AN

UNIVERSAL DICTIONARY

OF THE

M A R I N E:

OR,

A COPIOUS EXPLANATION

OF THE

TECHNICAL TERMS and PHRASES

EMPLOYED IN THE

CONSTRUCTION, EQUIPMENT, FURNITURE, MACHINERY, MOVEMENTS, and MILITARY OPERATIONS

OF

A S H I P.

ILLUSTRATED WITH

Variety of Original DESIGNS of SHIPPING, in different Situations; Together with ſeparate VIEWS of their Maſts, Sails, Yards, and Rigging.

To which is annexed,

A Tranſlation of the FRENCH Sea-Terms and Phraſes, collected from the Works of Meſſ. DU HAMEL, AUBIN, SAVERIEN, &c.

By WILLIAM FALCONER,

AUTHOR of The SHIPWRECK.

LONDON:

Printed for T. CADELL (Succeſſor to Mr. MILLAR) in the Strand.

MDCCLXIX.

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TO

THE RIGHT HONOURABLE

THE LORDS COMMISSIONERS

FOR EXECUTING THE OFFICE OF

LORD HIGH ADMIRAL

OF

GREAT BRITAIN, &c.

THIS WORK

IS,

By their LORDSHIPS' PERMISSION,

WITH THE UTMOST RESPECT,

INSCRIBED,

BY

The AUTHOR.

PREFACE.

The following work has engaged my utmost application for some years. Several performances on the same subject have already appeared; as Sir H. Manwaring's *Seaman's Dictionary*; Boteler's *Sea Dialogues*; Guillet's *Gentleman's Dictionary*, and Blanckley's *Naval Expositor*, &c. Far from exhibiting an enlarged and comprehensive view of naval affairs, these productions are extremely imperfect, according to the very circumscribed plan which their authors have adopted. There are besides, the *Dictionaire de Marine* of M. Aubin, published in Holland; and that of M. Saverien, published in France. These are indeed voluminous, but very deficient in the most necessary articles. Besides a circumstantial detail of the local oeconomy of different marine departments, they are swelled out with astronomy, navigation, hydrography, natural history, &c. all of which are abundantly better treated in other compositions. Of the machinery of a ship; the disposition of the rigging on her masts and yards; and the comparative force of her different mechanical powers, their accounts however are often vague, perplexed, and unintelligible.

With regard to her internal government in action; to the general regulations of the line of battle; and to

the principal movements in sailing, they are almost totally silent. Had any of these works been executed with tolerable success, it might have rendered mine unnecessary; or probably have introduced it in the form of a translation.

I acknowledge with great pleasure the advantages I have derived in the prosecution of this work, from several authors of distinguished reputation: in reality however none of those above-mentioned are of the number. In that part which is dedicated to the theory and art of ship-building, I owe considerable obligations to the ingenious M. Du Hamel. The principal pieces used in the construction of a ship, together with their combination and disposition, are copiously and accurately described in his *Elements of Naval Architecture*: and his general account of the art itself is perspicuous and comprehensive. Many of his explanations I have therefore implicitly adopted.

In treating of the artillery, I have occasionally consulted *Le Blond*, *Muller*, and *Robins*, besides selecting some valuable materials from the manuscripts of officers of long experience and established reputation in that service. Whatever relates to the rigging, sails, machinery, and movements of a ship; or to the practice of naval war, is generally drawn from my own observations; unless where the author is quoted.

As there are abundance of books professedly written on astronomy, and the theory of navigation, I have totally omitted the terms of the former, as foreign to my plan; and slightly passed over the latter: because no reader could acquire a sufficient idea of those sciences from so partial a description. Many of the least important parts of a ship, as well as of her rigging, are very generally defined. To explain the track of every particular rope, through its

different channels, would be equally useless and unintelligible to a land reader: to mariners it were superfluous: and even the youths who are trained to the sea, would reap little advantage from it; because their situation affords them much better opportunities of making these minute discoveries.

I have in general endeavoured to give the etymology of the most material expressions, unless when their evident analogy to common words rendered this unnecessary. Many reasons may be alledged for introducing the French sea-terms and phrases; particularly that obvious one, of understanding their pilots, when we may have occasion for their assistance. Wherever it was found necessary to explain one technical term by another, the latter is usually printed in italics the first time it is mentioned; so that the reader may refer to it for a further explanation.

As the plates of this publication were intended to illustrate the various objects to which they refer, they are little ornamented; but have in general the recommendation of simplicity and geometrical truth. In this part I have been particularly favoured with many original drawings, which are usually considered amongst the inaccessible *arcana* of ship-building. They are much more numerous, useful, and correct, than what has hitherto appeared in any work of the kind. In fine, I have endeavoured, to the best of my judgment, to retrench the superfluities, and supply the deficiences of former writers on the same subject, as well as to digest and methodise whatever appeared loose or inaccurate therein.

This undertaking was first suggested to me by my worthy and ingenious friend George Lewis Scott, Esq; who considered it as a work of extensive utility, Indeed, in a country whose principal sources of

strength are derived from the superiority of her marine, it is evidently wanted. I have the pleasure also to know that Sir Edward Hawke, and several officers of respectable abilities in our navy, are of the same opinion. To this may be added, what the celebrated M. Du Hamel lately observed, in a letter to me, *s*. I mention this expressly, because some sea-officers have considered the work unnecessary. It is however submitted, with all possible deference, to superior judges; to men of science and letters, who know the difficulty of explaining the parts of a mechanical system, when the readers are unacquainted with the subject.

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AN UNIVERSAL DICTIONARY OF THE MARINE.

A.

ABACK, *coeffé*, the situation of the sails when their surfaces are flatted against the masts by the force of the wind.

The sails are said to be *taken aback*, when they are brought into this situation, either by a sudden change of the wind, or by an alteration in the ship's course. They are *laid aback*, to effect an immediate retreat, without turning to the right or left; or, in the sea-phrase, to give the ship *stern-way*, in order to avoid some danger discovered before her in a narrow channel; or when she has advanced beyond her station in the line of battle, or otherwise.

The sails are placed in this position by slackening their lee-braces, and hauling in the weather ones; so

that the whole effort of the wind is exerted on the fore-part of their surface, which readily pushes the ship astern, unless she is restrained by some counteracting force. See BACKING, and BRACING.

It is also usual to spread some sail aback near the stern, as the mizen-top-sail, when a ship rides with a single anchor in a road, in order to prevent her from approaching it so as to entangle the flukes of it with her slackened cable, and thereby loosen it from the ground. See ANCHOR.

Fig. 1. Plate III. discovers the plan of a ship, *a b*, with her main-top-sail, *c d*, aback; in which the curved dotted line expresses the cavity of it, as blown back by the wind on each side of the mast. The fore-top-sail, which is full, is exhibited by the line *e f*. Fig. 3. represents a perspective view of the ship in the same situation; and the dart shews the direction of the wind upon both.

Lay all flat ABACK, the order to arrange all the sails in this situation.

ABAFT, *arriere*, (*abaftan*, Sax. behind) the hinder part of a ship, or all those parts both within and without, which lie towards the stern, in opposition to afore; which see.

ABAFT, *arriere de*, is also used as a preposition, and signifies *further aft*, or *nearer the stern*; as, the barricade stands *abaft* the main mast, i. e. behind it, or nearer the stern.

ABOARD (*à bord*, Fr. *abordo*, Ital.) the inside of a ship: hence any person who enters a ship is said to go *aboard*: but when an enemy enters in the time of battle, he is said to *board*. A phrase which always implies hostility. See the article BOARDING.

To fall ABOARD of, *aborder*, to strike or encounter another ship, when, one or both are in motion; to be driven upon a ship by the force of the wind or

current.

ABOARD-*main-tack! amure la grande voile!* the order to draw the main-tack, i. e. the lower corner of the main-sail, down to the chess-tree. See CHESS-TREE.

ABOUT, *reviré*, (*abutan*, Sax.) the situation of a ship immediately after she has *tacked* or changed her course by going about, and standing on the other tack. See TACKING.

ABOUT-SHIP! *adieu-va!* the order to the ship's crew to prepare for tacking.

ABREAST, *par le travers* (of *breost*, Sax.), side by side, or opposite to; a situation in which two or more ships lie, with their sides parallel to each other, and their heads equally advanced.

This term more particularly regards the line of battle at sea, where, on the different occasions of attack, retreat, or pursuit, the several squadrons, or divisions of a fleet, are obliged to vary their dispositions, and yet maintain a proper regularity by sailing in *right* or *curved* lines. When the line is formed *abreast*, the whole squadron advances uniformly, the ships being equally distant from, and parallel to each other, so that the length of each ship forms a right angle with the extent of the squadron or line *abreast*. The commander in chief is always stationed in the center, and the second and third in command in the centers of their respective squadrons. See this farther illustrated in the article LINE.

ABREAST, within the ship, implies on a line with the beam, or by the side of any object aboard; as, the frigate sprung a leak abreast of the main hatch-way, i. e. on the same line with the main hatch-way, crossing the ship's length at right angles, in opposition to *afore* or *abaft* the hatch-way. See ABAFT.

We discovered a fleet Abreast of Beachy-Head, i. e. off, or directly opposite thereto.

ACORN, *pomme de girouette*, a little ornamental piece of wood, fashioned like a cone, and fixed on the uppermost point of the spindle, above the vane, on the mast-head. It is used to keep the vane from being blown off from the spindle in a whirlwind, or when the ship leans much to one side under sail. See plate I. fig. 1. where *a* represents the acorn, *b* the vane and stock, *c* the spindle, and *d* the mast-head.

ADMIRAL, *amiral*, an officer of the first rank and command in the fleet, and who is distinguished by a flag displayed at his main-top-mast-head. Also an officer who superintends the naval forces of a nation, and who is authorised to determine in all maritime causes.

The origin and denomination of this important office, which seems to have been established in most countries that border on the sea, have given rise to a great variety of opinions. Some have borrowed them from the Greek, others from the Arabic, while a third sort, with greater probability, derive both the title and dignity from the Saracens.[1] But since no certain conclusions have been deduced from these elaborate researches, and as it rather appears the province of this work to give the reader an idea of the office and duty of an admiral at sea, than to furnish an historical or chronological detail of the rank and power with which admirals have been invested in different nations, we shall contentedly resign this task to the ingenious lexicographers who have so repeatedly entertained us with such critical investigations.

