one will betray him; should the same "unfortunate" beg for a bridle, no one will refuse it who has one to spare. What he wants the bridle for they know well enough. Outside of the village the horses are grazing, untended by anyone notwithstanding wolves and bears. The fugitive walks up to the herd, throws the bridle over the head of a capable stallion, swings himself up on its broad back, and trots comfortably away.

"Nikolai Alexandrovitch," someone announces to the owner of the horse, "an unfortunate has just seized hold of your best black horse, and ridden away towards Romanowskaja; shall we follow him?"

"*Nitschewo*," answers Nikolai, "the little horse will come back; it is probably an unfortunate. Let him ride."

And the little horse does come back; for in the meadow behind Romanowskaja the "unfortunate" had exchanged it for a fresh one on which to continue his journey, while the black horse trots complacently home along the familiar road.



Fig. 78.—Flight of an Exile in Siberia.

Thus aided and abetted, ninety out of a hundred fugitive exiles reach Tjumen, Perm, and even Kasan. If they were more experienced in travel, or had some idea of geography, if they did not always keep to the same routes by which they travelled from Russia, very many, if not most of them, would reach their goal in safety. But in Tjumen, Perm, or Kasan nearly all are recaptured. And even if those who have exchanged names do not forget their *rôle*; or if others answer only "I don't know" to every question, neither exchange of name nor obstinate ignorance will save them ultimately from the sentence to return to Siberia, nor from the strokes of the rod which are meted out to every recaptured fugitive. The captive

has to traverse a second time the penal route, possibly only to make another attempt at escape shortly after his arrival. I am told that many exiles have travelled thus four, five, even six times through the greater part of Siberia.

Fugitives who yield to the temptation to steal or commit some other crime on the way, come to an untimely end. In such cases the good-nature of the peasant-villagers is transformed into revengeful anger. If he is taken, nothing will save him from an agonizing death. Then a corpse is found on which no marks of violence are noticed. The body is buried, and the finding and burial are duly notified to the magistrates, who inform the governor, and he, in his turn, communicates with the governor-general, but the unhappy victim of popular fury has rotted in his grave before the government medical officer could reach the spot, even if he wished to do so. Upon whom this vengeance has fallen no one knows. In this way, but not by order of the government, an exile may disappear, and no one can tell what has befallen him, no authorities are able to give any information. But every exile who is sent to Siberia knows what awaits him if he should steal or commit any crime when a fugitive. And for this reason it is possible to live here, in the midst of thousands of criminals, as securely as anywhere else, perhaps more securely than in our great towns which contain the scum of humanity.

I have attempted to give a faithful picture of the conditions which hold now, or which held in 1876. [87] It has not been my intention to soften or embellish. Banishment to Siberia is in all cases a severe punishment. It is more severe in proportion to the culture of the person on whom it falls, and in the

eyes of an educated man it must always seem terrible. But banishment to Siberia was never meant to be other than a punishment, and it was meant to fall more heavily on the educated than on the uneducated. The justice of such a principle may be disputed, but it cannot be entirely denied. It is only possible, however, to form a fair idea of the lot of exiles in Siberia when we compare it with that of our own criminals.

What becomes of the unhappy beings who people our prisons? What becomes of their families, their wives, their children? What fate awaits the prisoners when their time of imprisonment has expired; what have their families to look forward to?

Answers to these questions can be given by all who are acquainted with our penal institutions.

If the unhappy lot of our criminals be compared, honestly and without prejudice, with that of the exiles in Siberia, the result will not be doubtful. Every true friend of humanity must echo the wish which came to me in the distant East, and which has never since left me:

“If only we had a Siberia too: it would be better for our criminals, and better for ourselves”.

AN ORNITHOLOGIST ON THE DANUBE.

Hungary was, and is, and will continue to be one of the goals of the German ornithologist's ambition. Situated more favourably than any other country in Europe, lying as it does between the North Sea and the Black Sea, the Baltic and the Mediterranean, the great northern plain and the Alps—including within its boundaries both the North and the South, steppes and mountains, forests, rivers, and marshes—it offers great advantages and attractions to resident and wandering birds alike, and thus possesses a richer bird-fauna perhaps than any other country in our quarter of the globe. Enthusiastic descriptions of this wealth, from the pen of our most illustrious investigators and masters, have contributed not a little to increase and strengthen the longing—I would almost call it inborn—that all the bird-lovers of Germany have to see Hungary. It is strange, however, that this beautiful, rich country, lying so near to us, has been so rarely visited by Germans.

I myself had seen only its capital and what one can see of the country from the railway; I therefore shared most thoroughly in the longing of which I have just spoken. It was to be fulfilled, but only to return even more ardently thereafter. "None walks unpunished beneath the palms", and no lover of birds can spend May-tide in Fruskagora without having for ever after a longing to return.

"Would you like," asked my gracious patron, the Crown Prince Rudolph, "to accompany me to South Hungary for some eagle-shooting? I have definite reports of perhaps twenty eyries, and I think that we should all be able to learn much, if we visited them and observed diligently."

Twenty eyries! One must have been banished for long years on the dreary flats of North Germany, one must have gloated over the bright pictures raised in one's mind by the glowing reports of some roaming ornithologist, to appreciate the joy with which I agreed to go. Twenty eyries, at no very great distance from Vienna and not far from Pesth: I should not have been my father's son had I remained indifferent. The days seemed hours when we were busy with all sorts of preparations, and again they seemed to lengthen out into weeks, such was my impatient desire to be off.

It was but a small travelling party that started from Vienna on the second day of the Easter holidays (1878), but we were merry and hopeful, eager for sport and energetic. Besides the august lord of the chase and his illustrious brother-in-law, there were but three—Obersthofmeister Count Bombelles, Eugen von Homeyer, and myself. A day later, at Pesth, we got aboard the swift and comfortable vessel which carried us towards the mouth of the "blonde" Danube. In Lenten mist suffused with morning sunlight, the proud Kaiserburg stood out before us, and the gardens of the Bloxberg were bright with the first green of the young year, as we took leave of the capital of Hungary.

With the scenery of the Rhine, of the Upper, or even, it is said, of the Lower Danube, the stretch of country through which we were now rapidly borne cannot be

compared. A few kilometres below the sister towns the banks become flat, the hills on the right side of the stream sink into featureless heights, and only in the dim blue distance does the eye catch the gently curved lines of moderately high ranges. From the left bank extends the broad plain. Without end, without change, it stretches in uniform monotony; hardly one of the large, rich villages is conspicuous enough to catch the eye. Here and there a herdsman in shepherd's dress leans on his strong staff, but his charge is not a flock of simple sheep; grunting, bristly pigs crowd around him—how brown with the sun he is!—or lie in rows about him enjoying comfortable rest. Around the pools filled by the floods the lapwing flutters; over the broad flats the hen-harrier wings its unsteady flight; the martins sweep in and out of their nests burrowed in the steep banks; dainty water-wagtails trip about on the shingle-roofs of the innumerable boatmills; ducks and cormorants rise in noisy alarm from the stream; while kites and hooded crows fly in circles over its surface. Such is a picture of this region.

Soon, however, the landscape changes. The alluvial plain, traversed by the river which made it, broadens out. Over the flats, not yet protected by dikes, and submerged by every flood, the river extends in numerous, for the most part nameless branches. A luxuriant growth of wood clothes the banks and islands, and as the fringe is too dense to allow any glimpse of the interior, this meadow-wood bounds the view for mile after mile. Variable and yet monotonous are the pictures which appear and disappear, as in a dissolving view, while the ship follows the windings of the stream. Willows and poplars—white, silvery, and black—elms and oaks, the first predominating, the last often sparse in their

occurrence, form the material of these pictures. Above the dense fringe, which consists almost wholly of willow, there rise older trees of the same kind; beyond these in the woods, which often extend far inland, rise the impressive crowns of lofty silver poplars and black poplars, and the bald heads of old gnarled oaks. A single glance embraces all phases of tree-life from the sprouting willow-shoot to the dying giant—trees living, sprouting, growing, and exultant in the fulness of their strength; trees withered at the top, victims of fire from the heavens or from the earth and half reduced to tinder; trees prostrate on the ground, crumbling and rotting. Between these we see the gleams of flowing or standing water; above all is the great dome of heaven. In the secret shades we hear the song of the nightingale and the finches, the lyrics of the thrush, the shrill cry of falcon or eagle, the laugh of the woodpecker, the raven's croak, and the heron's shrill shriek.

Here and there is a glade not yet overgrown, a gap in the wood and through which we catch a glimpse of the landscape in the background,—of the broad plain on the right bank of the stream, and the fringe of hills in the distance, of an apparently endless succession of fields, from which at distant intervals rise the church spires which mark the scattered villages or, it may be, townships. In summer, when all is of one predominantly green hue, in late autumn, winter, and early spring, when the trees are leafless, this shore landscape may seem almost dull; now it is monotonous, but yet not unattractive, for all the willows and poplars have young leaves, or in many cases catkins, and, here and there at least, they make the woods gay and gladsome.

Only at a few places is such a wood as this

accessible; for the most part it is a huge morass. If one attempts, either on land or by waterways, to penetrate into the interior, one, sooner or later, reaches a jungle which has no parallel in Germany. Only on those spots which are raised above the level of the river, and which have a rich, in part muddy soil, is one reminded of German vegetation. Here lilies of the valley, with their soft, green leaves and fragrant, white bells, form a most decorative carpeting, covering the ground for wide stretches; but even here the nettles and bramble-bushes grow in wanton luxuriance, and various climbing plants spread their tangled net over wide areas of the forest, so that almost insuperable obstacles and barriers prevent further progress. In other places the wood is literally a bog out of which the giant trees rear their stems. Mighty stems indeed, but many—victims of old age, tempest, thunderbolt, and the careless herdsman's fire—lie rotting in the water, already forming, in many cases, the soil from which rises a younger and vigorous growth of underwood. Other trees, which have not yet succumbed to decay, lie prostrate and bar the way. The wind has swept the fallen wood, both thick branches and delicate twigs, into floating islands and obtrusive snags, which present to the small boat obstacles not less difficult than those which obstruct the explorer on foot. Similar floating islands, composed of reeds and sedges, form a deceptive covering over wide stretches of water. Raised mud-banks, on which willows and poplars have found a suitable soil for their seeds, have become impenetrable thickets, disputing the possession of the ground even with the forests of reeds which are often many square miles in extent. Dwarf willows, at once youthful and senile forests, form dark patches in the heart of the reed-

beds. What may be concealed in the gloomy wood, with its bogs and thickets, or by the reeds, remains almost quite hidden from the searching eye of the naturalist, for he can see through no more than the fringe of this wilderness, nor traverse it except along the broader waterways.

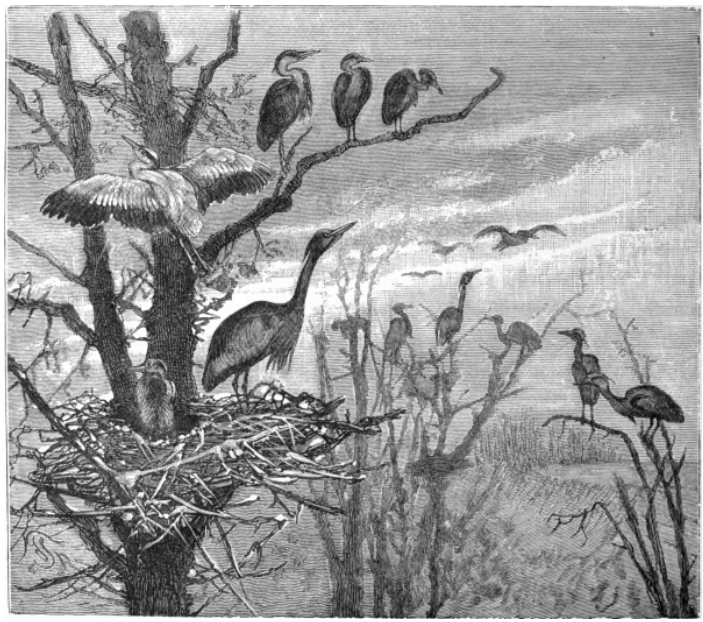


Fig. 79.—Herons and their Nests.

Such was the district in which our sport began. The eagles, the royal rulers of the air, which formed the primary object of our quest, did not, indeed, come within range, nor even within sight, on the first day of our journey; but, on the other hand, we visited the famous heronry on the island of Adony, and had abundant opportunities of observing the life of the brooding birds. For two generations, herons and cormorants have nested on the tall trees of the island, among the much older residents—the rooks; and, though the cormorants have greatly diminished

in numbers since the beginning of the sixties, they have not yet entirely disappeared. Forty years ago, according to Landbeck's estimate, there nested here about one thousand pairs of night-herons, two hundred and fifty pairs of common herons, fifty pairs of little egrets, and a hundred pairs of cormorants; but now the rooks, of which there are from fifteen hundred to two thousand pairs, form the great bulk of the colony, while the common herons have dwindled to about a hundred and fifty, the night-herons to thirty or forty pairs, the egrets have disappeared entirely, and only the cormorants remain in approximately the same numbers as formerly. Yet at least an echo of the former life rang in our ears as we set foot on the island, and here and there the forest still presents the old picture almost unchanged.

The various birds in such a mixed heronry appear to live in the best accord, yet there is neither peace nor friendliness among them. One oppresses and supports, plunders and feeds the other. The herons invade the rooks' colonies to save themselves the labour of nest-building; the rooks collect twigs and build their nests, and the herons drive them away, that they may take forcible possession of the nests, or at any rate of the building material; the cormorants dispute with the herons the possession of the stolen booty, and finally assume despotic authority over the entire colony. But even they, thieves and robbers as they are, are plundered and robbed in their turn, for the crows and kites—the last being seldom absent from such settlements—feed themselves and their young to no slight extent on the fish which the herons and cormorants have brought for the sustenance of their mates and young. The first meeting of the various kinds of brooding birds is

hostile. Violent and protracted battles are fought, and the ten times vanquished renews hostilities for the eleventh time before he learns to submit to the inevitable. But in time the inter-relations are better adjusted, as the individual members of the colony recognize that there are advantages in social life, and that there is room enough for peaceable neighbours. Fighting and quarrelling never cease entirely, but the bitter war of species against species gives place gradually to conditions which are at least endurable. The birds become accustomed to each other, and make use of the capabilities of their adversaries as far as may be. It may even happen, indeed, that those who have been plundered follow those who have robbed them when the latter find it necessary to change their brooding-places.

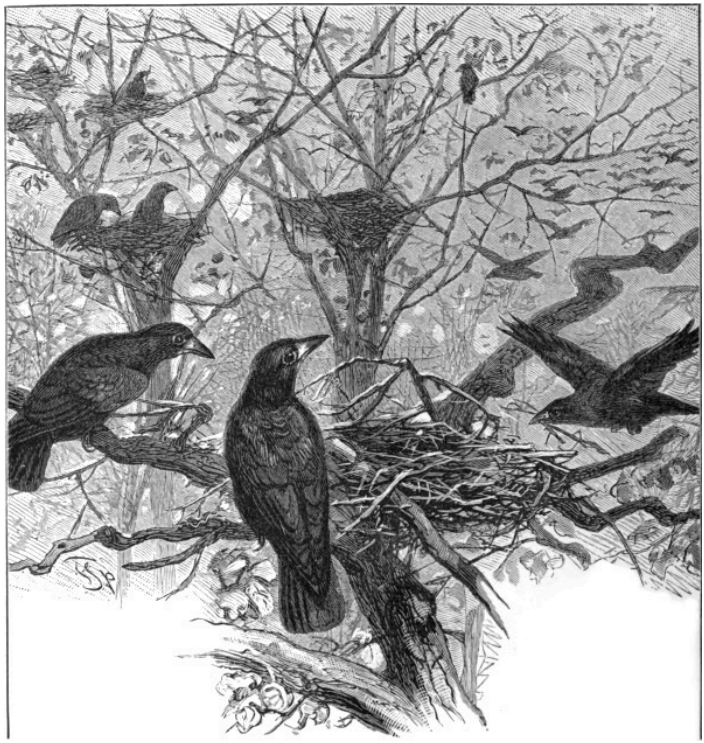


Fig. 80.—Rooks and their Nests.

The spectacle of a mixed heronry is fascinating in the highest degree. “There is hardly anything”, writes Baldamus, “more varied, more attractive, more beautiful, than these Hungarian marshes with their bird-life, which is remarkable both for the number of individuals and for their variety of form and colouring. Let any one look at the most conspicuous of these marsh-dwellers in a collection, and then let him endeavour to picture them to himself standing, walking, running, climbing, flying, in short, living, and he will be obliged to admit that such bird-life is marvellously attractive.” This description is correct even if it be applied to the impoverished island of Adony. Much as its once teeming population has

dwindled, there are still thousands and thousands of birds. For long stretches of the forest every high tree bears nests, many having twenty or thirty, and all about these is the noisy bustle of sociable bird-life. Upon the nests sit the female rooks, common herons, night-herons, and cormorants, looking out with dark, sulphur-yellow, blood-red, and sea-green eyes upon the intruder who has invaded their sanctuary; sitting and climbing on the topmost boughs of the giant trees, or fluttering, flying, floating above them are black, brown, gray, one-coloured and many-coloured, dull and shimmering bird forms; above these, kites are circling; on the trunks woodpeckers are hanging, hard at work; sleek, gleaming white-throats are seeking their daily bread among the blossom of a pear-tree, finches and willow-wrens among the fresh foliage of the bird-cherry. The beautiful carpet of woodruff which covers the ground in many places is spattered and soiled with the excrement of birds, and disfigured by broken eggs or their shells, and by decomposing fish which have fallen from the nests.

The first shot from the gun of our gracious patron caused an indescribable confusion. The startled herons rose screaming, and the rooks with stupefying croaking; the cormorants, too, forsook their nests with angry screeches. A cloud of birds formed over the forest, drifted hither and thither, up and down, became denser and overshadowed the tree-tops, broke up into groups which sank hesitatingly down towards their forsaken nests, enveloped these completely for a little, and then united again with the main mass. Every single one screamed, croaked, cawed, and screeched in the most ear-piercing fashion; everyone took to flight, but was drawn back again by anxiety for nest and eggs. The whole forest

was in an uproar; yet, careless of the terrifying noise, the finch warbled its spring greeting amidst the trees, a woodpecker called joyously, the nightingales poured forth their inspiring melody, and poetic souls revealed themselves even among the thieves and robbers.

Richly laden with booty, we returned, after five hours' sport, to our comfortable quarters on board ship, and occupied ourselves as we steamed further with the scientific arrangement of our newly-acquired treasures. For hours we travelled through forests such as I have depicted, now and then passing by large or small hamlets, villages, and towns, until the gathering darkness forced us to moor our vessel. In the early dawn of the following morning we reached Apatin. The firing of cannon, music, and joyous acclamation greet the much-loved heir to the throne. People of all sorts throng about the boat; native hunting-assistants, nest-seekers, tree-climbers, and bird-skinners come on board; more than a dozen of the little boats called "Ezikela" are loaded. Then our steamer turns up stream again, to land us in the neighbourhood of a broad arm of the river. Up this we penetrated for the first time into the damp meadow-forests. All the little boats which had joined us in Apatin followed our larger one, like ducklings swimming after a mother duck. To-day the chase is directed solely against the sea eagle which broods so abundantly in these forests that no fewer than five eyries could be found within a radius of a square mile. We separated with the sportsman's salute, to approach these eyries from different directions.

I was well acquainted with these bold and rapacious, if rather ignoble birds of prey, for I had seen them in Norway and Lapland, in Siberia and in Egypt, but I

had never observed them beside their eyries; and the opportunity of doing so was most welcome. As his name implies, the favourite habitat of the sea-eagle is by the sea-coasts, or on the banks of lakes and rivers rich in fish. If winter drives him from his haunts, he migrates as far southwards as is necessary to enable him to pick up a living during the cold months. In Hungary, this eagle is the commonest of all the large birds of prey; he does not forsake the country even in winter, and only makes long expeditions in his earlier years before maturity, as though he wished to try the experiment of living abroad. During spring, therefore, one sees in that district only adult, or what comes to the same thing, full-grown birds capable of reproduction, while in autumn and winter there are, in addition, the young ones which left the nest only a few months before. Then also many wanderers who have not settled down come to enliven the forest-shores of the Danube. As long as the river is not covered with ice, they have no difficulty in finding food; for they hunt in the water not less, perhaps rather more skilfully than on land. They circle over the water until they spy a fish, then throw themselves down upon it like a flash of lightning, dive after it, sometimes disappearing completely beneath the waves, but working their way quickly to the surface again by aid of their powerful wings, carry off their victim, whose scaly armour has been penetrated by their irresistible talons, and devour it at their leisure. As their depredations are not so severely condemned in Hungary as with us, and as they are treated generally with undeserved forbearance, they regularly frequent the neighbourhood of the fishermen’s huts, and sit among the trees close by until the fisherman throws them stale fish or any refuse which they can eat. Like

the fishermen, the Hungarian, Servian, and Slav peasants help to provide them with food, for, instead of burying animals which have died, they let them lie exposed in the fields, and leave it to the eagles and the vultures, or to dogs and wolves, to remove the carrion. If a covering of ice protects his usual prey, and no carrion is available, the sea-eagle need not yet starve; for, like the nobler and more courageous golden eagle, he hunts all game which he has a chance of overpowering. He attacks the fox as well as the hare, the hedgehog and the rat, the diver and the wild goose, steals from the mother seal her sucking young, and may even carry his blind rapacity so far as to strike his powerful talons into the back of a dolphin or a sturgeon, by whom he is carried down into the sea and drowned before he can free his claws. Under some circumstances he will even attack human beings. Thus he need hardly ever suffer want; and as he is not systematically hunted, he leads quite an enviable life.



Fig. 81.—Sea-eagle and Nest in a Danube Forest.

Until near the breeding-time, the sea-eagle lives at peace with his fellows; but, as that season approaches, he becomes combative and quarrelsome, in most cases through jealousy. For the sake of mate and eyrie, he wages bitter war with others of his species. An eagle pair, once united, remain so for life, but only if the male is able to protect his mate from the wooing of others, and to defend his own eyrie. A male eagle, which has just reached maturity and is exulting in the consciousness of his strength, casts his eyes longingly upon the mate and eyrie of

another eagle, and both are lost to their owner if he allows himself to be vanquished in fight by the intruder. The rightful lord, therefore, fights to the death against everyone who attempts to disturb his marital and domestic happiness. The battle begins high in the air, but is often finished on the ground. With beak and claw, first one, then the other ventures an assault; at length one succeeds in getting a grip of his adversary, whose talons, in return, are promptly fixed in his rival's body. Like balls of feathers, the two fall to the ground, or into the water, when both let go their hold, but only to renew the attack. When they fight on the ground, the rivals challenge one another like enraged cocks, and blood and feathers left behind show the scene of the battle and bear witness to its deadly seriousness. The female circles above the combatants or watches them from her high perch with seeming indifference, but she never fails to caress the conqueror, whether he be her lawful spouse or the new-comer. Woe to the eagle if he does not succeed in repulsing the intruder! In the eyes of the female, none but the strong deserves the fair.

After successfully repelled attacks and fights of that kind, from which no eagle is exempt, and which are said to be repeated in Hungary every year, the pair, probably long wedded, take possession of the old eyrie, and begin, in February, to repair it. Both birds set to work to collect the necessary material, picking it up from the ground, or from the water, or breaking it off the trees, and carrying it in their talons, often for a long distance, to the nest, to rebuild and improve this as well as an eagle can. As this building up of the old nest takes place every year, it gradually grows to a considerable height, and one can tell from it the age of the birds, and may also guess the

probable duration of their wedded life; for the oldest nest contains the oldest pair of eagles. The nest is not always placed among the highest branches of the tree, but is in all cases high above the ground, more or less near the trunk, and always on strong boughs which can bear its heavy and ever-increasing weight. Both upper and lower tiers consist of sticks and twigs laid loosely above and across one another; and many pairs of hedge-sparrows, which approach the mighty birds quite boldly and confidently, find among these twigs cavities suitable for nesting or hiding.

Towards the end of February, or in the beginning of March, the female lays two, or at most three eggs in the shallow nest-cavity, and begins brooding assiduously. The male meantime supplies her with food, not, however, making longer expeditions in search of it than are absolutely necessary, but spending whatever time he can spare from the work of providing for her and himself, sitting, a faithful and attentive guardian, on a tree in the neighbourhood, which serves him at once as perch and sleeping-place. After about four weeks of brooding, the young emerge from the eggs, looking at first like soft balls of wool, from which dark eyes peer forth, and a dark bill and very sharp claws protrude. Even in their earliest youth the little creatures are as pretty as they are self-possessed. Now there is work enough for both father and mother. The two take turns in going forth to seek for prey, and in mounting guard over the little ones; but it is the mother who tends them. The father honestly performs his part in the rearing of the brood; but the mother alone is capable of giving them that care and attention which may be described as nursing. If she were torn from them in the first days of their life, they would perish as surely as young mammals

robbed of their suckling mother. With her own breast the eagle-mother protects them from frost and snow; from her own crop she supplies them with warmed, softened, and partly-digested food. The eagle-father does not render such nursing services as these, but if the mother perish when the young are half-grown, he unhesitatingly takes upon himself the task of rearing and feeding them, and often performs it with the most self-sacrificing toil. The young eagles grow rapidly. In the third week of their existence the upper surface of the body is covered with feathers; towards the end of May they are full-grown and fully fledged. Then they leave the nest, to prepare, under the guidance of their parents, for the business of life.

This is a picture, drawn with hasty strokes, of the life of the eagle, which, for the next few days, was the object of our expeditions. No fewer than nineteen inhabited eyries were visited by us with varying success. Now on foot, now in little boats, now jumping and wading, now creeping and gliding, we endeavoured, unseen and unheard, to approach the trees bearing the nests; for hours we crouched expectantly beneath them in huts hastily built with branches, gazing eagerly up at the eagles, which, startled by us or others, were wheeling and circling high in the air, and showing no inclination to return to their nests, but which we knew must return sometime, and would probably fall victims to us. We were able to observe them very accurately and fully, and this eagle-hunt gained, therefore, an indescribable charm for us all.