The ADMIRAL, or commander in chief of a fleet, being frequently invested with a great charge, on which the fate of a kingdom may depend, ought

certainly to be possessed of abilities equal to so important a station and so extensive a command. His fleet is unavoidably exposed to a variety of perplexing situations in a precarious element. A train of dangerous incidents necessarily arise from those situations. The health, order, and discipline of his people, are not less the objects of his consideration, than the condition and qualities of his ships. A sudden change of climate, a rank and infectious air, a scarcity, or unwholsomness of provisions, may be as pernicious to the former, as tempestuous weather or dangerous navigation to the latter. A lee-shore, an injudicious engagement with an enemy greatly superior, may be equally fatal to both. He ought to have sufficient experience to anticipate all the probable events that may happen to his fleet during an expedition or cruise, and, by consequence, to provide against them. His skill should be able to counter-act the various disasters which his fleet may suffer from different causes. His vigilance and presence of mind are necessary to seize every favourable opportunity that his situation may offer to prosecute his principal design; to extricate himself from any difficulty or distress; to check unfortunate events in the beginning, and retard the progress of any great calamity. He should be endued with resolution and fortitude to animate his officers by the force of example, and promote a sense of emulation in those who are under his command, as well to improve any advantage, as to frustrate or defeat the efforts of his ill fortune.

The most essential part of his duty, however, appears to be military conduct. As soon as the fleet under his command puts to sea, he is to form it into the proper order of battle, called the LINE. In this arrangement he is to make a judicious distribution of

strength from the van to the rear, throwing the principal force into the center, to resist the impression of the enemy's fleet; which might otherwise, at some favourable opportunity, break through his line, and throw the van and rear into confusion.

A competent knowledge of the seas, weather, and reigning winds, of the coast or region where he is stationed, is also requisite, as it will greatly facilitate his plans on the enemy. It will enable him to avoid being improperly embayed, where he might be surprised in a disadvantageous situation; and to judge whether it will be most expedient to attack his adversary, or lie prepared to receive his assault. When his fleet is forced by stress of weather or otherwise to take shelter in a road or bay, it will likewise suggest the necessary conduct of keeping a sufficient number of cruisers at sea, to bring him early intelligence, that they may be ready to cut or slip the cables when they are too much hurried to weigh their anchors.

As the forming a complete, strong, and uniform line is a very material article in naval war, the admiral ought frequently to arrange the fleet under his command into this order, that the inferior officers may observe to bring their ships, with greater dexterity and alertness, into their several stations, and maintain the regularity of the line when they tack, veer, or sail abreast. See LINE.

When the admiral intends a descent on an enemy's coast, or other attack which may be attended with complicated and unforeseen incidents, his orders should be delivered or drawn up with the greatest accuracy and precision: they should be simple, perspicuous, direct, and comprehensive; they should collect a number of objects into one point of view,

and, foreseeing the effects of success or defeat, appoint the proper measures to be adopted in consequence thereof. History and experience confirm the necessity of this observation, and present us with a variety of disasters that have happened on such occasions, merely by a deficiency in this material article. In the commanding officer, inattention, barrenness of expedient, or a circumscribed view of the necessary effects of his enterprize, may be equally pernicious. And general orders ought to be utterly free from pedantry and perplexity, which always betray a false taste and confused imagination, besides the probability of producing many fatal consequences.

When an admiral conquers in battle, he should endeavour to improve his victory, by pushing the advantages he has acquired as far as prudence directs; a conduct which merits his attention as much as any in the action! When he is defeated, he ought to embrace every opportunity of saving as many of his ships as possible, and endeavour principally to assist those which are disabled. In short, it is his duty to avail himself of every practicable expedient rather than sink under his misfortune, and suffer himself to become an easy prey to the enemy.

He should be sufficiently acquainted with civil law, to judge with propriety of the proceedings of courts-martial, and to correct the errors, and restrain the abuses which may happen therein by mistake, or ignorance, or inattention.

As secret treaties, propositions, or schemes of the enemy, may occasionally be submitted to his inspection, or fall into his possession by capture; and which it might be improper to discover to any person near him, he ought to have a competent knowledge of the modern languages, or at least, those of the

countries against whom his military operations are directed, to be able to comprehend with facility the full scope and purport of such papers.

He ought to be well versed in geometry, to order proper and correct surveys of unknown coasts, roads, or harbours to be made, and to judge of their accuracy, and detect their errors. To ascertain the situation and longitude of different places, he should be also sufficiently skilled in astronomy, and the method of taking observations, which indeed is essentially necessary to the profession of a sea-officer, although too much neglected.

By his orders the admiral is likewise to assist at all councils of war that relate to naval affairs: to visit, as often as convenient, the other ships of his squadron: to enquire particularly into their condition, and observe the men mustered, taking care that no supernumeraries are borne on the books. He is directed to acquaint the secretary of the admiralty of all his proceedings relating to the service, for the information of the lord-high-admiral, or lords commissioners of the admiralty; and to attend him or them, on his return home, with an account of his voyage or expedition, and to transmit a copy of his journal to their secretary.

Much more might be observed on this occasion. It appears however by the general outline which we have sketched, that the office and duty of an admiral requires greater skill and more comprehensive abilities than is generally supposed necessary to the command of a naval armament. And that he ought to be duly qualified, at least in this kingdom, to assist at the councils of his sovereign, and enter into the enlarged system of protecting his country from an invasion by sea, or of meditating a descent on an enemy’s coast; as well as to improve navigation, and

open new channels of commerce. For further particulars of his charge, see the articles ENGAGEMENT, LINE, SQUADRON.

ADMIRAL *of the fleet*, the highest officer under the admiralty of Great-Britain: when he embarks on any expedition, he is distinguished by the union flag at the main-top-mast-head.

Vice-ADMIRAL, *vice-Amiral*, the officer next in rank and command to admiral; his flag is displayed at the fore-top-mast-head.

Rear-ADMIRAL, *contre-amiral*, *lieutenant-général des armées navales*, the officer next in rank and command to the vice-admiral, and who carries his flag at the mizen-top-mast-head.

There are at present in England, besides the admiral of the fleet, three admirals of the white squadron, and four of the blue. Three vice-admirals of the red, three of the white, and four of the blue. Four rear-admirals of the red, four of the white, and five of the blue squadron: besides twenty-two rear-admirals that have carried no flag, who are superannuated upon half-pay.

Vice-ADMIRAL is also a civil officer appointed by the lords-commissioners of the admiralty. There are several of these officers established in different parts of Great-Britain, with judges and marshals under them, for executing jurisdiction within their respective districts. Their decisions, however, are not final, an appeal lying to the court of admiralty in London.

ADMIRALTY, *Amirauté*, the office of lord-high-admiral, whether discharged by one single person, or by joint commissioners, called Lords of the Admiralty.

ADVICE-BOAT, *pacquet d' avis*, a small vessel employed to carry expresses or orders with all

possible dispatch.

ADRIFT (from *a* and *drift*, Sax.) the state of a ship or vessel broke loose from her moorings, and driven without controul at the mercy of the wind, seas, or current, or all of them together.

AFLOAT, (*à flot*, Fr.) floating on the surface of the water: a ship is said to be *afloat* when there is a volume of water under her bottom of sufficient depth to buoy her up from the ground.

AFORE, *avant*, (*fore*, Sax.) all that part of a ship which lies forward, or near the stem.

AFORE, as a preposition, likewise implies *further forward*, or nearer the prow; as, the manger stands *afore* the fore-mast, i. e. further forward, or nearer the stem. In both these senses *afore* is used in contradistinction to *abaft*. See the article ABAFT.

AFT, *arriere*, (from *æfter*, or *abaft*) behind, or near the stern of the ship; being opposed to *fore*; as, run out the guns *fore and aft*! i. e. from one end of the ship to the other; and whence,

AFTER, *de l'arriere*, (*æfter*, Sax.) a phrase applied to any object situated in the hinder-part of the ship; as, the *after*-hatchway, the *after*-capstern, the *after*-sails, &c.

The AFTER-SAILS usually comprehend all those which are extended on the mizen-mast, and on the stays between the mizen and main-masts. They are opposed to the head-sails, which include all those that are spread on the fore-mast and bowsprit; and both by their mutual operation on the opposite ends of the ship, duly balance her when under sail. See the article TRIM.

AGENT-VICTUALLER, *avitalleur*, an officer stationed at a royal port, to regulate the victualling of the king's ships, under the directions of the commissioners for victualling the navy. He receives

all the provisions from the victualling-office in London, and distributes them to the ships in the harbour. He also receives into his store-houses such as may be returned by ships after the expiration of their voyage, and renders an account thereof to the said commissioners.

AGROUND, *echoué*, (from *a* and *ground*) the situation of a ship whose bottom, or any part of it, hangs or rests upon the ground, so as to render her immoveable till a greater quantity of water floats her off; or till she is drawn out into the stream, by the application of mechanical powers.

AHEAD, *avant*, *au devant*, (from *a* and *head*, Sax.) further onward than the ship, or at any distance before her, lying immediately on that point of the compass to which her stem is directed. It is used in opposition to *astern*, which expresses the situation of any object behind the ship. See ASTERN.

To run Ahead of one's reckoning, *depasser*, to sail beyond the place shewn erroneously in the dead-reckoning as the ship's station.

Line AHEAD. See the article LINE.

A-HULL, *à sec; à mats, & à cordes* (from *a* and *hull*) the situation of a ship when all her sails are furled on account of the violence of the storm, and when having lashed her helm on the lee-side, she lies nearly with her side to the wind and sea, her head being somewhat inclined to the direction of the wind. See this further explained in the article TRYING.

AIM, the direction of a cannon, or other fire-arm, to its object, or the point to which it is directed; whence,

To take AIM, *prendre sa mire*, (from *esmer*, Fr.) is to point a gun to its object according to the point-blank range. See CANNON and RANGE.

ALEE, *envoié*, (from *a* and *lee*) the situation of the helm when it is pushed down to the lee side of the ship, in order to put the ship about, or lay her head to the windward.

ALL *in the wind*, the state of a ship's sails when they are parallel to the direction of the wind, so as to shake and shiver, by turning the ship's head to windward, either by design, or neglect of the helm's man.

ALL*'s well*! an acclamation of safety or security pronounced by a centinel, and repeated by all the others who are stationed in different places of a ship of war, at the time of striking the bell each half-hour during the period of the night watch.

ALL *hands high*, or ALL *hands hoay*! *tout le monde haut!* the call or order by which all the ship's company are summoned upon deck by the boatswain.

ALOFT, *en haut*, (*loffter*, to lift up, Dan.) up in the tops, at the mast-heads, or any where about the higher yards or rigging.