Except for the eagles and other birds of prey which we secured, the forests, which looked so promising, proved, or at any rate seemed, to be poor in feathered inhabitants. Of course it was early in the

year, and the stream of migration was still in full flood; nor did we succeed in investigating more than the outskirts of the forest. But even the number of birds which had returned and taken up their quarters on the outskirts of the forest did not come up to our expectations. And yet this apparent poverty disappointed me less than the lack of good songsters. The song-thrush did indeed pour forth its rich music through the woods fragrant with the breath of spring; here and there a nightingale sang; the finch warbled its spring greeting everywhere; and even a white-throat tried its notes, but none of these satisfied our critical ear. All who sang or warbled seemed merely bunglers, not masters. And at last we began to feel that real song did not belong to those dark woods at all, that the cries of eagles and falcons, the hooting of horned owls and screech-owls, the croaking of water-hens and terns, the shrill cry of herons and the laughter of woodpeckers, the cuckoos' call and the cooing of stock-doves were the music best befitting them, and that, besides these, the only bird that had a right to sing was the sedge-warbler, who lived among the reeds and bulrushes, and who had borrowed most of his intricate song from the frogs.

On the fourth day we hunted in the Keskender forest, a few miles from the banks of the Danube. As we left the forests on the river banks, we had to traverse a great plain bounded in the far distance by a chain of hills. Our route lay through well-cultivated fields belonging to the large estate of Bellye—a model of good management—and we made rapid progress on swift horses. Here and there marshy meadows, with pools and ditches, a little thicket, large farm-buildings surrounded by gnarled oaks, a hamlet, a village, but for the most part treeless fields; this was

the character of the district through which we hastened. Larks innumerable rose singing from the fields; dainty water-wagtails tripped about the roads; shrikes and corn-buntings sat on every wayside hedge; brooding jackdaws and starlings bustled and clamoured about their nests in the crowns of the oaks; above the ponds ospreys were wheeling on the outlook for fish, and graceful terns skimmed along in zigzag flight; the lapwing busied itself in the marshes. Apart from these, we observed very few birds. Even the Keskender wood, a well-kept forest, which we reached after two hours' riding, was poor in species, notwithstanding its varied character. There, however, were the nests of spotted-eagles and ospreys, short-toed eagles and common buzzards, falcons, owls, and, above all, black storks in surprising numbers, and our expedition was therefore successful beyond all expectation. And yet the foresters, who, in anticipation of the Crown Prince's visit, had, only a few days before, searched the woods and noted the position of the various eyries on a hastily constructed map, did not know of nearly all the birds of prey and black storks nesting in the forest. "It is like Paradise here," remarked the Crown Prince Rudolf, and these words accurately described the relations between men and animals in Hungary. Like the Oriental, the Hungarian is happily not possessed by the mania for killing which has caused the extreme shyness of the animals, and the painfully evident poverty of animal life in Western Europe; he does not grudge a home even to the bird of prey which settles on his land, and he does not make constant and cruel raids on the animal world, which lives and moves about him. Not even the low self-interest which at present prompts covetous feather-dealers to make yearly expeditions to the

marshes of the lower Danube, and which sacrifices hundreds of thousands of happy and interesting bird-lives for the sake of their feathers, has had power to move the Magyar from his good old customs. It may be that indifference to the animal life around him has something to do with his hospitality; but the hospitality is there, and it has not yet given place to a thirst for persecution. Animals, and especially birds, remain quite confidently in the neighbourhood of men; they go about their own affairs quite unconcerned as to what men may be doing. The eagle has his eyrie by the roadside, the raven nests among the trees in the field, the black or wood stork is hardly more shy than the sacred house-stork; the deer does not rise from his lair when a carriage passes within rifle-range. Verily, it is like Paradise.

But we found a state of paradise elsewhere than in the Keskender forest. After we had roamed through the forest in many directions, and had visited more than twenty eyries of buzzards and ospreys and black storks, and had refreshed and strengthened ourselves with an excellent breakfast provided for us, and still more with the delicious wine of the district, we set out on our return journey to the ship, urged to haste by threatening thunder-clouds, but still hunting and collecting as time and opportunity allowed. Our route was different from that which we had followed in coming to the forest; it was a good high-road connecting a number of villages. We passed through several of those, and again the road led us between houses. There was nothing remarkable about the buildings, but the people were stranger than my fancy could have pictured. The population of Dalyok consists almost solely of *Schokazen* or Catholic Servians, who migrated from the Balkan Peninsula, or were brought thither by the Turks, during the

period of the Turkish supremacy. They are handsome, slender people these Schokazen, the men tall and strong, the women at least equal to the men, extremely well built and apparently rather pretty. We could form a definite opinion with regard to their figures, but, as far as their faces were concerned, we had to depend to some extent on our own imagination. For the Schokaz women wear a style of dress which will hardly be found elsewhere within the boundaries of Europe at the present day: a dress which our princely patron, happy as usual in his descriptions, called mythological. When I say that head and face were almost entirely enveloped in quaintly yet not unpicturesquely wound and knotted cloths, and that the skirt was replaced by two gaily-coloured apron-like pieces of cloth, not connected with each other, I may leave the rest to the most lively imagination without fearing that it will be likely to exceed the actual state of things. For my own part I was reminded of a camp of Arab nomad herdsmen which I had once seen in the primitive forests of Central Africa.

At dusk, under pouring rain, we reached our comfortable vessel. Rain fell the following morning also, the whole day was gloomy, and our expedition was proportionately disappointing. All this impelled us to continue our journey, though we look back gratefully on those pleasant days on the Bellye estate, and though it would have been well worth while to have observed and collected there a few days longer. With warm and well-earned words of praise the Crown Prince bade farewell to the officials on the archducal estate; one glance more at the woods which had offered us so much, and our swift little vessel steams down the Danube again. After a few hours we reach Draueck, the mouth of the river

Drau, which thenceforward seems to determine the direction of the Danube bed. One of the grandest river pictures I have ever seen presented itself to our gaze. A vast sheet of water spread out before us; towards the south it is bounded by smiling hills, on all the other sides by forests, such as we had already seen. Neither the course of the main stream nor the bed of its tributary could be made out; the whole enormous sheet of water was like an inclosed lake whose banks were only visible at the chain of hills above mentioned; for through the green vistas of the forest one saw more water, thickets, and reed-beds, these last covering the great marsh of Hullo, which stretches out in apparently endless extent. Giant tree-trunks, carried down by both streams, and only partly submerged, assumed the most fantastic shapes; it seemed as if fabled creatures of the primitive world reared their scaly bodies above the dark flood. For the "blonde" Danube looked dark, almost black, as we sped through the Draueck. Grayish-black and dark-blue thunder-clouds hung in the heavens, apparently also amidst the hundred-toned green of the forests, and over the unvarying faded yellow of the reed-beds; flashes of lightning illumined the whole picture vividly; the rain splashed down; the thunder rolled; the wind howled through the tops of the tall old trees, lashed up the surface of the water, and crowned the dark crests of the waves with gray-white foam; but away in the south-east the sun had broken through the dark clouds, edged them with purple and gold, illumined them so that the black shadows grew yet blacker, and shone brightly down on the smiling hills, which lead up to a mountain range far away on the horizon. Below and beyond us lay hamlets and villages, but, where we were, at most a cone-shaped, reed-covered fisher-hut broke

the primeval character of the magnificent scene, which, in its wildness and in the weird effect of the momentary flashes of light, was sublime beyond description.

The scarcity of birds was striking, as indeed was the desolateness of the whole sheet of water. Not a gull floated over the mirror of the Danube, not a tern winged its zigzag flight up and down; at most a few drakes rose from the river. Now and then a common heron, a flight of night-herons, an erne, and a few kites, hooded crows and ravens, perhaps also a flock of lapwings, and the list of birds which one usually sees is exhausted.

From the following day onwards we hunted and explored a wonderful district. The blue mountains, upon which lay bright, golden sunlight during the thunder-storm of the previous day, are the heights of Fruskagora, a wooded hill range of the most delightful kind. Count Rudolf Chotek had prepared everything for the fitting reception of our Prince, and thus we enjoyed several days which can never be forgotten. From the village of Čerewič, on the upper side of which our vessel lay, we drove daily through the gorges, climbed the heights on foot or on horseback, to return homewards each evening delighted and invigorated. The golden May-tide refreshed heart and soul, and our host's untiring attention, complaisance, courtesy, and kindness went far to make the days passed at Fruskagora the pleasantest and most valuable part of our whole journey.

It was a charming district, about which we roamed every day. Around the village was a range of fields; beyond these a girdle of vineyards which reach to the very edge of the forest; in the valleys and gorges

between them the innumerable fruit trees were laden with fragrant blossom, which brightened the whole landscape; on the banks, beside the road which usually led through the valleys, there was a dense growth of bushes, and the refreshing charm of the wealth of blossom was enhanced by the murmuring brooks and trickling runlets of water. From the first heights we reached the view was surprisingly beautiful. In the foreground lay the picturesque village of Čerewič; then the broad Danube, with its meadow-forests on the opposite shore; behind these stretched the boundless Hungarian plain, exhibiting to the spectator its fields and meadows, woods and marshes, villages and market towns in an unsteady, changeful light, which gave them a peculiar charm; in the east lay the stronghold of Peterwardein. Larks rose singing from the fields; the nightingale poured forth its tuneful lay from the bushes; the cheery song of the rock-thrush rang down from the vineyards; and two species of vulture and three kinds of eagle were describing great circles high in the air.

When we had gone a little farther we lost sight of river, villages, and fields, and entered one of the secluded forest-valleys. The sides of the mountain rise precipitously from it, and, like the ridges and slopes, they are densely wooded, though the trees are not very tall. Oaks and limes, elms and maples predominate in some places, copper-beeches and hornbeams in others; thick, low bushes, which shelter many a pair of nightingales, are scattered about the outskirts of the forest. No magnificent far-reaching views reward the traveller who climbs to the highest ridge to see Hungary lying to the north, and Servia to the south; but the mysterious darkness of the forest soothes soul and sense. From the main ridge, which is at most 3000 feet in height, many

chains branch off on either side almost at right angles, and have a fine effect from whatever side one looks at them. Among them are valleys or enclosed basins whose steep walls make transport of felled wood impossible, and which therefore display all the natural luxuriance of forest growth. Gigantic beeches, with straight trunks smooth up to the spreading crown, rise from amid mouldering leaves in which the huntsman sinks to the knee; gnarled oaks raise their rugged heads into the air as if to invite the birds of prey to nest there; dome-like limes form such a close roof of leaves, that only a much-broken reflection of the sun's rays trembles on the ground. In addition to the nightingale, which is everywhere abundant, the songsters of this forest are the song-thrush and blackbird, golden oriole and red-breast, chaffinch and wood-wren; the cuckoo calls its spring greeting from hill to hill; black and green woodpeckers, nut-hatches and titmice, ring-doves and stock-doves may be heard in all directions.

We had come here chiefly to hunt the largest European bird of prey, the black vulture, Fruskagora being apparently the northern boundary of its breeding region. The other large European vulture had recently appeared in the district, probably attracted by the unfortunate victims of the Servian war, and both species brooded here protected by the lord of the estate, who was an enthusiastic naturalist. I was already acquainted with both these species of vulture, for I had seen them on former journeys, but it was a great pleasure to me to observe them in their brooding-place, and hear the reports of my fellow-sportsmen and of Count Chotek; for on this expedition also our main desire was to increase our knowledge of animal life. Here again we were able to make a long series of observations, and many aspects

of the life of both these giant birds, which had hitherto been obscure to us all, were cleared up and explained by our investigations.

The crested black vulture, whose range of distribution is not confined to the three southern peninsulas of Europe, but extends also through West and Central Asia, to India and China, is resident in Fruskagora, but after the brooding season he frequently makes long expeditions, which bring him regularly to Northern Hungary, and frequently to Moravia, Bohemia, and Silesia. His powerful wings enable him to undertake such expeditions without the slightest difficulty. Unfettered by eggs or helpless young, he flies early in the morning from the tree on which he has passed the night, ascends spirally to a height to which the human eye unaided cannot follow him, then with his incomparably keen, mobile eye, whose focal distance can be rapidly altered, he scans the horizon, detects unfailingly even small carrion, and alights to devour and digest it, or to store it in his crop. After feeding he returns to his accustomed place, or continues his pathless journeying. Not only does he carefully scan the land lying beneath him, perhaps for many square miles, but he keeps watch on the movements of others of his species, or of any large carrion-eating birds, that he may profit by their discoveries. Thus only can we explain the sudden and simultaneous appearance of several, or even many vultures beside a large carcass, even in a region not usually inhabited by these birds. They are guided in their search for prey, not by their sense of smell, which is dull, but by sight. One flies after another when he sees that he has discovered carrion, and his swiftness of flight is so great that he can usually be in time to share the feast, if he sees the finder circling above his booty. Certainly he must

lose no time, for it is not for nothing that he and his kin are called "*geier*"; their greed beggars description. Within a few minutes three or four vultures will stow away the carcass of a sheep or a dog in their crops, leaving only the most trifling remains; the meal-time therefore passes with incredible rapidity, and whoever arrives late on the scene is doomed to disappointment.

The country round Fruskagora yields a good deal more to the vultures than an occasional feast of carrion, for in the stomachs of those which we shot and dissected we found remains of souslik and large lizards, which are scarcely likely to have been found dead, but were more probably seized and killed.