ALONG-*side*, *bord à bord*, *flanc & flanc*, side by side, or joined to a ship, wharf, &c. and lying parallel thereto.

To lay ALONG-*side*, *alonger*, to arrange a ship by the side of another.

ALONG-*shore*, along the coast; this phrase is commonly applied to coasting-navigation, or to a course which is in sight of, and nearly parallel to, the shore.

Lying ALONG, *à la bande*, (*au longe*, Fr.) the state of being pressed down sideways by a weight of sail in a fresh wind that crosses the ship's course either directly or obliquely.

ALOOF, *lof*, this has frequently been mentioned as a sea-term, but whether justly or not we shall not

presume to determine; it is known in common discourse to imply, at a distance; and the resemblance of the phrases, *keep aloof*, and *keep a luff*, or *keep the luff*, in all probability gave rise to this conjecture. If it was really a sea-phrase originally, it seems to have referred to the dangers of a lee-shore, in which situation the pilot might naturally apply it in the sense commonly understood, *viz.* keep *all off*, or quite off: it is, however, never expressed in that manner by seamen now. See LUff. It may not be improper to observe, that, besides using this phrase in the same sense with us, the French also call the weather side of a ship, and the weather clue of a course, *le lof*.

AMAIN, *cale-tout*, (from *main*, or *maigne*, old French) at once, suddenly; as, let go *amain*! i. e. let it run at once. This phrase is generally applied to any thing that is hoisted or lowered by a tackle, or complication of pullies.

AMIDSHIPS, the middle of the ship, either with regard to her length or breadth. Example in the first sense; The enemy boarded us *amidships*, i. e. in the middle, between the stem and stern. Example in the second sense; Put the helm *amidships*, i. e. in the middle, between the two sides.

ANCHOR, *ancre* (*anchora*, Lat. from αγκυρα, Greek) a heavy, strong, crooked instrument of iron, dropped from a ship into the bottom of the water, to retain her in a convenient station in a harbour, road, or river.

The most ancient anchors are said to have been of stone, and sometimes of wood, to which a great quantity of lead was usually fixed. In some places baskets full of stones, and sacks filled with sand, were employed for the same use. All these were let down by cords into the sea, and by their weight

stayed the course of the ship. Afterwards they were composed of iron, and furnished with teeth, which being fastened to the bottom of the sea, preserved the vessel immoveable; whence ὀδοντες and *dentes* are frequently taken for anchors in the Greek and Latin poets. At first there was only one tooth, whence anchors were called ἑτερόστομοι; but in a short time the second was added by Eupalamus, or Anacharsis, the Scythian philosopher. The anchors with two teeth were called ἀμφίβολοι, or ἀμφίστομοι, and from ancient monuments appear to have been much the same with those used in our days, only the transverse piece of wood upon their handles (the stock) is wanting in all of them. Every ship had several anchors, one of which, surpassing all the rest in bigness and strength, was peculiarly termed ἱηρὰ, or *sacra*, and was never used but in extreme danger; whence *sacram anchoram solvere*, is proverbially applied to such as are forced to their last refuge. *Potter's Antiquities of Greece.*

The anchors now made are contrived so as to sink into the ground as soon as they reach it, and to hold a great strain before they can be loosened or dislodged from their station. They are composed of a shank, a stock, a ring, and two arms with their flukes. The stock, which is a long piece of timber fixed across the shank, serves to guide the flukes in a direction perpendicular to the surface of the ground; so that one of them sinks into it by its own weight as soon as it falls, and is still preserved steadily in that position by the stock, which, together with the shank, lies flat on the bottom. In this situation it must necessarily sustain a great effort before it can be dragged through the earth horizontally. Indeed this can only be effected by the violence of the wind or tide, or of both of them, sometimes increased by

the turbulence of the sea, and acting upon the ship so as to stretch the cable to its utmost tension, which accordingly may dislodge the anchor from its bed, especially if the ground be soft and oozy or rocky. When the anchor is thus displaced, it is said, in the sea phrase, to *come home*.

That the figure of this useful instrument may be more clearly understood, let us suppose a long massy beam of iron erected perpendicularly, Plate I. fig. 2. *b c*; at the lower end of which are two arms, *d e*, of equal thickness with the beam (usually called the shank) only that they taper towards the points, which are elevated above the horizontal plane at an angle of thirty degrees; or inclined to the shank at an angle of sixty degrees: on the upper part of each arm (in this position) is a fluke, or thick plate of iron, *g h*, commonly shaped like an isosceles triangle, whose base reaches inwards to the middle of the arm. On the upper-end of the shank is fixed the stock transversely with the flukes: the stock is a long beam of oak, *f*, in two parts, strongly bolted, and hooped together with iron rings. See also fig. 3. Close above the stock is the ring, *a*, to which the cable is fastened, or *bent*: the ring is curiously covered with a number of pieces of short rope, which are twisted about it so as to form a very thick texture or covering, called the puddening, and used to preserve the cable from being fretted or chafed by the iron.

Every ship has, or ought to have, three principal anchors, with a cable to each, viz. the sheet, *maitresse-ancre*, (which is the *anchora sacra* of the antients) the best bower, *second ancre*, and small bower, *ancre d' affourche*, so called from their usual situation on the ship's bows. There are besides smaller anchors, for removing a ship from place to place in a harbour or river, where there may not be

room or wind for sailing; these are the stream-anchor, *ancre de touei*; the kedge and grappling, *grapin*; this last, however, is chiefly designed for boats.

To drag the ANCHORS, *chasser sur ses ancres*, implies the effort of making the anchor *come home*, when the violence of the wind, &c. strains the cable so as to tear it up from the bed into which it had sunk, and drag it along the ground; as already explained.

Foul-ANCHOR: it is so called when it either hooks some other anchor, wreck, or cable, under the surface of the water; or when, by the wind suddenly abating, the ship slackens her strain, and straying round the bed of her anchor, entangles her slack cable about the upper fluke of it, and easily draws it out of its place, as soon as she begins to ride with a strain. To prevent this, it is usual, as she approaches the anchor, in light winds, to draw the slack cable into the ship as fast as possible.

To ANCHOR, *ancrer*, *mouiller*, *&c.* is to let go the anchor, and to let the ship ride thereby.

The ANCHOR *is a cock-bill*, *ancre est àla vielle*, implies that the shank-painter, or rope by which the flukes were hung to the ship's bow, being cast off, the flukes drop down perpendicularly; whilst the anchor is suspended at the cat-head by its stopper, ready to be sunk from the bow at a moment's warning.

At ANCHOR, *à l' ancre*, the situation of a ship which rides by her anchor in a road or haven, &c. Plate I. fig. 6. represents the fore-part of a ship, as riding in this situation.

The ANCHOR *is a peek*. See the article APEEK.

The ANCHOR *is a-trip*, or *a-weigh*. See those articles.

To back the ANCHOR. See BACK.

To cat the ANCHOR, *caponner l'ancre*, is to hook a tackle called the *cat* to its ring, and thereby pull it up close to the cat-head, which see.

To fish the ANCHOR, to draw up the flukes upon the ship's side after it is catted. See the articles DAVIT and FISH.

To sheer the ship to her ANCHOR, *gouverner sur l'ancre*, is to steer the ship's head towards the place where the anchor lies when they are heaving the cable into the ship; that the cable may thereby enter the hause with less resistance, and the ship advance towards the anchor with greater facility.

To shoe the ANCHOR. See the article SHOE.

To weigh the ANCHOR, *lever l'ancre*, to heave the anchor out of the ground by its cable. See CAPSTERN and WINDLASS.

To weigh the ANCHOR *with the long-boat*, *lever l'ancre avec la chaloupe*, is to draw it up by applying mechanical powers to the buoy-rope, and thereby pull it up to the boat's stem or stern.

To weigh the ANCHOR *by the hair*, is to weigh it by the cable in a boat, when the ship cannot approach it, or when the buoy rope is broke. See the French term *Ancre*, and the phrases which succeed in order.

ANCHOR-*ground*, *fond de bonne tenue*, is a bottom which is neither too deep, too shallow, nor rocky; as in the first the cable bears too nearly perpendicular, and is thereby apt to jerk the anchor out of the ground: in the second, the ship's bottom is apt to strike at low water, or when the sea runs high, by which she is exposed to the danger of sinking: and in the third, the anchor is liable to hook the broken and pointed ends of rocks, and tear away its flukes; whilst the cable, from the same cause, is constantly in danger of being cut through as it rubs on their edges.

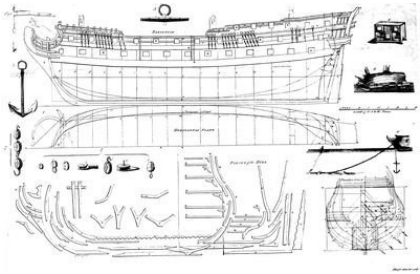
APEEK, (*à pique*, Fr.) perpendicular to the anchor; a ship is said to be in this situation, when the cable is drawn so tight into the bow as to, bring her directly over the anchor, so that the cable bears right down from the ship's stem.

APRON, (from *a* and *foran*, Sax.) a platform, or flooring of plank, raised at the entrance of a dock, a little higher than the bottom, against which the dock gates are shut. See the article DOCK.

APRON, *contre etrave*, in ship-building, a piece of curved timber fixed behind the lower part of the stem, immediately above the foremost end of the keel. See plate I. fig. H. in the PIECES *of the* HULL.

The APRON conforms exactly to the shape of the stem, so that when the convexity of the former is applied to the concavity of the latter, it forms one solid piece, which serves to fortify the stem, and give it a firmer connexion with the keel.

As the apron is composed of two pieces scarfed together, and used to support she scarf of the stem, it is necessary that the scarf thereof should be at some distance from that of the stem. It is formed of the same thickness with the heel of the stem; but its thickness is equal throughout. Sometimes the piece immediately under the apron forms a curve, of which the horizontal part covers the dead-wood, whilst the vertical part corresponds with the inside of the stem, to which it is fayed, making the commencement of the apron.



Naval ARCHITECTURE
Plate. i.

APRON, *platine*, is also a square piece of lead fastened over the touch-hole of the cannon, to keep the charge dry at sea or in rainy weather.

Naval ARCHITECTURE, or the science of ship-building, comprehends the theory of delineating marine vessels upon a plane; and the art of framing them upon the stocks, according to the proportions exhibited in a regular design.

All edifices, whether civil or military, are known to be erected in consequence of certain established plans, which have been previously altered or improved till they have arrived at the desired point of perfection. The construction of ships appears also to require at least as much correctness and precision as the buildings which are founded upon *terra firma*: it is therefore absolutely necessary that the mechanical skill of the shipwright should be assisted by plans and sections, which have been drawn with all possible exactness, examined by proper calculations, and submitted to the most accurate scrutiny.

Naval ARCHITECTURE, or ship-building, may be distinguished into three principal parts.

First, To give the ship such an exterior form as may be most suitable to the service for which she is

designed.

Secondly, to give the various pieces of a ship their proper figures; to assemble and unite them into a firm, compact frame, so that by their combination and disposition they may form a solid fabric, sufficient to answer all the purposes for which it is intended: And,

Thirdly, To provide convenient accommodations for the officers and crew, as well as suitable apartments for the cargo, furniture, provisions, artillery and ammunition.

The exterior figure of a ship may be divided into the bottom and upper-works.

The bottom, or quick-work, contains what is termed the *hold,* and which is under water when the ship is laden. The upper-works, called also the dead-work, comprehend all that part which is usually above the water when the ship is laden.

The figure of the bottom is therefore determined by the qualities which are necessary for the vessel, and conformable to the service for which she is proposed.

The limits of our design will not admit of a minute description, and enumeration of all the pieces of timber which enter into the construction of a ship, nor of a particular description of their assemblage and union; or the manner in which they reciprocally contribute to the solidity of those floating citadels. It nevertheless appears necessary to give a general idea of the use, figure, and station, of the principal pieces, to those who are intirely unacquainted with the subject. As our definitions will be greatly illustrated also by the proper figures, we have annexed to this article a plate which comprehends some of the most material draughts, as well as a representation of the principal pieces employed in naval architecture.

It is usual amongst shipwrights to delineate three several draughts.

First, The whole length of the ship is represented according to a side view, perpendicular to the keel, and is termed the plane of elevation, or sheer-draught. Plate I.

Second, The ship is exhibited according to an end view, and stripped of her planks, so as to present the outlines of the principal timbers; and this is properly termed the plane of projection, or the vertical plane of the timbers, Plate I. because it shews the projection of their frames relatively to each other.

Third, It is not sufficient to have the vertical curves of the bottom in different places, for a distinct idea of the horizontal curves is also equally necessary and useful: this is obtained by means of *water-lines*, traced upon what is called the horizontal plane. In this draught, the curves of the transoms called the *round-aft*, is also marked, and sometimes the breadth and thickness of the timbers.

The plane of elevation, plate I. determines the length and depth of the keel; the difference of the draughts of water; the length and projection, or *rake*, of the stem and stern-post; the position of the mid-ship frame upon the keel, together with that of the principal frames afore and abaft; the load-water-line; the wales, the dimensions and situations of the gun-ports, the projection of the rails of the head and stern-gallery, with the stations of the masts and channels. See the article ELEVATION.

This draught, however, conveys no idea of the vertical curve of the ribs or timbers; for as their projection will be only represented in a plane elevated upon the length of the keel, they will appear in this direction no otherwise than as streight lines. To perceive these curves accurately, they must be

regarded in another point of view, which will represent their projection upon a vertical plane, supposed to cut the keel at right angles in the place where the ship is broadest. For as all ships are broader near the middle of their length than towards the extremities, it is evident that the timbers are more extended in proportion. The most capacious of these represents what is called the *midship-frame*; and upon the area of this frame is delineated the projection of all the others.

Thus the plane of projection limits the different breadths of a ship in various points of her length, and exhibits the outline of the timbers respectively to each other, as they are erected upon the keel. Accordingly, this draught ought to present a variety of sections of the ship in different places of her length, and always perpendicular to the surface of the water; so that the eye of the observer, when placed in what may be properly termed the *axis* of the ship, may perceive the several sections at one glance, that is to say, when looking full on the stem, from before the ship, (See plate V. fig. 4.) he shall discover the fore-timbers; and when looking from behind, directly on the stern, he shall perceive the form of the after-timbers, (See plate X. fig. 2 and 3.) in both of which figures the sections of the inferior timbers are expressed by curved black lines drawn upon the area of the midship-frame, which is already described to be a plane elevated perpendicularly upon the keel at the extreme breadth of the vessel.

To form a just idea of this plane, therefore, we ought to suppose a ship resting upon the stocks, in the same position as when afloat upon the water. Thus a variety of black vertical lines may be drawn at equal distances upon the bottom, which is white, to form different outlines of the ship corresponding

to the timbers within. It is to be observed, that the fashion of the inferior timbers must conform to the figure of the midship-frame, which is placed in the fullest part of the ship; and as the planes of all the other timbers diminish in a certain progression as they approach the stem and stern, they are properly delineated on the plane of the midship-frame, which also represents the depth of the keel and length of the midship-beam.

As the two sides of a ship ought to be exactly alike, it is judged sufficient to represent the sections of the fore-part of the ship on the left side, and those in the after-part on the right side, so as to perceive all the sections, as well afore as abaft, upon one plane. See plate I. PROJECTION.

However necessary it may be to understand precisely the vertical curves of the bottom, it is no less requisite to have a just idea of those which are horizontal.

The horizontal, or floor plane, is that upon which the whole frame is erected, and will be more clearly understood by previously describing the water-lines and ribbands, of which it is composed.

When a ship floats upon the stream, it is evident that her upper-works will be separated from the bottom by the surface of the water, which will accordingly describe an imaginary horizontal line upon the bottom from the stem to the stern-post.

The most elevated of those lines is termed the load-water-line, which is supposed to be drawn by the surface of the water on the upper part of the bottom, when she is sufficiently laden for a sea-voyage. For if we suppose this surface a rule, and thereby describe a corresponding black line along the vessel's bottom, that line will be distinguished upon the bottom, which is white, and represent what is

called the load-water-line.

If the ship is lightened of any part of her lading, and preserves the same difference in her draught of water at the two ends, or, what is the same thing, if she is lightened so as to preserve the same equilibrium of the keel with regard to the surface of the water, it is evident that she will rise higher out of the water, so that the black line already described will be elevated above it, and another black line may be delineated upon the bottom, close to the surface of the water, which will exhibit a second water-line parallel to the first, but nearer the keel in proportion to the number of feet which the ship has risen.

Thus by lightening a ship gradually, and at the same time preserving the direction of her keel, or the angle which the keel makes with the surface of the water, a variety of water-lines may be drawn parallel to each other, and to the load-water-line. See a farther illustration of these lines in the article WATER-LINE. See also their figure on a ship's bottom, plate I. fig. 5.

The ribbands are likewise of great utility in ship-building; they are narrow and flexible planks placed on the bottom at different heights, so as to form a sort of mould for stationing the inferior timbers between the principal ones. They differ from the water-lines, inasmuch as the latter have only one curve, which is horizontal, whereas the ribbands, besides their horizontal one, have a vertical curve. To convey a just idea of these curves, which cannot be represented on one draught at their full length, without an oblique section of the ship's length, it will be necessary to have recourse to two planes; that of the elevation, which exhibits their vertical curve; and to the floor-plane, upon which the horizontal curve is expressed. See RIBBANDS.

These different lines are extremely useful in exhibiting the various curves of a ship's bottom, that as they are gradually diminished, their uniformity or irregularity may be discovered by the skilful artist.

We have already observed, that the qualities required in a ship ought to determine the figure of the bottom: a ship of war therefore should be able to sail swiftly, and carry her lower tier of guns sufficiently out of the water. A merchant-ship ought to contain a large cargo of merchant-goods, and be navigated with few hands; and both should be able to carry sail firmly; steer well; drive little to leeward; and sustain the shocks of the sea without being violently strained.

The first thing to be established in the draught of a ship is her length; and as a ship of war, according to her rate, is furnished with a certain number of cannon, which are placed in battery on her decks, it is necessary that a sufficient distance should be left between their ports to work the guns with facility, and particularly to leave space enough between the foremost gun and the stem, and between the aftmost gun and the stern-post on each side, on account of the arching, or inward curve of the ship towards her extremities.

When the length of a ship is determined, it is usual to fix her breadth by the dimensions of the midship-beam. On this occasion the shipwrights, for the most part, are conducted by rules founded on their own observation; for having remarked, that some vessels which by repeated experience have been found to answer all the purposes of navigation, have a certain breadth in proportion to their length, they have inferred that it would be improper to depart from this proportion: but as other ships have been constructed with different breadths, which were

equally perfect, a variety of different general rules have been adopted by these artists, who are accordingly divided in their opinions about the breadth which ought to be assigned to a ship relatively with her length, whilst each one produces reasons and experience in support of his own standard. Those who would diminish the breadth alledge, that a narrow vessel meets with less resistance in passing through the water; 2dly. That by increasing the length she will drive less to leeward; 3dly. That according to this principle, the water-lines will be more conveniently formed to divide the fluid; 4thly. That a long and narrow ship will require less sail to advance swiftly; that her masts will be lower, and her rigging lighter; and, by consequence, the seamen less fatigued with managing the sails, &c.

Those, on the contrary, who would enlarge the breadth, pretend, 1st. That this form is better fitted to preserve a good battery of guns. 2dly. That there will be more room to work the guns conveniently. 3dly. That by carrying more sail the ship will be enabled to run faster; or, that this quality will at least overbalance the advantage which the others have of more easily dividing the fluid. 4thly. That, being broader at the load-water-line, or place where the surface of the water describes a line round the bottom, they will admit of being very narrow on the floor, particularly towards the extremities: and 5thly. That a broad vessel will more readily rise upon the waves than a narrow one.

From such opposite principles has resulted that variety of standards adopted by different shipwrights; and a servile imitation of these mechanical methods has, to the great reproach of the art, produced all these pretended rules of proportion:

for the various models they have hitherto adopted indisputably prove their doubt and uncertainty with regard to their proper standard. Hence these pretended mysteries which are only to be revealed to such as are initiated into the craft! Hence this division of the art into classes, or, according to the technical term, into *families*, each of which affects, with becoming solemnity, to be possessed of the true secret, in preference to all the others! And hence violence of opposition, and mutual contempt amongst the artists! Indeed nothing appears more effectually to have retarded the progress of naval architecture, than the involving it in mysteries which the professors would gravely insinuate are only intelligible to themselves. This ridiculous affectation is nevertheless tenaciously retained, notwithstanding the example to the contrary of some of the most able shipwrights in Europe, who are real masters of the theory of their art, and do honour to their profession, and who are justly exempted from the censure to which the others are often exposed.