On account of the northerly situation of Fruskagora, and the well-ordered state of the surrounding country, which is not very favourable to vultures, the black vultures were still brooding during our visit, though others of the same species, whose haunts were farther south, must undoubtedly have had young birds by that time. The eyries were placed in the tallest trees, and most of them on the uppermost third of the mountain side. Many were quite well known to Count Chotek and his game-keepers, for they had been occupied as a brooding-place by a pair of vultures, possibly the same pair, for at least twenty years, and as they had been added to each year they had assumed very considerable proportions. Others seemed of more recent origin, but all were apparently the work of the vultures themselves. In the oldest and largest of them, a full-grown man could have reclined without his head or feet being seen projecting over the edge.

Under these eyries we sat watching, listening to the life and bustle of the woods, and waiting in the hope

of getting a shot at the vultures which our approach had scared away. For four days we went to the splendid woods every morning, and never did we return to our vessel empty-handed. No fewer than eight large vultures, several eagles, and numerous smaller birds fell to our guns, while valuable observations, which fascinated us all, added zest and interest to our sport. But when the last rays of the sun had disappeared, the younger portion of the population assembled about our ship. Violin and bagpipes joined in a wonderful but simple melody, and youths and maidens danced the rhythmically undulating national round dances in honour of their august guest.

After we had hunted successfully on both sides of the Danube, we took leave, on the fifth day after our arrival in Čerewič, of our most devoted host, the lord of the estates, and continued our journey down the river. In three-quarters of an hour we passed Peterwardein, a small, antiquated, but picturesquely situated stronghold, and an hour and a half later, we reached Carlowitz, near which we spent the night. The next morning we reached Kovil, the goal of our journey.

In the neighbourhood of this large village, and girdled by cultivated fields, there are woods in which the oak predominates, but which have such a dense undergrowth, that notwithstanding the many villages about, the wolves and wild-cats lead a threatening but scarcely threatened existence in them. It is not to be wondered at, therefore, that birds of prey of all kinds, especially sea-eagles, imperial eagles, spotted eagles, and booted eagles, “short-toed eagles”, kites, hawks, horned and other owls should have chosen them as a nesting-place, and that they should also

harbour all kinds of small birds. Sure of rich booty the Crown Prince and his brother-in-law directed their steps to these woods, while Eugen von Homeyer and I tried our luck up-stream beyond the village, in a marsh which the flood, then at its height, had transformed into a great lake.

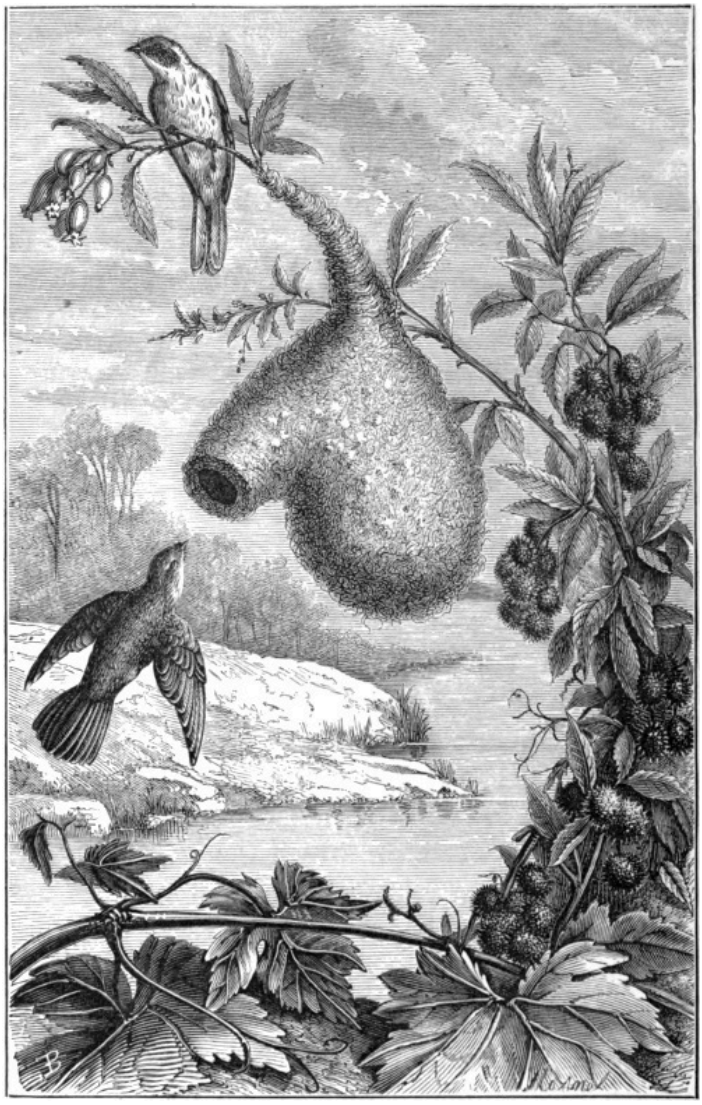


Fig. 82.—Nest of the Penduline Titmouse (*Parus pendulinus*).

A surprisingly rich and varied life reigned in this marsh, though only a very small fraction of the feathered population could be seen, and indeed the tide of migration was still in full flood. Great flocks

of black terns flew in almost unbroken succession up the river, sometimes assembling in compact swarms, sometimes distributing themselves over the whole breadth of the flooded Danube; hundreds of glossy or dark ibises wandered up and down the stream, flying in the usual wedge-shaped order towards or away from the neighbouring river Theiss, apparently still in search of suitable nesting-places; purple herons, common herons, and squacco herons strode about fishing in all accessible parts of the great expanse of water; marsh-barriers flew along their accustomed routes carrying long reed-stalks to their nests; ducks, mating a second time because the flood had robbed them of their eggs, rose noisily from the water on the approach of our small flat boat, while grebes and dabchicks dived for safety—in short, every part of the vast expanse was peopled. A forester well acquainted with all the paths through the submerged wood, awaited us in a house which rose above the flood like an island, and acted as our guide through a forest-wilderness which far surpassed all that we had hitherto seen, for the water had added new obstacles to those always present. Brushing past many branches which must usually be high above the ground, often stooping beneath boughs which blocked our way, we attempted to find a route between half or wholly fallen trees, logs, and drift-wood, and to penetrate to the heart of the forest. Brooding mallards, whose nests in the tops of the willows had been spared by the flood, did not rise on our approach, even though we glided by within a yard of them. Eared grebes, which were out on the open water, when they saw us, swam sideways into the green thicket of tree-crowns, chiefly willows, which rose just above the surface; water-wagtails ran from one piece of drift-wood to another; spotted

woodpeckers and nut-hatches clung to the tree-trunks close to the water, and searched for food as usual. One picture of bird-life crowded upon another; but all seemed unfamiliar, because altered by the prevailing conditions. To reach a sea-eagle's eyrie we were obliged to wade a long distance; to visit a raven's nest we had to make a wide détour. Hunting in the approved fashion was impossible under such circumstances, but our expedition rewarded us richly. To me personally it afforded the pleasure of seeing one of the best of the feathered architects of Europe, the penduline titmouse, at work on its nest, and of observing for the first time its life and habits. [88]

The following day our whole company assembled in one of the woods already mentioned. A Hungarian forester had made preparations for a wolf-drive on a grand scale, but had arranged it so unskilfully that Friend Isegrim succeeded in slipping away unperceived. The unpromising chase was therefore soon abandoned, and the short time which remained to us was devoted to more profitable observation of the bird-life in the forest.

In the course of the same afternoon we left Kovil, reached Peterwardein the same evening, steamed past Fruskagora early in the night, left the vessel once more the following day to hunt in the marsh of Hullo, saw there the noble heron which we had until then sought for in vain, but were obliged to hurry onwards so as not to miss the fast train for Vienna. Gratefully looking back on the days we had spent, and lamenting the swiftness with which they had sped, we steamed rapidly past all the river forests, which had afforded us so much enjoyment, and, with the ardent wish that we might some day return to spend a longer time in it, we took leave of this rich

and unique country.

NOTES BY THE EDITOR.

THE BIRD-BERGS OF LAPLAND.

For other pictures of Arctic Natural History the reader may profitably consult the following works:—

Collett, R. *Bird Life in Arctic Norway*. Trans. by A. H. Cocks (London, 1894).

Nordenskiöld, A. E. *The Voyage of the "Vega" Round Asia and Europe*, with a Historical Review of Previous Journeys along the North Coast of the Old World (Trans. by A. Leslie, 2 vols., London, 1881).

Gilder, W. H. *Ice-Pack and Tundra*, an Account of the Search for the *Jeanette*, and a Sledge Journey through Siberia (8vo, London, 1883. Chiefly personal, not scientific).

Hovgaard, A. *Nordenskiöld's Voyage Round Asia and Europe*, a Popular Account of the North-east Passage of the *Vega*, 1878-80 (Trans. by H. L. Brækstad, 8vo, London, 1882).

Pennant's *Arctic Zoology* (1785).

[Note 1] p. 38.—*Dense masses of fish.*

I have consulted a Scandinavian pisciculturist, who, while not corroborating the occurrence of such vast multitudes, admitted the periodic appearance of dense local swarms, such as are sometimes seen in the lochs in the west of Scotland.

[Note 2] p. 45.—*The female eider-duck plucking the male.*

The popular story of the male eider being made to furnish down for the nest, after the mother-bird's supply is exhausted, must, we fear, be regarded as a misstatement. See Newton's *Dictionary of Birds* (London, 1893), and other authoritative works on ornithology. Perhaps the story has some basis in the fact that for a short time after the breeding season the males undergo a change of plumage, becoming less decorative and more like the females.

[Note 3] p. 48.—*Economic value of eider-down.*

According to Stejneger, each nest yields about an ounce and a third. From Greenland and Iceland alone, six thousand pounds, or the contents of seventy-two thousand nests, are yearly exported. Nordenskiöld notes that the quantity of eider-down brought from the polar lands to Tromsöe amounted in 1868 to 540 kilogrammes, in 1869 to 963, in 1870 to 882, in 1871 to 630, in 1872 to 306, and that the total annual yield may be probably estimated at three times as much.

[Note 4] p. 57.—*Auks.*

A graphic description of the King-auks (*Alle alle*), which breed in Spitzbergen, is given by Nordenskiöld in the work above mentioned.

The name auk is oftenest applied only to the razor-bills, but is also used collectively for other members of the family Alcidæ, such as guillemots and puffins.

[Note 5] p. 59.—*Altrices and Præcoces.*

Altrices or nidicolæ are those birds which are more or less helpless when hatched. They are often blind and naked, and unable to leave the

nest. The food-yolk has been mostly or wholly used up before birth, and the young depend on what their parents bring them. Examples are doves, hawks, and passerine birds.

Præcoces or nidifugæ are those birds which are more or less able to run about when hatched. They are born with their eyes open, with a covering of down, and with much of their yolk still unused. Examples are running birds, fowl, gulls, and ducks.

THE TUNDRA AND ITS ANIMAL LIFE.

In addition to Nordenskiöld's voyage, and other works already cited, the following may be consulted by those who wish to amplify their picture of the Tundra and its life:—

Seebohm. *Siberia in Asia* (1882).

Jackson, F. G. *The Great Frozen Land* (Bolshaia Zemelskija Tundra). Narrative of a winter journey across the Tundras and a sojourn among the Samoyedes (ed. from the author's journal by A. Montefiore, 8vo, London, 1895).

[Note 6] pp. 63 and 71.—*The Tundra.*

[Note 7] pp. 63 and 71.—*The Tundra.*

With Brehm's picture of the Tundra, it is interesting to compare that given by Mr. Seebohm in his address to the Geographical Section of the British Association at Nottingham, 1893. (*Scottish Geogr. Magazine*, ix. (1893), pp. 505-23, with map.)

"In exposed situations, especially in the higher latitudes, the tundra does really merit its American name of Barren Ground, being little else than gravel beds interspersed with bare

patches of peat or clay, and with scarcely a rush or a sedge to break the monotony. In Siberia, at least, this is very exceptional. By far the greater part of the tundra, both east and west of the Ural Mountains, is a gently undulating plain, full of lakes, rivers, swamps, and bogs. The lakes are diversified with patches of green water plants, amongst which ducks and swans float and dive; the little rivers flow between banks of rush and sedge; the swamps are masses of tall rushes and sedges of various species, where phalaropes and ruffs breed, and the bogs are brilliant with the white fluffy seeds of the cotton-grass. The groundwork of all this variegated scenery is more beautiful and varied still—lichens and moss of almost every conceivable colour, from the cream-coloured reindeer-moss to the scarlet-cupped trumpet-moss, interspersed with a brilliant alpine flora, gentians, anemones, saxifrages, and hundreds of plants, each a picture in itself, the tall aconites, both the blue and yellow species, the beautiful cloudberry, with its gay white blossom and amber fruit, the flagrant *Ledum palustre* and the delicate pink *Andromeda polifolia*. In the sheltered valleys and deep water-courses a few stunted birches, and sometimes large patches of willow scrub, survive the long severe winter, and serve as cover for willow-grouse or ptarmigan. The Lapland bunting and red-throated pipit are everywhere to be seen, and certain favoured places are the breeding grounds of plovers and sandpipers of many species. So far from meriting the name of Barren Ground, the tundra is for the most part a veritable paradise in summer. But it has one almost fatal drawback—it swarms with millions of mosquitoes."

[Note 8] p. 72.—*The Mammoth.*

The Mammoth (*Elephas primigenius*) was a near relative of the Indian elephant, if not indeed a variety of the same species. One of its characteristics was a woolly covering of brownish hair, rudimentary traces of which have been found in the Indian species.