It is not to be expected that an art so complicated and various, comprehending such a diversity of structures, can be treated at large in a work of this sort. To enter into a particular detail of the theory and practice; to explain the different parts with sufficient accuracy and perspicuity, would of itself require a large volume, and, by consequence, greatly exceed the limits of our design. Being thus necessitated to contract our description into a narrow compass, it will be sufficient to give a general idea of the subject; to describe the principal pieces of which a ship is composed, and to explain the principal draughts used in the construction thereof.

As the several lines exhibited in the planes of

elevation, projection, &c. will be rendered more intelligible by a previous account of those pieces, it may not be improper to begin with reciting their names, and giving a summary description of their uses and stations. They are for the most part represented according to the order of their disposition in that part of plate I. which is termed PIECES *of the* HULL.

A. The pieces which compose the keel, to be securely bolted together, and clinched.

B. The stern-post, which is tenanted into the keel, and connected to it by a knee, G. It supports the rudder, and unites the sides of the ship abaft.

C. The stem, which is composed of two pieces scarfed together: it is an arching piece of timber, into which the ship's sides are united forwards.

D. The beams, which are used to support the decks, and confine the sides to their proper distance.

E. The false post, which serves to augment the breadth of the stern-post, being also tenanted into the keel.

F. The knees, which connect the beams to the sides.

G. The knee of the stern-post, which unites it to the keel.

H. The apron, in two pieces: it is fayed on the inside of the stem, to support the scarf thereof; for which reason, the scarf of the former must be at some distance from that of the latter.

I. The stemson, in two pieces, to reinforce the scarf of the apron.

K. The wing transom: it is fayed across the stern-post, and bolted to the head of it, having its two ends let into the fashion-pieces.

L. The deck transom, parallel to the wing-transom, and secured in the same manner.

M. N. The lower transoms.

O. The fashion-piece on one side; the heel of it is connected with the stern-post, and the head is secured to the wing-transom.

P. The top-timbers, or upper parts of the fashion-pieces.

Q. The sleepers, which fasten the transoms to the ship's side.

R. The breast-hooks, in the hold; they are fayed across the stem, to strengthen the fore part of the ship.

S. The breast-hooks of the deck: they are placed immediately above the former, and used for the same purposes.

T. The rudder, which is joined to the stern-post by hinges, and serves to direct the ship's course.

U. The floor-timbers; they are laid across the keel, to which they are firmly bolted.

V. The lower futtocks, and

W. The top-timbers, which are all united to the floor-timbers, forming a frame that reaches from the keel to the top of the side.

X. The pieces which compose the kelson: they are scarfed together like the keel pieces, and placed over the middle of the floor-timbers, upon each of which they are scored about an inch and a half, as exhibited by the notches.

Y. The several pieces of the knee of the head; the lower part of which is fayed to the stem; the heel being scarfed to the fore-foot.

Z. The cheeks of the head or knees, which connect the head to the bows on each side.

&. The standard of the head, which fastens it to the stem.

a. The catheads, one of which lies on each bow, projecting outwards like the arm of a crane. They are

used to draw the anchors up to the top of the side without injuring the bow.

b. The bits, to which the cable is fastened when the ship rides at anchor.

c. The false post, in two pieces, fayed to the fore part of the stern-post.

d. The side-counter-timbers, which terminate the ship abaft within the quarter gallery.

e e. Two pieces of dead wood, one afore, and another abaft, fayed on the keel.

In vessels of war, the general dimensions are established by authority of officers appointed by the government to superintend the building of ships. In the merchants service, the extreme breadth, length of the keel, depth in the hold, height between-decks and in the waste, are agreed on by contract; and from these dimensions the shipwright is to form a draught suitable to the trade for which the ship is designed.

In projecting the draught of a vessel of war, the first article to be considered is her length. As all ships are much longer above than below, it is also necessary to distinguish the precise part of her height from which her length is taken: this is usually the lower gun-deck, or the load water-line. It has been already observed, that water-lines are described longitudinally on a ship's bottom by the surface of the water in which she floats, and that the line which determines her depth under the water is usually termed the load-water-line. In this draught it will be particularly necessary to leave sufficient distance between the ports.

The next object is to establish the breadth by the midship-beam. Although there is great difference of opinion about proportioning the breadth to the length, yet it is most usual to conform to the

dimensions of ships of the same rate. After the dimensions of the breadth and length are determined, the depth of the hold must be fixed, which is generally half the breadth: but the form of the body should be considered on this occasion; for a flat floor will require less depth in the hold than a sharp one. The distance between the decks must also be settled.

We may then proceed to fix the length of the keel, by which we shall be enabled to judge of the rake of the stem and stern-post. The rake is known to be the projection of the ship at the height of the stem and stern-post, beyond the ends of the keel afore and abaft; or the angle by which the length is increased as the fabric rises. To these we may also add the height of the stem and wing transom.

After these dimensions are settled, the timbers may be considered which form the sides of the ship. A frame of timbers, which appears to be one continued piece, is composed of one floor-timber, U, whose arms branch outward to both sides of the ship; (See plate I. PIECES *of the* HULL) two or three futtocks V V, and a top-timber, W. The futtocks are connected to the upper arms of the floor-timbers on each side of the ship, and serve to prolong the timber in a vertical direction: and the top-timbers are placed at the upper part of the futtocks for the same purpose. All these being united, and secured by cross-bars, form a circular enclosure, which is called a frame of timbers, *couple d'un vaisseau*. And as a ship is much broader at the middle than at the extremities, the arms of the floor-timber will form a very obtuse angle at the extreme breadth; but this angle decreases in proportion to the distance of the timbers from the midship-frame, so that the foremost and aftmost ones will form a very acute angle. Floor-

timbers of the latter sort are usually called crutches.

Shipwrights differ extremely in determining the station of the midship-frame; some placing it at the middle of the ship's length, and others further forward. They who place it before the middle, alledge, that if a ship is full forward, she will meet with no resistance after she has opened a column of water; and that the water so displaced will easily unite abaft, and by that means force the ship forward; besides having more power on the rudder, in proportion to its distance from the center of gravity: this also comes nearer the form of fishes, which should seem the most advantageous for dividing the fluid.

When the rising of the midship-floor-timber is decided, we may then proceed to describe the rising-line of the floor, on the stern-post abaft, and on the stem afore.

The height of the lower-deck is the next thing to be considered: it is determined in the middle by the depth of the hold; and some builders make it no higher than the stem; but they raise it abaft as much above its height in the middle, as the load-water-mark, or draught of water abaft, exceeds that afore. With regard to the height between decks, it is altogether arbitrary, and must be determined by the rate of the ship, and the service she is designed for.

It is also necessary to remember the sheer of the wales, and to give them a proper *hanging*; because the beauty and stateliness of a ship greatly depend upon their figure and curve, which, if properly drawn, will, make her appear airy and graceful on the water.

We come now to consider the upper-works, and all that is above water, called the dead-work: and here the ship must be narrower, so that all the weight

lying above the load-water-line will thereby be brought nearer the middle of the breadth, and of course the ship will be less strained by the working of her guns, &c. But although some advantages are acquired by diminishing the breadth above water, we must be careful not to narrow her too much; as there must be sufficient room left on the upper-deck for the guns to recoil. The security of the masts should likewise be remembered, which requires sufficient breadth to spread the shrouds. A deficiency of this sort may indeed be in some measure supplied by enlarging the breadth of the channels.

With regard to the qualities required in the construction of a ship, to fit her for the various purposes of navigation, the reader is referred to the article BOTTOM.

We shall now proceed to explain the sheer draught, or plane of *elevation*, of a sixty gun ship; wherein we have been attentive to make the same letters refer to the same objects, as in the explanation of the PIECES, as above; at least when the same objects are in both figures; a conduct we shall invariably pursue throughout this work, although it seems to have been forgot by our predecessors. Thus in all the plates of ship-building, the keel, whether separate or joined, is represented by A, the stern-post by B, the stem by C, the beams by D; unless where those objects do not *all* appear, and then something else is placed instead thereof. Thus in plate III. of the deck, where the keel cannot be seen, the main hatchway is represented by A, as not being inserted in any figure wherein the keel appears.

A A. The keel, whose upper edge is prolonged by the dotted line p q, upon the extremities of which are erected perpendiculars which determine the height of the wing transom, K, and length of the gun-deck,

K C.

A B. The stern-post.

A C. The stem.

D D. The quarter-gallery, with its windows.

E F. The quarter-pieces, which limit the stern on each side.

F. The taffarel, or upper piece of the stern.

F G. Profile of the stern, with its galleries.

H. The gun ports.

I. The channels, with their dead-eyes and chain-plates.

K. The wing-transom.

K G. The counter.

L B. The deck-transom.

M N O. The first, second, and third transoms, of which O K is the third or lowest.

m O L P. The direction of the fashion-piece, having its breadth canted aft towards the stern.

Q R. The main skeeds, for hoisting in the boats clear of the ship's side. L Q Z. The main wale, with its sheer afore and abaft.

D R X. The channel wales, parallel to the main wale.

S U S. The sheer rail, parallel to the wales.

T *t*. The rudder.

A t F. The rake of the stern.

V W V. The waist-rail.

P *i i*. The drift-rails abaft; and *i* a, the drift-rails forward.

T U C. The water-line.

X X. The rails of the head.

Y. The knee of the head, or cutwater.

Z Z. The cheeks of the head.

a a. The cat-head.

M ⊕ C. The rising line of the floor.

k u C. The cutting-down line, which limits the

thickness of all the floor-timbers, and likewise the height of the dead-wood afore and abaft.

⊕ *u* U W. The midship-frame.

a, *b*, *c*, *d*, *e*, *f*, *g*, *h*. The frames or timbers in the fore-body of the ship, i. e. before the midship frame.

1, 2, 3, 4, 5, 6, 7, 8, 9. The timbers in the after-body, or which are erected abaft the midship-frame.

As the eye of a spectator is supposed in this projection to view the ship's side in a line perpendicular to the plane of elevation, it is evident that the convexity will vanish, like that of a cylinder or globe, when viewed at a considerable distance; and that the frames will consequently be represented by strait lines, except the fashion-piece abaft and the knuckle-timber forward.

It has been already observed, that the plane of projection may be defined a vertical delineation of the curves of the timbers upon the plane of the midship-frame, which is perpendicular to that of the elevation. It is necessary to observe here, that the various methods by which these curves are described, are equally mechanical and arbitrary. In the latter sense, they are calculated to make a ship fuller or narrower according to the service for which she is designed, and in the former they are drawn according to those rules which the artist has been implicitly taught, to follow, or which his fancy or judgment has esteemed the most accurate and convenient. They are generally composed of several arches of a circle, reconciled together by moulds framed for that purpose. The radii of those arches therefore are of different lengths, according to the breadth of the ship in the place where such arches are swept; and they are expressed on the plane of projection either by horizontal or perpendicular lines; the radii of the breadth sweeps being always in

the former, and the radii of the floor sweeps in the latter direction. These two arches are joined by a third, which coincides with both, without intersecting either. The curve of the top-timber is either formed by a mould which corresponds to the arch of the breadth-sweep, or by another sweep, whose center and radius are without the plane of projection. The breadth of the ship at every top-timber is limited by an horizontal line drawn on the floor-plane, called the half-breadth of the top-timbers. The extreme breadth is also determined by another horizontal line on the floor-plane; and the lines of half-breadth are thus mutually transferable, from the projection and floor-planes, to each other.

The necessary data by which the curves of the timbers are delineated then are, the perpendicular height from the keel, the main or principal breadth, and the top-timber breadth: for as a ship is much broader near the middle of her length than towards the ends, so she is broader in the middle of her height than above and below; and this latter difference of breadth is continued throughout every point of her length. The main breadth of each frame of timbers is therefore the ship's breadth nearly in the middle of her height in that part: and the top-timber breadth is the line of her breadth near the upper ends of each timber. It has been already observed, that as both sides of a ship are alike, the artificers only draw one side, from which both sides of the ship are built: therefore the timbers abaft the midship frame are exhibited on one side of the plane of projection, and the timbers before it on the other.

Plane of PROJECTION, Plate I.

A. The keel.

B C. The line which expresses the upper-edge of the keel, from which the height of each timber, and height of its different breadths are measured.

B D and C E, perpendiculars raised on the line B C, to limit the ship's extreme breadth and height amidships; or, in other words, to limit the breadth and height of the midship-frame.

A F. A perpendicular erected from the middle of the keel to bisect the line of the ship's breadth in two equal parts.

F * 9. The half-breadth line of the aftmost top-timber; being the uppermost horizontal line in this figure.

Note. The seven lines parallel to, and immediately under this, on the right side of the line A F, are all top-timber half-breadths, abaft the midship-frame; the lowest of which coincides with the horizontal line D E.

The parallel horizontal lines nearly opposite to these, on the left side of the line A F, represent the top-timber half-breadths in the fore-body, or the half-breadths of the top-timbers before the midship-frame.

G, H, I, Q, R, S, T. The radii of the breadth-sweeps abaft the midship-frame; those of the breadth-sweeps in the fore-body, or before the midship-frame, are directly opposite on the right side.

⊕ A ⊕. The midship-frame, from the extreme breadth downwards.

1, 2, 3, 4, 5, 6, 7, 8, 9. The out-lines of timbers abaft the midship-frame, in different parts of their height.

a, *b*, *c*, *d*, *e*, *f*, *g*, *h*. The outlines of the timbers before the midship-frame, in different parts of their height, h being the foremost, or knucke-timber.

K *i*. The wing-transom, whose ends rest upon the fashion-piece.

L. The deck-transom, parallel to, and under the wing-transom.

M N O. The lower-transoms, of which O k is the third and lowest,

m k P. The dotted line, which expresses the figure of the fashion-piece, without being canted aft.

P. The upper-part, or top-timber of the fashion-piece.

n, *o*, *p*, *q*, *r*, *s*. The radii of the floor-sweeps, abaft the midship-frame: those before the midship-frame are on the opposite side of the line A F, to which they are all parallel.

1st R^d. 2d R^d. 3d R^d. 4th R^d. The diagonal ribbands abaft the midships.

t, *u*, *x*, *y*. The same ribbands expressed in the fore-body.

It has been remarked above, that the horizontal plane is composed of water-lines and ribbands; it also contains the main and top-timber breadth-lines, or the longitudinal lines by which the main-breadth and top-timber-breadth are limited in every point of the ship's length. The horizontal curve of the transoms and harpins are also represented therein, together with the planes of the principal timbers; the cant of the fashion-piece, the length of the rake afore and abaft, the projection of the cat-heads, and the curve of the upper-rail of the head, to which curves of the lower ones are usually parallel.

HORIZONTAL PLANE. Plate I.

B A C. The line of the ship's length, passing through the middle of the stem and stern-post.

B. The upper-end of the stern-post.

C. The upper-end of the stem.

B F. The length of the rake abaft.

D W X. The top-timber-breadth-line, or the line which limits the breadth of each top-timber.

D F. The breadth of the aftmost timber at the taffarel.

B K. The wing-transom.

B L P. The horizontal curve of the deck-transom.

M M. The horizontal curve, or *round-aft*, of the first transom.

M N. The horizontal curve of the second transom: it is prolonged into a water-line, N 8 7.

k O. The horizontal curve of the third transom, which is also prolonged into another water-line, O, *n*, U, *p*, Q.

m O P. The plane of the fashion-piece, as canted aft.

⊕ W U. The plane of the midship-frame.

a, *b*, *c*, *d*, *e*, *f*, *h*. The planes of the timbers before the midship-frame.

1, 2, 3, 4, 5, 6, 7, 8, 9. The planes of the timbers abaft the midship-frame.

X X. The figure of the upper-rail of the head.

C Y. The projection of the knee of the head.

The Third horizontal ribband, is marked on the plate.

a a. The projection of the cat-head.

Thus we have endeavoured briefly to explain the nature and uses of the principal draughts used in the construction of a ship, which reciprocally correspond with each other in the dimensions of length, breadth, and depth. Thus the plane of elevation is exactly of the same length with the horizontal or floor-plane. The several breadths of the timbers in the floor-plane

and that of the projection are mutually transferable; and the real height of the timbers in the projection, exactly conforms to their height in the elevation. Thus let it be required to transfer the height of the wing-transom from the elevation to the projection:

Extend the compasses from the point K, in the elevation, down to the dotted line prolonged from the upper-edge of the keel, and setting the other foot in the point *p*, then shall the line K *p* be the perpendicular height of the wing transom: transfer this from the middle of the line B A C, in the projection, to the point K in the perpendicular A F, then will A K be the height of the wing-transom in the plane of projection: and thus the height of all the transoms may be laid from the former upon the latter.

Again, let it be required to transfer the main-breadth of the midship-frame from the projection to the horizontal plane: Set one foot of the compasses in the point ⊕ on the perpendicular C E, and extend the other along the main-breadth-sweep ⊕ G, till it touches the perpendicular A F parallel to C E: lay this distance upon the horizontal plane from the point u in the line of the ship's length, B A C, along the plane of the midship-frame to the point ⊕; so shall the line ⊕ W U be the breadth of the midship-frame on the horizontal plane.

Thus also the top-timber-breadth, or the distance of each top-timber from the middle of the ship's breadth, may be in the same manner transferred, by extending the compasses from the line B A C, in the horizontal plane, to the top-timber breadth-line, upon any particular timber, as 1, 2, 3, &c. which will give its proper dimensions thereon.

In the same manner the breadths of all the timbers may be laid from the projection to the horizontal

plane, and *vice versa*, from that to the projection. Thus the height of each timber may also be transferred from the elevation to the projection, &c.

The principal utility of these draughts therefore is to exhibit the various curves of the ship's body, and of the pieces of which it is framed, in different points of view, which are either transverse or longitudinal, and will accordingly present them in very different directions. Thus the horizontal curves of the transoms and water-lines are represented on the floor-plane, all of which are nearly streight lines in the elevation and projection; and thus the vertical curves of the timbers are all exhibited on the projection, although they appear as streight lines in the elevation and floor plane.

Before this article is closed, it may be necessary to remark, that the various pieces represented in plate I. as well as the lines in the draughts which have not been already defined, are copiously explained in their proper places; as it would have been contrary to the plan of this work to have given a more enlarged description of them here.

That the reader, however, might be better enabled to comprehend the scope of this article, it was judged necessary to give a general sketch of naval architecture itself; to collect into one point of view the most material draughts by which a ship is constructed, and to describe, as concisely as possible, the several parts of which they are composed.

The principal parts of a ship also, which are here reduced into a narrow compass, will be represented at large in different places of this work, to illustrate those explanations whither it may be necessary to refer, in order to understand the subject more clearly. Thus the stern, the quarter, the midship-frame, the bow and head, of a ship of 74 guns, are

exhibited on a scale of ¼ of an inch to a foot; by which all the subordinate parts may be distinctly viewed, and their combination and arrangement sufficiently understood.

ARMED-SHIP, *vaisseau armé en guerre*, a vessel occasionally taken into the service of the government in time of war, and employed to guard some particular coast, or attend on a fleet. She is therefore armed and equipped in all respects like a ship of war, and commanded by an officer of the navy, who has the rank of master and commander. All ships of this sort are upon the establishment of the king's sloops, having a lieutenant, master, purser, surgeon, &c.

ASHORE, (from *a* and *shore*) on the shore, or land, as opposed to aboard.

A ship is said to be ASHORE, *echoué*, when she has run upon the ground, or on the sea-coast, either by design or accident.

ASTERN, *au derriere*, (from *a* and *steorn*, Sax.) any distance behind a ship, as opposed to *a-head*, which is before her. Thus, when south is *a-head*, or on the line to which the stem is directed, north will be *astern*.

ATHWART, *par le travers*, (from *a* and *twert*, Dan. transverse) when used in navigation, implies across the line of the course; as, we discovered a fleet at day-break standing *athwart* us, i. e. steering across our way.

ATHWART-HAUSE, the situation of a ship when she is driven by the wind, tide, or other accident, across the fore-part of another. This phrase is equally applied when the ships bear against each other, or when they are at a small distance; the transverse position of the former to the latter being principally understood.

ATHWART *the fore-foot*, a phrase employed to

denote the flight of a cannon-ball, as fired from one ship across the line of another's course, to intercept the latter, and compel her to shorten sail till the former approaches near enough to examine her. The *fore-foot* is the lower part of the stem; so that the shot flying across it is said to be fired *athwart the fore-foot*.

ATHWART-SHIPS, reaching across the ship, from one side to the other.

ATRIP (*trepor*, Fr. *trippen*, Dutch) is applied differently to the anchor and the sails. The anchor is *atrip*, *derangée*, when it is drawn out of the ground in a perpendicular direction, either by the cable or buoy-rope. The top-sails are said to be *atrip*, when they are hoisted up to the mast-head, or to their utmost extent.