It was abundant in Europe before the glacial epoch, and seems to have been especially common in Siberia. Lydekker's *Royal Natural History* gives a good account of the finding of the mammoth, and the striking fact is noticed that the imports of fossil ivory into England prove that, within a period of twenty years, over 20,000 mammoths must have been discovered.

As Brehm describes, the carcasses are found frozen in the soil, to all appearance just as the animals died, but the explanation of this is obscure. The particular case to which he alludes was one of the earliest finds—by Adams in 1806. Before Adams reached the carcass, which had been known for some years, the dogs of the yakuts had eaten most of the flesh.

See also Vogt's *Natural History of Mammals*.

[Note 9] p. 73.—*Colour of the Arctic Fox.*

On the interesting question of the winter colour-change, Mr. Poulton's *Colours of Animals* and Mr. Beddard's *Animal Coloration* should be consulted.

[Note 10] p. 75.—*Reindeer devouring Lemming.*

With reference to Brehm's statement as to reindeer eating lemming, I may note a report on creditable authority that in the hard winter 1894-5 stags in Aberdeenshire were known to have eaten rabbits.

[Note 11] p. 76.—*Migration of the Lemming.*

A careful discussion of the strange migratory instinct of the lemming will be found in the late Mr. Romanes's *Mental Evolution in Animals*.

[Note 12] p. 77.—*Food of the Reindeer.*

Though the reindeer may eat grasses and aquatic plants, its great resource is the so-called reindeer-moss, which is really a lichen, common on the mountain heights of the interior where the herds pass the winter.

[Note 13] p. 80.—*The Phalarope.*

Of the Grey Phalarope (*Phalaropus fulicarius*) and the Red-necked Phalarope (*Phalaropus hyperboreus*), both occurring in Britain, Professor Newton says: "A more entrancing sight to the ornithologist can hardly be presented than by either of these species. Their graceful form, their lively coloration, and the confidence with which both are familiarly displayed in their breeding-quarters, can hardly be exaggerated, and it is equally a delightful sight to watch the birds gathering their food in the high—running surf, or, when that is done, peacefully floating outside the breakers." See also Collett's *Bird Life in Arctic Norway*.

[Note 14] p. 84.—*Sense of smell and touch.*

The somewhat mysterious reference which Brehm makes to a sense between smell and touch is thoroughly justifiable. To the senses of many of the lower animals—and even of fishes —it is exceedingly difficult to apply our fairly definite human conceptions of smell, taste, touch, &c.

[Note 15] p. 85.—*Mosquitoes.*

This general term covers a large number of

species belonging to the gnat genus (*Culex*). They are very various in size, and are widely distributed from the Tropics to the Poles. Their larvæ are aquatic, and for their abundance the tundra obviously offers every opportunity.

THE ASIATIC STEPPES AND THEIR FAUNA.

See—

Bovalet, G. *Through the Heart of Asia* (trans. by C. B. Pitman, 2 vols, London, 1889).

Jackson, F. G. *The Great Frozen Land*, cited above.

[Note 16] p. 91.—*Flora of the steppe.*

According to Seebohm (*op. cit.*), "The cause of the treeless condition of the steppes or prairies has given rise to much controversy. My own experience in Siberia convinced me that the forests were rocky, and the steppes covered with a deep layer of loose earth, and I came to the conclusion that on the rocky ground the roots of the trees were able to establish themselves firmly, so as to defy the strongest gales, which tore them up when they were planted in loose soil. Other travellers have formed other opinions. Some suppose that the prairies were once covered with trees, which have been gradually destroyed by fires. Others suggest that the earth on the treeless plains contains too much salt or too little organic matter to be favourable to the growth of trees. No one, so far as I know, has suggested a climatic explanation of the circumstances. Want of drainage may produce a swamp, and the deficiency of rainfall may cause a desert, both conditions being fatal to forest growth, but no one can mistake either of these treeless

districts for a steppe or a prairie." See also for general description of steppe vegetation Kerner's *Plant Life* and Wiesner's *Biologic der Pflanzen*.

[Note 17] p. 97.—*The Quagga.*

The true quagga (*Equus quagga*), intermediate between zebras and asses, is no longer known to exist, though it was described by Sir Cornwallis Harris in 1839 as occurring in immense herds. The name quagga is given by the Boers to Burchell's zebra (*Equus burchelli*).

The same sad fact of approaching extermination must be noted in regard to not a few noble animals, *e.g.* rhinoceros, hippopotamus, and giraffe.

Selous writes in 1893: "To the best of my belief, the great white or square-mouthed rhinoceros (*Rhinoceros simus*), the largest of modern terrestrial mammals after the elephant, will, in the course of the next few years, become absolutely extinct. Yet, twenty years ago, it was a common animal over an enormous extent of country in Central South Africa.

"Never again will the traveller be able to stand upon his wagon-box, and, like Burchell, Andrew Smith, Cornwallis Harris, and Gordon Cumming, scan plains literally darkened by thousands upon thousands of wildebeests, quaggas, Burchell's zebras, blesboks, hartebeests, and spring-boks."

[Note 18] p. 97.—*The Buffalo.*

The American bison or buffalo (*Bos americanus*) is now practically exterminated.

Two sentences from *An Introduction to the Study of Mammals*, by Sir W. H. Flower and Mr. R. Lydekker (London, 1891), put the case in a

nutshell.

"The multitudes in which the American bison formerly existed are almost incredible; the prairies being absolutely black with them as far as the eye could reach, the numbers in the herds being reckoned by millions."

With the completion of the Kansas Branch of the Pacific Railway in 1871, the extraordinarily careless and ruthless slaughter began. In less than ten years bison-shooting ceased to be profitable.

And now, "A herd of some two hundred wild individuals derived from the northern herd is preserved in the Yellowstone National Park; and it is believed that some five hundred of the race, known as Wood-Bison, exist in British territory; *but with these exceptions this magnificent species is exterminated*".

A vivid account of the buffalo's habits and of its rapid tragic extermination will be found in Mr. Grinell's essay "In Buffalo Days" in *American Big-Game Hunting* (Boone and Crockett Club), edited by Th. Roosevelt and G. B. Grinell, Edinburgh, 1893.

See also Hornaday, *The Extirpation of the American Bison*, 1889, and a monograph by J. A. Allen, "The American Bisons, Living and Extinct": *Memoirs of the Museum of Comparative Zoology*, Harvard, vol. iv., 1876.

[Note 19] p. 102.—*Fighting-ruffs.*

The ruff (*Machetes pugnax*) is in many ways a most interesting bird. Thus, there is the rapid change of plumage, as the result of which the male acquires his characteristic frill or ruff before the breeding season. The indefatigable pugnacity of the males, the efficacy of their shield, their assiduous polygamous courtship,

their subsequent carelessness as to the fate of the reeve and her young, and their extraordinary "polymorphism", are very remarkable. While the individual peculiarities of plumage are very marked, each ruff is true season after season to its own idiosyncrasy. Visitors to the National Museum of Natural History in London will remember a beautiful case of ruffs in the Entrance Hall.

[Note 20] p. 103.—*Sky-goat.*

Bleating of snipe. There has been much discussion as to the origin of the peculiar drumming or bleating sound made by the snipe, to which it owes its Scotch name of "heather-bleater", but many at least agree with Brehm.

[Note 21] p. 106.—*Sand-grouse.*

Sand-grouse (*Pterocles* and *Syrrhaptes*), a group of birds quite distinct from the grouse. One species, *Syrrhaptes paradoxus*, "ranging from Northern China across Central Asia to the confines of Europe", has shown a tendency to extensive migration, visiting Britain, for instance, in 1859, 1863, 1872, 1876, and abundantly in 1888. For a concise account of these irregular invasions see Newton's *Dictionary of Birds*.

[Note 22] p. 107.—*Yurt.*

According to Radloff "jurte" or "yurt" is a general name for a more or less transportable rough hut made of stakes, felt, bark, and the like, varying slightly in construction in different districts. The ring to which Brehm here refers is probably that through which the upper ends of the converging stakes are thrust.

[Note 23] p. 109.—*The Jerboa.*

The rodent here referred to is the Kirghiz

jerboa (*Alactaga decumana*). What Brehm says as to its eating eggs and young birds is confirmed by others.

[Note 24] p. 115.—*The Sand-grouse or Steppe-grouse.*

Pallas's Sand-grouse (*Syrrhaptes paradoxus*), see note 21.

[Note 25] p. 115—*Ancestry of the horse.*

See Sir W. H. Flower's little book on *The Horse* (Modern Science Series). The kulan or kiang is rather a wild ass than a wild horse, and the balance of evidence in favour of regarding the Tarpan as in the line of ancestry is greater than Brehm indicates. Flower suggests that Przewalski's horse, discovered some years ago in Central Asia, and looked upon as a distinct species, may be a hybrid between the kiang and the tarpan.

[Note 26] p. 116.—*Ancestors of the cat and the goat.*

It is very generally believed that our domestic cat is descended from the sacred Egyptian or Caffre cat (*Felis caffra*). See St. George Mivart's monograph on the cat. Similarly, the breeds of domestic goat are often referred to the Pasang or *Capra ægagrus*, found in Crete, Asia Minor, Persia, &c. See a vivid essay by Buxton in his *Short Stalks*, entitled "The Father of all the Goats".

[Note 27] p. 116.—*Wild camels.*

An interesting note on wild camels in Spain—a strayed herd—is to be found in *Wild Spain* by Chapman and Buck. St. George Littledale has recently discussed (*Proc. Zoological Society*, 1894) the question whether the camels of Lob-nor, on the slope of Altyn Tag, are remains of a

wild stock or strayed. No wild dromedaries are known, and the same is probably true of camels.

THE FORESTS AND SPORT OF SIBERIA.

See also—

W. Radloff, *Aus Sibirien*, 2 vols., Leipzig, 1884.

A. Th. von Middendorf, *Voyage dans l'extrême Nord et dams l'est de la Sibérie* (*St. Petersburg*, 1848).

[Note 28] p. 123.—*The Life of the Forest.*

With Brehm's description of this minor forest, the reader should compare that which Stanley gives of "The Great Central African Forest" (chap. xxiii. of 2nd vol. of *In Darkest Africa*). He computes the size of the main mass at 321,057 square miles. A few sentences from his description may be quoted.

"Imagine the whole of France and the Iberian peninsula closely packed with trees varying from 20 to 180 feet high, whose crowns of foliage interlace and prevent any view of sky and sun, and each tree from a few inches to four feet in diameter. Then from tree to tree run cables from two inches to fifteen inches in diameter, up and down in loops and festoons and W's and badly-formed M's; fold them round the trees in great tight coils, until they have run up the entire height like endless anacondas; let them flower and leaf luxuriantly, and mix up above with the foliage of the trees to hide the sun, then from the highest branches let fall the ends of the cables reaching near to the ground by hundreds with frayed extremities, for these represent the air

roots of the epiphytes; let slender cords hang down also in tassels with open threadwork at the ends. Work others through and through as confusedly as possible, and pendent from branch to branch—with absolute disregard of material, and at every fork and on every horizontal branch plant cabbage-like lichens of the largest kind, and broad spear-leaved plants —these would represent the elephant-eared plant—and orchids and clusters of vegetable marvels, and a drapery of delicate ferns which abound. Now cover tree, branch, twig, and creeper with a thick moss like a green fur."

He goes on to describe the rush of life to fill up each gap—the struggle for existence—the crowding, crushing, and strangling—the death and disease.

"To complete the mental picture of this ruthless forest, the ground should be strewn thickly with half-formed humus of rotting twigs, leaves, branches; every few yards there should be a prostrate giant, a reeking compost of rotten fibres, and departed generations of insects, and colonies of ants, half veiled with masses of vines and shrouded by the leafage of a multitude of baby saplings, lengthy briars and calamus in many fathom lengths, and every mile or so there should be muddy streams, stagnant creeks, and shallow pools, green with duckweed, leaves of lotus and lilies, and a greasy green scum composed of millions of finite growths."

[Note 29] p. 126.—*Appearance of Decay in the Forests.*

A closely similar picture is given by Mr. E. N. Buxton in recounting a journey in the Rocky Mountains. He says: "This bane of pack-trains is caused by forest fires, which have burnt out the life of the trees, leaving only gaunt stems

and blackened ground, followed by tempests which have whirled these tottering giants in heaps to the ground. In places the stems lie parallel to one another, and piled to the height of many feet as though they had been laid in sheaves. Elsewhere, while some have stood the shock and are still erect, their neighbours lie prone at every conceivable angle to one another, and their branches pierce the air as weathered snags. This ghastly waste, whether brought about by natural causes, or the recklessness of man, will have to be paid for some day, for are we not within measurable distance of the inevitable world-wide timber-famine" (E. N. Buxton, *Short Stalks*, 1893).

See also Rodway's *In the Guiana Forest* (London, 1895), and article "Death in the Forest" (*Natural Science*, Sept., 1892).

[Note 30] p. 129.—*Taiga.*

"A strip of Alpine region, 100-150 miles in breadth, consisting of separate mountain-chains whose peaks rise from 4800-6500 feet above sea-level, and beyond the limits of forest vegetation." According to Radloff, the name *taiga* is also generally applied by the Kalmucks to wooded and rocky mountain-land.