AVERAGE, in commerce *avarie*, (*averagium*, Lat.) the accidents and misfortunes which happen to ships and their cargoes, from the time of their loading and sailing, till their return and unlading. It is divided into three kinds. 1. The simple or particular *average*, which consists in the extraordinary expences incurred for the ship alone, or for the merchandise alone; such is the loss of anchors, masts, and rigging, occasioned by the common accidents at sea; the damages which happen to merchandises by storms, capture, shipwreck, wet, or rotting; all which must be borne and paid by the thing that suffered the damage. 2. The large and common average, being those expences incurred, and damages sustained, for the common good and security, both of the merchandise and vessels, consequently to be borne by the ship and cargo, and to be regulated upon the whole. Of this number are the goods or money given for the ransom of the ship and cargo; things thrown overboard for the safety of the ship; the expences of

unlading, or entering into a river or harbour, and the provisions and hire of the sailors when the ship is put under embargo. 3. The small averages, which are expences for towing and piloting the ship out of, or into harbours, creeks, or rivers; one third of which must be charged to the ship, and two thirds to the cargo.

AVERAGE is more particularly used for a certain contribution that merchants make proportionably towards their losses. It also signifies a small duty which the merchants, who send goods in another man's ship, pay to the master, for his care of them, over and above the freight. Hence it is expressed in the bills of lading, paying so much freight for the said goods, with damage and average accustomed.

AWEIGH, *a quitté* (of *a* and *weigh*) the state of the anchor when it is drawn out of the ground in a perpendicular direction, by the application of mechanical powers, as a capstern or windlass, to the cable within the ship; so that aweigh is synonimous to *atrip*.

AWNING, *tendelet*, (from *aulne*, Fr.) a canopy of canvass extending over the decks of a ship in hot weather, for the convenience of the officers and crew, and to preserve the decks from being cracked or split, *ebaroui*, by the heat of the sun: The awning is supported by a range of light posts, called stanchions, which are erected along the ship's side on the right and left; it is also suspended in the middle by a complication of small cords, called a crowfoot. See the article CROWFOOT.

AZIMUTH-COMPASS, an instrument employed to discover the magnetical azimuth or amplitude of any heavenly object. This operation is performed at sea, to find the exact variation of the magnetical needle. The compass will be described in its proper place: it

is, however, necessary here to explain the additional contrivance by which it is fitted to take the magnetical azimuth, or amplitude of the sun or stars, or the bearings of head-lands, ships, and other objects at a distance.

The brass edge, originally designed to support the card, and throw the weight thereof as near the circumference as possible, is itself divided into degrees and halves; which may be easily estimated into smaller parts if necessary. The divisions are determined by means of a cat-gut line stretched perpendicularly with the box, as near the brass edge as may be, that the parallax arising from a different position of the observer may be as little as possible.

There is also added an index at the top of the inner-box, which may be fixed on or taken off at pleasure, and serves for all altitudes of the object. It consists of a bar, equal in length to the diameter of the inner-box, each end being furnished with a perpendicular stile, with a slit parallel to the sides thereof; one of the slits is narrow, to which the eye is applied, and the other is wider, with a small cat-gut stretched up the middle of it, and from thence continued horizontally from the top of one stile to the top of the other. There is also a line drawn along the upper surface of the bar. These four, viz. the narrow slit, the horizontal cat-gut thread, the perpendicular one, and the line on the bar, are in the same plane, which disposes itself perpendicularly to the horizon when the inner-box is at rest and hangs free. This index does not move round, but is always placed on, so as to answer the same side of the box.

The sun’s azimuth is known to be an angle contained between the meridian and the center of the sun. When this is required, and his rays are strong enough to cast a shadow, the box is turned

about till the shadow of the horizontal thread, or if the sun be too low, till that of the perpendicular thread, in one stile, or the slit through the other, falls upon the line in the index bar, or vibrates to an equal distance on each side of it, the box being gently touched if it vibrates too far: at the same time they observe the degree marked upon the brass edge of the cat-gut line. In counting the degree for the azimuth, or any other angle that is reckoned from the meridian, the outward circle of figures upon the brass edge is used; and the situation of the index, with respect to the card and needle, will always direct upon what quarter of the compass the object is placed.

But if the sun does not shine out sufficiently strong, the eye is placed behind the narrow slit in one of the stiles, and the wooden box turned about till some part of the horizontal, or perpendicular thread appears to intersect the center of the sun, or vibrate to an equal distance on each side of it; smoked glass being used next the eye, if the sun's light is too strong. In this method another observer is necessary, to note the degree cut by the nonius, at the same time the first gives notice that the thread appears to split the object.

Plate II. fig. 20. is a perspective view of the compass, when in order for observation; the point of view being the center of the card, and the distance of the eye two feet.

A B. is the wooden box in which it is usually contained.

K. is a cat-gut line drawn from the inside of the box for determining the degree upon the brass edge.

L, M, N, O. is the index bar with its two stiles, and cat-gut threads, which being taken off from the top of the box, is placed in two pieces P Q, notched

properly to receive it.

The other parts of the figure, with their references, are explained in the article COMPASS.

B.

BACK *of the post*. See the article STERN-POST.

To BACK *an anchor*, *empeneller*, to carry out a small anchor, as the stream or kedge, ahead of the large one, by which the ship usually rides, in order to support it, and prevent it from loosening, or *coming home*, in bad ground. In this situation, the latter is confined by the former, in the same manner that the ship is restrained by the latter.

To Back astern, in rowing, *scier à culer*, is to manage the oars in a direction contrary to the usual method, so as that the boat or vessel impressed by their force, shall retreat, or move with her stern foremost, instead of advancing.

To Back the sails, is to arrange them in a situation that will occasion the ship to retreat or move astern. This operation is particularly necessary in narrow channels, when a ship is carried along sideways by the strength of the tide or current, and it becomes requisite to avoid any object that may intercept her course, as shoals, or vessels under sail, or at anchor: it is also necessary in a naval engagement, to bring a ship back, so as to lie opposite to her adversary, when she is too far advanced in the line. See ABACK.

BACK-BOARD, a piece of board of a semicircular figure, placed transversely in the after-part of a boat,

like the back of a chair, and serving the passengers to recline against whilst sitting in the stern-sheets. See BOAT.

BACK-STAYS, *cale haubans*, (from *back* and *stay*) long ropes reaching from the topmast-heads to the starboard and larboard sides of the ship, where they are extended to the channels: they are used to support the top-masts, and second the efforts of the shrouds, when the mast is strained by a weight of sail in a fresh wind.

They are usually distinguished into breast-back-stays and after-back-stays; the intent of the former being to sustain the top-mast when the force of the wind acts upon the ship sideways, or, according to the sea-phrase, when the ship sails upon a wind; and the purpose of the latter is to enable it to carry sail when the wind is further aft.

There are also back-stays for the top-gallant-masts, in large ships, which are fixed in the same manner with those of the top-masts.

A pair of back-stays is usually formed of one rope, which is doubled in the middle, and fastened there so as to form an eye, which passes over the mast-head, from whence the two ends hang down, and are stretched to the channels by dead-eyes and laniards. See DEAD-EYES, &c.

The figure of the back-stays, and their position, is exhibited in the article RIGGING, to which the reader is further referred.

BADGE, *bouteille, fausse galerie*, in ship-building, a sort of ornament, placed on the outside of small ships, very near the stern, containing either a window, for the convenience of the cabin, or the representation of it: it is commonly decorated with marine figures, martial instruments, or such like emblems. See QUARTER.

To BALANCE, (*balancer*, Fr.) to contract a sail into a narrower compass, in a storm, by retrenching or folding up a part of it at one corner; this method is used in contradistinction to *reefing*, which is common to all the principal sails; whereas balancing is peculiar to few, such as the mizen of a ship, and the main-sail of those vessels, wherein it is extended by a boom. See BOOM and REEF.

The BALANCE of the mizen, *fanon*, is thus performed: the mizen-yard is lowered a little, then a small portion of the sail is rolled up at the *peek*, or upper corner, and fastened to the yard about one fifth inward from the outer end, or yard-arm, toward the mast. See MIZEN.

A boom-main-sail is balanced, after all its reefs are taken in, by rolling up a similar portion of the hindmost, or aftmost lower-corner, called the *clue*, and fastening it strongly to the boom, having previously wrapped a piece of old canvas round the part (which is done in both cases) to prevent the sail from being fretted by the cord which fastens it.

BALLAST, *lest*, (*ballaste*, Dut. *ballastro*, Span.) a certain portion of stone, iron, gravel, or such like materials, deposited in a ship's hold, when she has either no cargo, or too little to bring her sufficiently low in the water. It is used to counter-ballance the effort of the wind upon the masts, and give the ship a proper stability, that she may be enabled to carry sail without danger of over-turning.

There is often great difference in the proportion of ballast required to prepare ships of equal burthen for a voyage; the quantity being always more or less, according to the sharpness or flatness of the ship's bottom, which seamen call the *floor*.

The knowledge of ballasting a ship with propriety, is certainly an article that deserves the attention of

the skilful mariner; for although it is known that ships in general will not carry a sufficient quantity of sail, till they are laden so deep that the surface of the water will nearly glance on the extreme breadth amidships; yet there is more than this general knowledge required; since, if she has a great weight of heavy ballast, as lead, iron, &c. in the bottom, it will place the center of gravity too low in the hold; and although this will enable her to carry a great sail, she will nevertheless sail very heavily, and run the risk of being dismasted by her violent rolling.

To ballast a ship, therefore, is the art of disposing those materials so that she may be duly poised, and maintain a proper equilibrium on the water, so as neither to be too *stiff*, nor too *crank*, qualities equally pernicious; as in the first, although the ship may be fitted to carry a great sail, yet her velocity will not be proportionably increased; whilst her masts are more endangered by her sudden jerks and excessive labouring: and in the last, she will be incapable of carrying sail, without the risk of oversetting.

Stiffness in ballasting, is occasioned by disposing a great quantity of heavy ballast, as lead, iron, &c. in the bottom, which naturally places the center of gravity very near the keel; and that being the center about which the vibrations are made, the lower it is placed, the more violent will be the motion of rolling.

Crankness, on the other hand, is occasioned by having too little ballast, or by disposing the ship's lading so as to raise the center of gravity too high, which also endangers the mast in carrying sail when it blows hard: for when the masts lose their perpendicular height, they strain on the shrouds in the nature of a lever, which encreases as the sine of their obliquity; and a ship that loses her masts is in

great danger of being lost.