[Note 31] p. 135.—*Extermination of the Beaver.*

Mr. Martin, in his eulogy of the beaver (*Castorologia*, 1892), describes the rapid diminution of numbers in Canada, largely as the result of careless greed, but also through the spread of colonisation. He believes that by the end of the century, none will be found except in museums. Their rarity in Europe is well known.

[Note 32] p. 136.—*Export of skins.*

Radloff notes, in 1884, that the yearly sale of

furs at the Irbitsch fair amounts to between three and four millions of roubles.

[Note 33] p. 144.—*Velvet of antlers.*

An account of the various ways in which pounded antlers and the vascular velvet were once used in medicine will be found in Prof. W. Marshall's recent *Arzenei-Kästlein*, Leipzig, 1894.

[Note 34] p. 147.—*The Elk.*

The elk (*Alces machlis*) is the largest of the land animals of Europe, and is the same as the "moose" of Canada.

[Note 35] p. 150.—*Rouble.*

This varies from 3*s.* 8*d.* to 3*s.* 10*d.*, but is usually reckoned as 4*s.* Of the kopeks, afterwards referred to, a hundred go to the rouble.

[Note 36] p. 161.—*Brick Tea.*

Broken or powdered tea-leaves mixed with the blood of the sheep or ox, and formed into cakes. Other fragrant leaves are sometimes added.

[Note 37] p. 165.—*The Bear rearing her cubs.*

I have been unable to find any corroboration of this story as to the she-bear employing her children of a former year as nurses.

THE STEPPES OF INNER AFRICA.

See—

Selous, F. C. *Travel and Adventure in South-East Africa* (1893).

Solymos, B. (B. E. Falkenberg). *Desert Life: Recollections of an Expedition in the Soudan.*

London, 1880.

Foà, E. *Mes grandes Chasses dans l'Afrique Centrale.* Paris, 1895.

Lichtenstein, M. H. K. *Reise im Südlichen Africa.* Berlin, 1812.

G. Schweinfurth. *The Heart of Africa.*

J. Thomson. *Through Masai Land.*

Emin Pasha in Central Africa. Edited by Schweinfurth, Ratzel, Felkin, and Hartlaub. London, 1885.

Also well-known works by Livingstone, Stanley, &c.

[Note 38] p. 170.—*Heat in the Desert.*

50° Celsius, or Centigrade = 122° Fahrenheit. Temperatures of 121°, 122°, 133° Fahr., and so on, have been repeatedly recorded in the desert. Solymos, in his *Desert Life*, notes 115° Fahr. in the shade as the maximum for his year. He also calls attention to the frost and ice! "Duveyrier registered frost twenty-six times between December and March in the plains of the Central Sahara." His picture of the desert-well is much less optimistic than Brehm's.

[Note 39] p. 173.—*The Termites.*

Termites or "white ants" are very characteristic, wood-eating insects of tropical Africa and other warm countries. Though not related to the true ants, they have somewhat similar social organizations.

The reader will be rewarded who turns to Prof. Henry Drummond's *Tropical Africa*, where there is not only a graphic description of the ways of the termites, but an interesting theory

of their possible agricultural importance. As they avoid the light, and travel on the trees only under cover of their tunnels of finely-comminuted and cemented earth, they must be continually pulverizing the soil. When rain-storms come this fine dust is washed from the trees, and some of it may go to swell the alluvium of distant valleys. Hence the termite may be, like the earthworm, a soil-maker of considerable importance. Mr. H. A. Bryden, in his *Gun and Camera in Southern Africa* (London, 1893), writes as follows of the termites: "Our cases, portmanteaus, &c., were arranged round, but not touching the walls. Every article reposed on glass bottles, as the only known protection against the depredations of white ants.... They will eat large holes in a thick tweed coat in one night, and anything softer than metal left to their tender mercies for a night or two is irretrievably ruined.... If the huts are inspected every few days, the tunnels of self-made mortar can be swept away, and the depredator kept at all events to the flooring.... Most housewives have, at least once a year, to institute a crusade against the marauders, dig up the flooring, and attempt to find the queen. If the queen-ant can be successfully located and dug up, the nuisance is ended; the rest of the ants, bereft of their sovereign, at once quit the building, and for a season trouble no more.... In the forests to the north and west the mischief done by these insects is enormous. The tree is attacked, the tunnels are run up along the bole, the wood is pierced and riddled, and the work of destruction is soon completed."

There is, however, a lack of precise observation as to the extent to which termites attack trees which are altogether sound and living. In great measure they merely hasten and complete a

destruction for whose initiation they are not responsible.

[Note 40] p. 173.—*Summer Sleep.*

Summer-sleep in torrid regions, affecting a few fishes, amphibians, and reptiles, is a phenomenon analogous to hibernation elsewhere, but its physiological explanation is even more obscure.

[Note 41] p. 174.—*The Karroo.*

Karroo, a general name for the highland steppes of South Africa. See H. A. Bryden's *Kloof and Karroo* (1889).

[Note 42] p. 178.—Cerastes (*Vipera hasselquistii*).

The horned viper is the most common viper of Northern Africa. It is extremely poisonous. It is of a brownish-white colour with darker markings, and has a scaly spine or horn over each eye. This species is usually supposed to have been Cleopatra's asp.

[Note 43] p. 182. See Note 39.

[Note 44] p. 183.—*The mud-fish.*

This remarkable animal (*Protopterus*) is one of the Double-breathers or Dipnoi, a member of a small class between Fishes and Amphibians, represented by three genera—*Ceratodus* in Queensland, *Lepidosiren* in Brazil, and this *Protopterus* in Africa. They differ in many ways from other fishes, being physiologically intermediate between Fishes and Amphibians. Hundreds of specimens have been brought within their 'nests' from Africa to Europe. Brehm speaks of the complete enclosure of the capsule, but this is now known to communicate with the outer world by a tubular passage through the mud. At the foot of this tube the

mud-fish keeps his nostrils. The lung is a specialization of the swim-bladder which is present in most fishes.

[Note 45] p. 184.—*The Royal Aspis or Uräus.*

The Uräus snake or Aspis is the well-known Egyptian jugglers' snake (*Naja haje*). It may be over six feet in length, and is very deadly.

[Note 46] p. 185.—*Spitting poison.*

The poison of a snake is contained in the secretion of a specialized salivary gland. The compression of this venom gland propels the fluid along a duct which leads to the groove or canal of the fang. Infection with the venom only occurs when, by more or less of a bite, the poison is injected into the victim. No spitting of poison is known, nor would it have effect without a wound.

[Note 47] p. 186.—*The Gecko.*

Figures and a brief description of the gecko's clinging foot will be found in Semper's well-known *Animal Life* (International Science Series, 1881). The clinging power is due to numerous long bristle-like hairs on the sole of the foot. These appear to be modifications of the "casting-hairs" which are used in "skin-casting".

[Note 48] p. 191.—*Dance of Ostrich.*

A vivid picture of the Ostrich dance will be found in Prof. Lloyd Morgan's *Animal Sketches* (1892).

[Note 49] p. 192.—*Ostrich.*

Prof. Newton, in his *Dictionary of Birds*, notes that Ostriches, though sometimes assembling in troops of 30-50, commonly live in companies of four or five—one cock and the rest hens. This is especially true at the breeding

season. All the hens lay together; the cock broods during the night; the hens take turns during the day, more, it would seem, to guard their common treasure from jackals and small beasts of prey than directly to forward the process of hatching, for that is often left wholly to the sun. Some thirty eggs are laid in the nest, and round it are scattered perhaps as many more, which are said to be used as food for the newly-hatched chicks.

Compare works cited in that article: M. H. K. Lichtenstein, *Reise im südlichen Africa* (Berlin, 1812); Fursch and Hartlaub, *Vögel Ost Afrikas*; De Mosenthal and Harting, *Ostrich and Ostrich Farming*; also, Mrs. Martin, *Home Life on an Ostrich Farm*.

[Note 50] p. 193.—*Primaries and Secondaries.*

Primary feathers are the longer quill-feathers of the wing, and are borne by the 'hand' of the bird; the secondaries are the quill-feathers higher up, borne by the ulna of the arm.

THE PRIMEVAL FORESTS OF CENTRAL AFRICA.

[Note 51] p. 220.—*Hornbills.*

Members of the family Bucerotidæ, including some 60 species whose generic arrangement is uncertain. Of their habits Prof. Newton says: "They breed in holes of trees, laying large white eggs, and when the hen begins to sit, the cock plasters up the entrance with mud or clay, leaving only a small window, through which she receives the food he brings her during her voluntary imprisonment". He notes Mr. Bartlett's discovery, confirmed by others, that the hornbills cast out at intervals the lining of their gizzard in the form of a bag, which is filled with the fruit that the bird has been

eating, and asks whether “these castings are really intended to form the hen-bird’s food during her confinement”.

[Note 52] p. 221.—*Umber- or Umbre-bird.*

This bird, whose name refers to the earthy-brown colour, is the Hammer-head or *Scopus umbretta* of ornithologists. Of the nest, Prof. Newton says that “it is occasionally some six feet in diameter, a mass of sticks, roots, grass, and rushes compactly piled together, with a flat-topped roof, the interior being neatly lined with clay, and a hole of entrance and exit”. It may be of interest to compare its nest with that of the South American Oven-birds (*Furnarius*, &c.).

[Note 53] p. 221.—*Doves beside falcons.*

Those interested in the facts of nature which suggest the danger of exaggerating the Darwinian idea of the struggle for existence should consult two articles by Kropotkine, entitled “Mutual Aid Among Animals”, in the *Nineteenth Century*, 1889. Kropotkine cites from Dr. Coues, an American ornithologist, an observation in regard to some little cliff swallows which nested quite near the home of a prairie falcon. “The little peaceful birds had no fear of their rapacious neighbour; they did not let it even approach to their colony. They immediately surrounded it and chased it, so that it had to make off at once.”

[Note 54] p. 223.—*And they know that this is so.*

Brehm suggests here and elsewhere what it would be difficult to prove, that animals which have unconsciously acquired protective colouring, and which instinctively crouch or lie still instead of trying to escape by flight, are aware of their adaptation to concealment. There seem to be but few cases which give

countenance to this supposition.

[Note 55] p. 227.—*Crocodile Bird.*

This is usually regarded as *Pluvianus* or *Hyas ægyptius*—one of the "plovers" in the wide sense. Professor Newton observes, however, in a note to the article "Plover" in his *Dictionary of Birds* that there is not perfect unanimity on the matter, as some have supposed that the "crocodile bird" was a lapwing—*Hoplopterus spinosus*. But the elder Geoffroy St. Hilaire and Brehm, who both saw the bird enter the reptile's mouth, regarded it as *Pluvianus ægyptius*.

Dr. Leith Adams notes (1870) that the crocodile is now rarely seen below Beni Hassan, and is evidently receding everywhere below the second cataract. Both Herodotus and Strabo speak of its domestication, and it is tamed at the present day by certain religious sects in India. On the lower Nile it is shy and difficult even to shoot.

"A sail, or the smoke and noise of a steamboat, suffice to warn the crocodiles basking on the sand-banks, or their common companions, the black-headed and spur-winged plovers (*Pluvianus ægyptius* and *Hoplopterus spinosus*), which are frequently seen perched on their backs, and always prepared to give timely warning of approaching danger, just as the Father of History noticed them 2300 years ago, and, strange to say, his well-known story is current among the modern Egyptians, who, as usual, have put a tail to the narrative. They say, that in addition to its office of leech-catcher to the crocodile, it occasionally does happen that the zic-zac—so called from its note of alarm—in searching for the leeches, finds its way into the reptile's mouth when the latter is basking on a sand-bank, where it lies generally

with the jaws wide apart. Now this is possible and likely enough, but the captain of our boat added, that occasionally the crocodile falls asleep, when the jaws suddenly fall, and the zic-zac is shut up in the mouth, when it immediately prods the crocodile with its horny spurs, as if refreshing the memory of his reptilian majesty, who opens his jaws and sets his favourite leech-catcher at liberty" (Leith Adams).

MIGRATIONS OF MAMMALS.

[Note 56] p. 237.—*Rats.*

The brown rat (*Mus decumanus*) is much stronger than the black rat (*Mus rattus*), and gains an easy victory. The rivalry between the two species is one of the examples Darwin gives of his generalization that the struggle for existence is most severe between allied forms, and there seems no doubt that the brown rat has often ousted and will even devour the black rat. The latter is now rare in Britain. It should be noted, however, (1) that the two species are said sometimes to live together on board ship, (2) that cases have been recorded where the black rat returned and defeated its conquerors, and (3) that the black rat keeps more about houses, stables, and barns, is therefore more readily exterminated by man, whose efforts were doubtless increased when a second species appeared on the scene. The case is of some importance in connection with the generalization referred to above.

[Note 57] p. 240.—*Migrations of Reindeer.*

Of the reindeer in Spitzbergen, Nordenskiöld writes:—"During the summer it betakes itself to the grassy plains in the ice-free valleys of the island; in the late autumn it withdraws—

according to the walrus-hunter's statements—to the sea-coast, in order to eat the seaweed that is thrown up on the beach. In winter it goes back to the lichen-clad mountain heights in the interior of the country, where it appears to thrive exceedingly well, though the cold during winter must be excessively severe; for when the reindeer in spring return to the coast they are still very fat, but some weeks afterwards, when the snow has frozen on the surface, and a crust of ice makes it difficult for them to get at the mountain sides, they become so poor as to be scarcely eatable. In summer, however, they speedily eat themselves back into condition, and in autumn they are so fat that they would certainly take prizes at an exhibition of fat cattle."

Wrangel describes migrations of thousands of reindeer in Eastern Siberia moving from the mountains to the forests, where they winter. He mentions his guide's assertion that each body is led by a female of large size.

Perhaps we may take the liberty of quoting, with a tribute of admiration, Mr. F. Marion Crawford's eloquent description of a wild rush of reindeer from the inland country to the shore. We confess to incredulity in regard to the reindeer's longing to drink of the Polar Sea, but the splendid vividness of the description may excuse some slight inaccuracy.

"In the distant northern plains, a hundred miles from the sea, in the midst of the Laplander's village, a young reindeer raises his broad muzzle to the north wind, and stares at the limitless distance while a man may count a hundred. He grows restless from that moment, but he is yet alone. The next day a dozen of the herd look up from the cropping of the moss, sniffing the breeze. Then the Laps nod to one

another and the camp grows daily more unquiet. At times the whole herd of young deer stand at gaze, as it were, breathing hard through wide nostrils, then jostling each other and stamping the soft ground. They grow unruly, and it is hard to harness them in the light sledge. As the days pass, the Laps watch them more and more closely, well knowing what will happen sooner or later, and then at last, in the northern twilight, the great herd begins to move. The impulse is simultaneous, irresistible, their heads are all turned in one direction. They move slowly at first, biting still, here and there, at the rich moss. Presently the slow step becomes a trot, they crowd closely together, while the Laps hasten to gather up their last unpacked possessions—their cooking utensils and their wooden gods. The great herd break together from a trot to a gallop, from a gallop to a breakneck race, the distant thunder of their united tread reaches the camp during a few minutes, and they are gone to drink of the Polar Sea. The Laps follow after them, dragging painfully their laden sledges in the broad track left by the thousands of galloping beasts—a day's journey, and they are yet far from the sea, and the trail is yet broad. On the second day it grows narrower, and there are stains of blood to be seen; far on the distant plain before them their sharp eyes distinguish in the direct line a dark motionless object, another, and another. The race has grown more desperate and more wild as the stampede neared the sea. The weaker reindeer have been thrown down and trampled to death by their stronger fellows. A thousand sharp hoofs have crushed and cut through hide and flesh and bone. Ever swifter and more terrible in their motion, the ruthless herd has raced onward, careless of the slain, careless of food,

careless of any drink but the sharp salt water ahead of them. And when at last the Laplanders reach the shore their deer are once more quietly grazing, once more tame and docile, once more ready to drag the sledge whithersoever they are guided. Once in his life the reindeer must taste of the sea in one long, satisfying draught, and if he is hindered he perishes. Neither man nor beast dare stand before him in the hundred miles of his arrow-like path."—*A Cigarette-Maker's Romance*, vol. ii. pp. 23-25.

[Note 58] p. 241.—*Migrations of Bisons.*

In regard to the migration of the bison or buffalo, Mr. G. B. Grinnell writes:—"It was once thought that the buffalo performed annually extensive migrations, and it was even said that those which spent the summer on the banks of the Saskatchewan wintered in Texas. There is no reason for believing this to have been true. Undoubtedly there were slight general movements north and south, and east and west, at certain seasons of the year; but many of the accounts of these movements are entirely misleading, because grossly exaggerated. In one portion of the northern country I know that there was a decided east-and-west seasonal migration, the herds tending in spring away from the mountains, while in the autumn they worked back again, seeking shelter in the rough, broken country of the foot-hills from the cold west winds of the winter."—*American Big-Game Hunting* (Boone and Crockett Club), edited by Theodore Roosevelt and George Bird Grinnell, Edin., 1893.

[Note 59] p. 250.—*Migrations of Seals.*

Much interesting information as to the migrations and habits of seals will be found in

J. A. Allen's *History of North American Pinnipedia*. The eared fur-seals (*Otaria*) and others travel periodically to the breeding-places or "rookeries", where they spend a considerable time, but it should be noted that our common seal (*Phoca vitulina*) does not make seasonal migrations.

[Note 60] p. 256.—*Instinct of the Lemming.*

A discussion of the strange instinct of the lemming, remarkable in its apparent fatality, will be found in Romanes's *Mental Evolution in Animals*.

[Note 61] p. 258.—*Numbers of Springbok.*

"I beheld the plains and even the hillsides which stretched on every side of me thickly covered, not with herds, but with one vast mass of springboks; as far as the eye could strain the landscape was alive with them, until they softened down into a dim red mass of living creatures. To endeavour to form any idea of the number of antelopes which I had that day beheld were vain, but I have no hesitation in saying that some hundreds of thousands were within the compass of my vision."—*Gordon Cumming.* With this should be compared what other sportsmen and travellers have in recent years told us of rapidly diminishing numbers.

[Note 62] p. 260.—*The Monkey Question.*

The position of evolutionists in regard to the relations of man and monkeys is conveniently stated in Huxley's *Man's Place in Nature*. A criticism of the thorough-going evolutionist position, from the philosopher's point of view, will be found in Professor Calderwood's *Evolution and Man's Place in Nature*. A midway position is indicated in Wallace's *Darwinism*.

> While most naturalists are now thoroughly evolutionist in regard to the descent or ascent of man, as in regard to other problems, most would probably agree with Lloyd Morgan's cautious conclusion:—
>
> "In denying to animals the perception of relations and the faculty of reason, I do so in no dogmatic spirit, and not in support of any preconceived theory or opinion, but because the evidence now before us is not, in my opinion, sufficient to justify the hypothesis that any animals have reached that stage of mental evolution at which they are even incipiently rational."
>
> Probably all naturalists allow that animals who profit by experience and adapt their actions to varying circumstances are *intelligent*. But cases which force us to credit animals with general ideas, with "thinking the therefore", in short, with reason, are admitted by few.

LOVE AND COURTSHIP AMONG BIRDS.

While admiring the vigorous protest which Brehm makes in this chapter against the interpretation which regards animals as automata, I feel that he has hardly done justice to it. In general terms, the interpretation is that animals act as they do in virtue of an inherited organic mechanism which responds in a uniform manner to certain stimuli. That this is true of many animal and even human actions, especially in early youth, seems highly probable. That it only covers a small fraction of animal behaviour is certain. But even those who go furthest in extending the scope of animal automatism, do not say that an automatic act may not be accompanied by consciousness, they only say that it is not

controlled by consciousness. See Huxley, *Are Animals automata?* in his collected Essays: and Lloyd Morgan, *Introduction to Comparative Psychology*.

[Note 63] p. 272.—*Sexual Selection.*

For a statement of the doctrine of sexual selection, the original document—Darwin's *Descent of Man*—should be consulted. But the theory has met with strong criticism, *e.g.* on the part of Alfred Russel Wallace, see his *Darwinism*. See also *The Evolution of Sex*, by Geddes and Thomson, and Lloyd Morgan's *Animal Life and Intelligence*.

[Note 64] p. 279.—*Polygamous Birds.*

Darwin has discussed the question of polygamous birds in his *Descent of Man*.

[Note 65] p. 281.—*The Widowed Bird.*

For one of the finest expressions in literature of the possible emotions of the widowed bird, we may be allowed to refer to Walt Whitman's "Out of the cradle endlessly rocking" (*Leaves of Grass*).

APES AND MONKEYS.

[Note 66] p. 285.—*Descent from Monkeys.*

Hanumân, the sacred Hindoo long-tailed monkey, plays an important part in Hindoo mythology. He was the friend of Vishnu during his incarnation as Rama Chandra, and he aided the god greatly in the search for his wife Sita, who had been carried off by Ravān. A female slave, who had tended Sita kindly during her captivity, was married to Hanumân as a reward, and this pair some Indian noble families proudly claim as ancestors.

[Note 67] p. 286.—*Monkeys on the Rock of*

Gibraltar.

A letter written in 1880 by an officer in Gibraltar to the *Field* newspaper and quoted in vol. i. of the *Royal Natural History* gives the number living on the Rock at that time as twenty-five, among whom were only two adult males. There had been several gangs of them at one time, but they had done so much damage in the town gardens that they had been nearly exterminated by means of traps and poison. But in 1856, when their numbers had been reduced to four or five, a garrison order was issued forbidding further destruction of them, and since that time they have been strictly preserved and regularly counted. In 1863, four were imported from Africa, and after a time were admitted as members of the band. Another attempt was made in 1872 to reinforce their numbers, but it was unsuccessful.

[Note 68] p. 290.—*Habits of Monkeys.*

See Mr. Garner's observations on monkeys (*Speech of Monkeys*, 1893); Hartmann's *Apes and Monkeys* (Internat. Science Series), Romanes's *Animal Intelligence* and *Mental Evolution in Animals*. H. A. Forbes, *A Handbook to the Primates* (Allen's Naturalist's Library; Lond. 1894). Mr. Havelock Ellis in his *Man and Woman* (Lond. 1894) has some interesting notes on the relation of young monkeys and young children to the adult forms.

[Note 69] p. 291.—*Death from Grief.*

Instances of death from grief are given in Romanes's *Animal Intelligence*. See also a paper by Mr. Garner in *Harper's Monthly*, 1894.

[Note 70] p. 298.—*Speech of Monkeys.*

See Mr. Garner's *Speech of Monkeys* (Lond. 1893), which tends to support Brehm's view.

But in reference to Garner's work, Lloyd Morgan says, "Of the nine sounds made by capuchins, not one is, so far as the observations go, indubitably indicative of a particular object of desire. All of them may be, and would seem to be, in the emotional stage, and expressive of satisfaction, discontent, alarm, apprehension, and so forth. Still they may be indicative of particular objects of appetence or aversion; and experiments with the phonograph, conducted with due care and under test-conditions, may do much to throw light upon an interesting and important problem." After careful consideration, Prof. Lloyd Morgan says, "At present, however, there is not, so far as I am aware, any evidence that animals possess powers of descriptive intercommunication involving perception of relations".

[Note 71] p. 298.—*Right and Wrong in Monkeys.*

What is said here should be compared with the discussion of the subject in Darwin's *Descent of Man*, Romanes's *Mental Evolution in Animals*, or perhaps most conveniently in Lloyd Morgan's *Introduction to Comparative Psychology* (Lond. 1894). According to the last-named authority the moral sense "involves a thinking of the *ought*; it involves a more or less definite perception of the relation of a given act to an ideal standard". "In none of these cases (cited), is there sufficient evidence to justify a belief that a standard of conduct takes form in the animal mind."

[Note 72] p. 303.—*Mutual Aid among Monkeys.*

Mr. Darwin quotes this case in his *Descent of Man*, and calls the monkey "a true hero". Similar examples of mutual aid will be found in the same work, as also in a couple of articles by Prince Kropotkine, "Mutual Aid among

Animals", *Nineteenth Century*, 1889.

[Note 73] p. 316.—*Effect of age.*

There are some who hold that observation favours the opposite view, that the young ape is relatively more human and less simian than the adult. With these, rather than with Brehm, we agree. There is, however, need of more precise physiological and psychological observation.

[Note 74] p. 318.—*Man's Place in Nature.*

It should be noted that the zoologist's usual statement of his position is that he believes that men and the higher apes have arisen from a common stock. See Huxley's *Man's Place in Nature*. As the anthropoid apes are believed to have diverged as distinct types in Miocene times, the common stock is plainly in the almost inconceivably distant past. A belief in descent from a common stock does not in the least affect the demonstrable distinctiveness of man, nor does it explain how the evolution, whose results we are, took place. See Darwin's *Descent of Man*, and Drummond's *Ascent of Man*.

DESERT JOURNEYS.

[Note 75] p. 330.—*Nodules in the Desert.*

These seem to be the now well-known manganese nodules. The puzzling question of their origin is discussed by Dr. John Murray in that part of the *Challenger* Reports which deals with marine deposits. Solymos thus describes them, "Belted by higher hills, I have mounted one, apparently consisting entirely of a lofty pile of hardened equal sandstone balls, the size of peaches. They were as nearly globular as anything in nature—a bubble, a drop, a

planet."

NUBIA AND THE NILE RAPIDS.

For some interesting geological and zoological observations see A. Leith Adams, *Notes of a Naturalist in the Nile Valley and Malta* (1870). J. H. Speke, *Journal of the Discovery of the Source of the Nile* (1864).

[Note 76] p. 358,—*On the Nile and its Cataracts.*

See Sir Samuel Baker's *The Nile and its Tributaries* (1867), and Walter Budge, *The Nile: Notes for Travellers in Egypt* (1890).

[Note 77] p. 359.—*Syenite.*

Syenite, a hard crystalline rock, resembling granite, and well adapted for monuments. It is not known in Britain, but occurs in many parts of Europe and America, as well as at the place to which it owes its name.

[Note 78] p. 362.—*Philæ.*

Philæ has recently been a centre of attention in connection with the Egyptian waterworks. See Sir Benjamin Baker, "Nile Reservoirs and Philæ", *Nineteenth Century*, xxxv. (1894), pp. 863-72; J. P. Mahaffy, "The Devastation of Nubia", pp. 1013-18; Frank Dillon, "The Submergence of Philæ", pp. 1019-25; H. D. Pearsall, "The Nile Reservoirs", *Scottish Geographical Magazine* (1895, August), pp. 393-402.

[Note 79] p. 370.—*Government of Egypt.*

The reader must bear in mind that Egypt has had a somewhat complex political history since Brehm wrote.

A JOURNEY IN SIBERIA.

[Note 80] p. 397.—*Archar Sheep.*

Archar or arkal is the Kirghiz name for the Mongolian argali (*Ovis ammon*). The animal is almost as large as a donkey, has enormous horns and short coarse hair. It is said to be now restricted to Northern Mongolia, and some districts of Southern Siberia. The Tibetan argali (*Ovis hodgsoni*) is closely allied. See Sir V. Brooke, *Proc. Zoological Society*, 1875.

[Note 81] p. 412.—*Splenic Fever.*

Anthrax or splenic fever is a rapidly fatal disease due to a microbe, *Bacillus anthracis*. This was demonstrated by Koch, and corroborated by Pasteur. The latter discovered how to attenuate the virus, and secure immunity by inoculation. Cattle, sheep, and reindeer are among the commonest victims; but, as the narrative shows, man himself is not exempt.

THE HEATHEN OSTIAKS.

[Note 82] p. 426.—*Present state of Ostiaks.*

The Ostiak population was estimated in 1891 at about 27,000, and is believed to be still decreasing. There is some interesting information regarding them in Erman's *Travels in Siberia.*

[Note 83] p. 433—*Larvæ out of nostrils.*

The reindeer is excessively troubled by the attacks of several insects, related to the bot-flies (Œstridæ), which attack sheep, cattle, and horses in this country. One lays its eggs in the skin, another in the nostrils, whence the larvæ emerge. The reindeer have a great horror of these insects, and are said to become weak and

emaciated in their efforts to avoid them. The disease due to the parasitic insects is sometimes referred to as “germ”, and may destroy most of a herd.

[Note 84] p. 438.—*Brick Tea.*

See Note 36.

[Note 85] p. 444.—*Shamans.*

Some interesting details as to these in Hofgaard’s *Nordenskïold’s Voyage*. He speaks of the preparatory asceticism: “solitude, watching, fasting, exciting and narcotic remedies work upon his imagination; he soon sees the spirits and the apparitions he heard about in his youth, and believes firmly in them”.... “He is no cool, calculating deceiver, no common conjuror.” “Sometimes they have been thrashed in order that they might change a particular prophecy, but Wrangel relates a case in 1814, when their orders to kill a beloved chief, in order to stay a plague, were at length obeyed. Though Christianity has been introduced for more than a century, the Shamans have still (1882) much power.”

A scholarly account of the Shamans, which includes much interesting material in regard to the customs which Brehm describes in this chapter, will be found in the *Journal of the Anthropological Institute*, xxiv., August and September, 1894. “Shamanism in Siberia and European Russia”, being the second part of “Shamantsvo,” by Professor V. M. Mikhailovskii, translated by O. Wardrop.

NOMAD HERDSMEN AND HERDS OF THE STEPPES.

See F. Burnaby’s *Ride to Khiva* (1876); H. Lansdell’s *Through Siberia* (1882), and

Russian Central Asia (1885); A. de Levchine, *Description des Hordes et des Steppes des Kirghiz-Kazaks* (Paris, 1840); Zaleskie, *La vie des Steppes Kirghizes* (Paris, 1865).

COLONISTS AND EXILES IN SIBERIA.

[Note 86] p. 514.—*Geology of the Altai.*

"In the Altai the mountains are built up of granites, syenites, and diorites covered with metamorphic slates belonging to the Laurentian, Silurian, Devonian, and Carboniferous periods. The Jurassic strata on the outskirts are all fresh-water deposits, and contain coal."

"The Altai Mines (12,000 men) yielded in 1881, 16,670 lbs. of silver, 13,140 cwts. lead, 6708 cwts. copper, 3200 cwts. iron, 240,000 cwts. coal, and 320,000 cwts. salt."

[Note 87] p. 539.—*The Exile System.*

The reader should consult Dr. Lansdell's *Through Siberia* (London, 1882); H. de Windt's *Siberia As It Is* (London, 1892); Seebohm's *Siberia in Asia* (1882). While some, *e.g.* de Windt, give an account of the exile system which agrees with Brehm's, it should be noted that others think very differently; see Kennan's *Siberia and the Exile System* (1891).

AN ORNITHOLOGIST ON THE DANUBE.

[Note 88] p. 563.—*The Penduline Titmouse.*

A very small species of titmouse occurring in Southern Europe and Africa. Its remarkable nest (see figure) is formed of a felt woven of hemp or wool often mixed with goat's hair. It

usually hangs on the extreme end of a branch just over water. Both birds share in the work of building, as also in that of hatching and rearing the young, of which there are usually seven.

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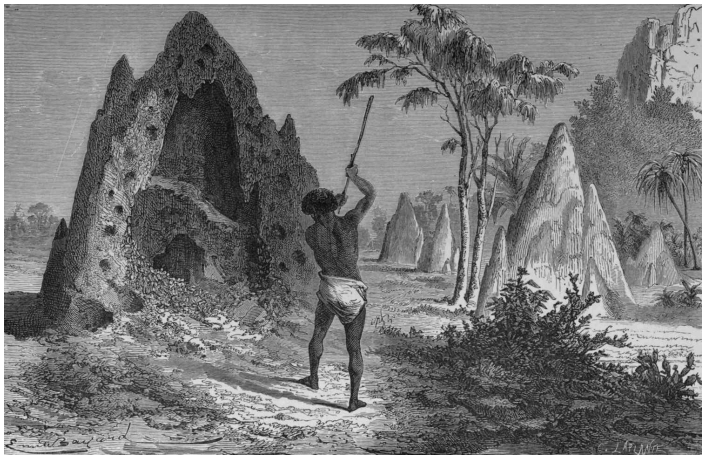
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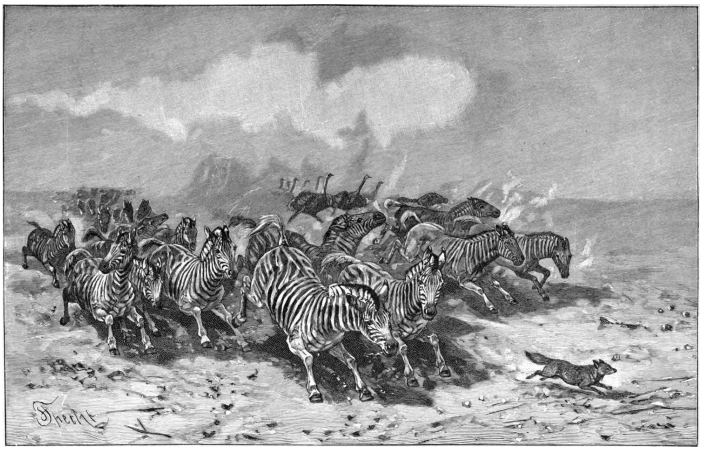
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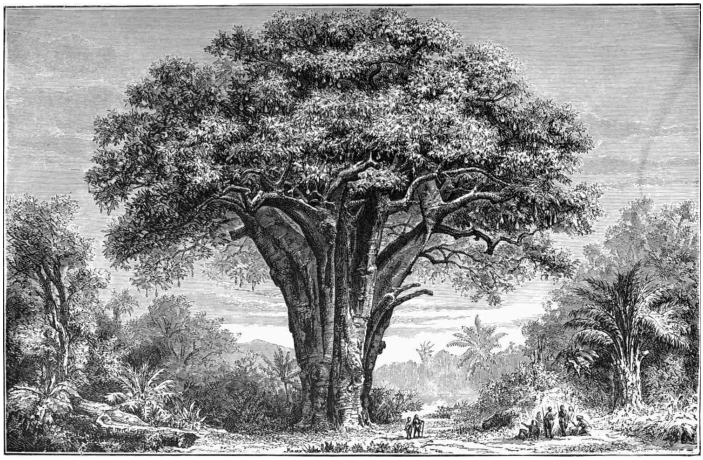
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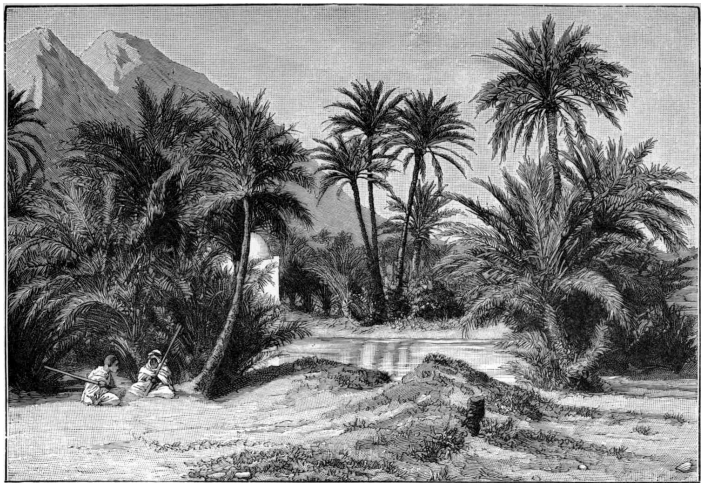
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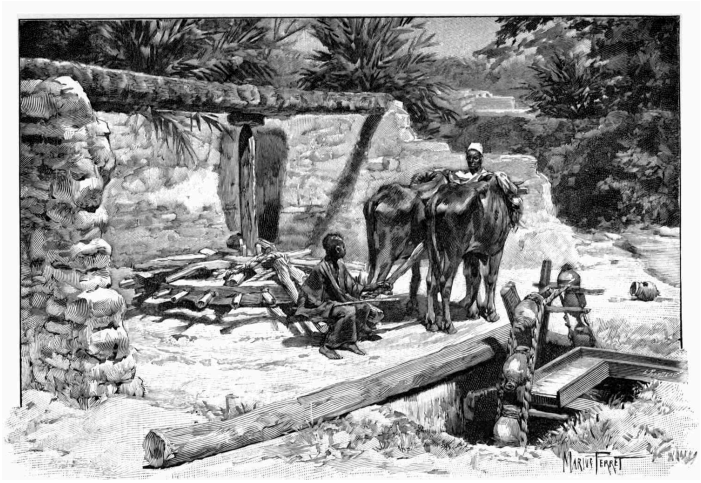
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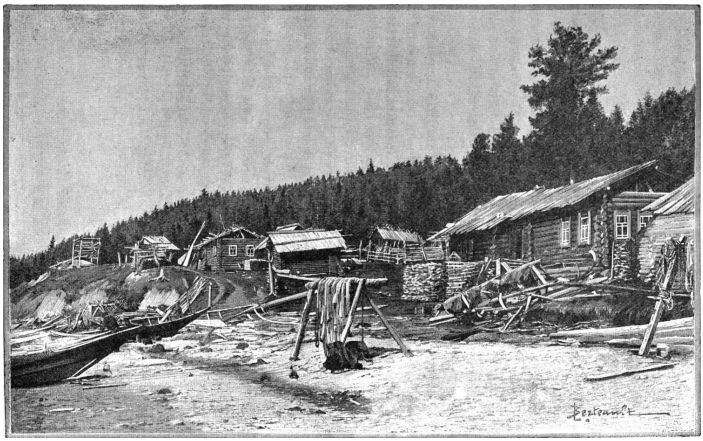
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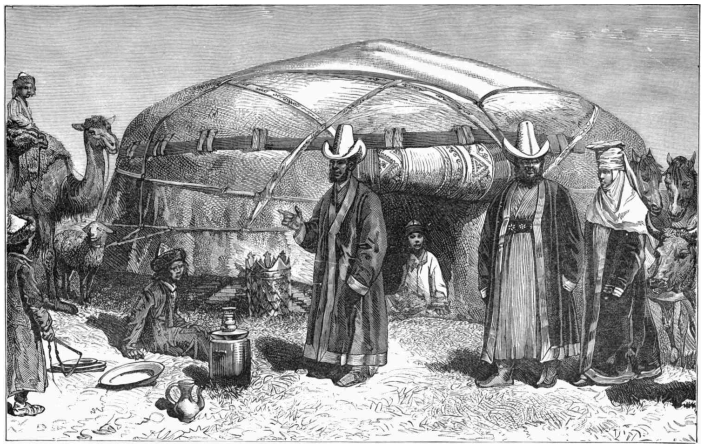
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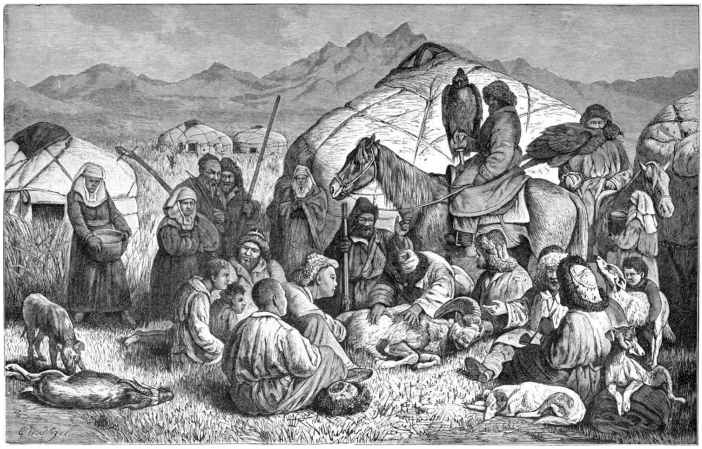
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