The whole art of ballasting, therefore, consists in placing the center of gravity to correspond with the trim and shape of the vessel, so as neither to be too high nor too low; neither too far forward, nor too far aft; and to lade the ship so deep, that the surface of the water may nearly rise to the extreme breadth amidships; and thus she will be enabled to carry a good sail, incline but little, and ply well to the windward. See the article TRIM.

BANIAN-DAYS, a cant term among common sailors, denoting those days on which they have no flesh-meat: it seems to be derived from the practice of a nation amongst the eastern Indians, who never eat flesh.

BANK, *banc, atterrissement*, (*banc*, Sax.) an elevation of the ground, or bottom of the sea, which is often so high as to appear above the surface of the water, or at least so little beneath it, as to prevent a ship from floating over it: in this sense, bank amounts nearly to the same as shallows, flats, &c. The shelves that abound with rocks under water, are distinguished by other names, as reefs, ridges, keys, &c.

An exact knowledge of the banks, their extent, and the different depths of water in which they lie, constitutes a very essential portion of the science of a pilot, or master of a ship. If the vessel be large, and draws much water, great attention will be necessary to avoid them. If, on the contrary, she is small, the same banks afford a sure asylum, where she may brave the largest ships, which dare not follow her to so dangerous a retreat. Many small vessels have eluded the pursuit of a superior enemy by means of this hospitable barrier.

BANKS on the sea-coast are usually marked by

beacons or buoys. In charts they are distinguished by little dots, as ridges of rocks are characterised by crosses. The principal banks in the Western Ocean, are those of Newfoundland, and the Bahama-Bank: the most remarkable one in Newfoundland is called the Grand Bank, which is of a vast extent, being nearly two hundred miles in length, and stretching north and south: its usual depth is from twenty to eighty fathoms: and this is the great scene of the cod-fishery, which is so material an article in European commerce.

BANK *of oars*, a seat or bench of rowers in a galley.

BANKER, a vessel employed in the cod-fishery on the Banks of Newfoundland.

BAR *of a port or haven*, a shoal or bank of sand, gravel, &c. thrown up by the surge of the sea, to the mouth of a river or harbour, so as to endanger, and sometimes totally prevent the navigation.

BARCA-LONGA, a large Spanish fishing-boat, navigated with lug-sails, and having two or three masts: these are very common in the Mediterranean. See VESSEL.

BARGE (*bargie*, Dutch) a vessel or boat of state, furnished with elegant apartments, canopies, and cushions; equipped with a band of rowers, and decorated with flags and streamers: they are generally used for processions on the water, by noblemen, officers of state, or magistrates of great cities. Of this sort we may naturally suppose the famous barge or galley of Cleopatra, which, according to Shakespeare,

——————'Like a burnish'd throne
Burnt on the water; the poop was beaten gold;
Purple her sails, and so perfumed, that
The winds were love-sick with them: the oars were silver,
Which to the tune of flutes kept stroke, and made

The water which they beat to follow faster,
As amorous of their strokes——
——At the helm
A seeming mermaid steer'd: the silken tackles
Swell'd with the touches of those flower-soft-hands
That yarely form'd their office.'——

There are likewise other barges of a smaller kind, for the use of admirals and captains of ships of war. These are of a lighter frame, and may be easily hoisted into, and out of the ships to which they occasionally belong. See BOAT.

BARGE, *cabotiere*, is also the name of a flat-bottomed vessel of burthen, for lading and discharging ships, and removing their cargoes from place to place in a harbour.

BARK (*barca*, low Lat.) a general name given to small ships: it is however peculiarly appropriated by seamen to those which carry three masts without a mizen top-sail. Our northern mariners, who are trained in the coal-trade, apply this distinction to a broad-sterned ship, which carries no ornamental figure on the stem or prow.

BARNICLE, *cravan*, a species of shell-fish, often found sticking to the bottoms of ships, rocks, &c.

BARRICADE (*barricada*, Span.) a strong wooden rail, supported by several little pillars or stanchions, and extending, as a fence, across the foremost part of the quarter-deck. In a vessel of war, the intervals between the pillars are commonly filled with cork, junks of old cable, or matts of platted cordage. In the upper-part, there is a double rope-netting, supported by double cranes of iron, extending about a foot above the rail; and between the two parts of the netting are stuffed a number of hammocks, filled with the seamens bedding, to intercept and prevent the execution of small-shot fired by swivel guns,

carabines, or muskets, in the time of battle.

BARS *of the Capstern and Windlass*. See those articles.

BASIN *of a dock*, (*bassin*, Fr.) a place where the water is confined by double flood-gates, and thereby prevented from running out at the tide of ebb. The use of it is to contain ships whilst repairing, either before they enter, or after they come out of the dock.

BASIN, *paradis*, also implies some part of a haven, which opens from a narrow channel into a wide and spacious reservoir for shipping.

BATTENS *of the hatches*, a sort of long narrow laths, scantlings of wooden stuff, or streight hoops of casks. They are nailed along the edges of tarpaulings, which are pieces of tarred canvas, of sufficient breadth and length to cover the hatches at sea; the battens serve to confine the edges of the tarpaulings close down to the sides of the hatches, to prevent the water, which may rush over the decks in a storm, from penetrating into the lower apartments of the ship.

BAY, *baye*, a gulf or inlet of the sea-coast, comprehended between two promontories, or capes of land, where shipping frequently ride at anchor, sheltered from the wind and sea.

BEACON, *balise*, (*beacon*, Sax.) a post or stake erected over a shoal or sand-bank, as a warning to seamen to keep their ships at a distance.

BEAK-HEAD, *coltis*, a name given to a ship's head whose forecastle is square or oblong, a circumstance common to all vessels of war which have two or more decks of guns. In smaller ships, the forecastle is nearly shaped like a parabola, whose vertex, or angular point, lies immediately over the stem.

The strong, projecting, pointed beaks used by the antients in time of battle, have been intirely rejected

since the use of gun-powder.

BEAMS, *baux*, (*beam*, Sax. a tree) strong thick pieces of timber, stretching across the ship from side to side, to support the decks, and retain the sides at their proper distance.

The BEAMS of ships of war are usually formed of three pieces scarfed together; as appears in plate III. They are sustained at each end by thick planks in the ship's side, called clamps, upon which they rest. They are also firmly connected to the timbers of the ship by means of strong knees, and sometimes by standards. See MIDSHIP-FRAME.

It is necessary that the beams, as represented in the midship-frame, should have a greater height in the middle than at the two ends, to carry the water more readily off from the decks, and to diminish the recoil of the guns, which will thereby more easily return into their places.

The longest of these is called the *midship-beam*; it is lodged in the midship-frame, or between the widest frame of timbers. At about two thirds of the height from the keel to the lower-deck, are laid a range of beams, to fortify the hold, and support a platform called the orlop, which contains the cables and stores of the ship.

There are usually twenty-four beams on the lower-deck of a ship of seventy-four guns, and to the other decks additional ones in proportion, as the ship lengthens above.

On the BEAM, implies any distance from the ship on a line with the beams, or at right angles with the keel: thus, if the ship steers or points northward, any object lying east or west, is said to be on the starboard or larboard *beam*. Thus also,

Before the BEAM, is an arch of the horizon comprehended between the line that crosses her

length at right angles, and some object at a distance before it, or between the line of the beam, and that point of the compass which she stems. Thus if a ship, steering west, discovers an island on the right, three points *before the beam*, the island must bear N W b N from the ship. See the article BEARING.

BEAN-COD, a small fishing-vessel, or pilot-boat, common on the sea-coasts and in the rivers of Portugal. It is extremely sharp forward, having its stem bent inward above into a great curve: the stem is also plated on the fore-side with iron, into which a number of bolts are driven, to fortify it, and resist the stroke of another vessel, which may fall athwart-hause. It is commonly navigated with a large lateen sail, which extends over the whole length of the deck, and is accordingly well fitted to ply to windward.

BEAR-A-HAND! a phrase of the same import with make haste, dispatch, quick, &c.

BEARING, in navigation, *gissement*, an arch of the horizon intercepted between the nearest meridian and any distant object, either discovered by the eye, or resulting from the sinical proportion; as in the first case, at 4 P. M. Cape Spado, in the isle of Candia, bore S by W. by the compass.

In the second, the longitudes and latitudes of any two places being given, and consequently the difference of latitude and longitude between them, the bearing from one to the other is discovered by the following analogy:

As the meridional difference of latitude
Is to the difference of longitude:
So is radius
To the tangent bearing.

BEARING is also the situation of any distant object,

estimated from some part of the ship according to her position. In this sense, an object so discovered, must be either ahead, astern, abreast, on the bow, or on the quarter.

These BEARINGS, therefore, which may be called mechanical, are on the beam, before the beam, abaft the beam, on the bow, on the quarter, ahead, or astern. If the ship sails with a side-wind, it alters the names of such bearings in some measure, since a distant object on the beam is then said to be to leeward, or to windward; on the lee quarter, or bow; and on the weather quarter or bow.

BEARING-UP, or BEARING-away, *arriver*, in navigation, the act of changing the course of a ship, in order to make her run before the wind, after she had sailed some time with a side-wind, or close-hauled: it is generally performed to arrive at some port under the lee, or to avoid some imminent danger occasioned by a violent storm, leak, or enemy in sight.

This phrase, which is absurd enough, seems to have been derived from the motion of the helm, by which this effect is partly produced; as the helm is then borne *up* to the windward, or weather side of the ship. Otherwise, it is a direct contradiction in terms, to say that a ship *bears up*, when she goes before the wind; since the current of the wind, as well as that of a river, is always understood to determine the situation of objects or places within its limits. In the first sense we say, up to windward and down to leeward; as in the latter we say, up or down the river. This expression, however, although extremely improper, is commonly adopted in the general instructions of our navy, printed by authority, instead of bearing down, or bearing away.

BEATING, in navigation, the operation of making a

progress at sea against the direction of the wind, in a zig-zag line, or traverse, like that in which we ascend a steep hill. As this method of sailing will be particularly explained under the term TACKING, the reader is referred to that article.

To BECALM, *derober*, (from *calme*, Dut.) to intercept the current of the wind, in its passage to a ship, with any contiguous object, as a shore above her sails, a high sea behind, or some other ship. At this time the sails remain in a state of rest, and are consequently deprived of their power to govern the motion of the ship.

BECKETS, *bille*, imply in general any thing used to confine loose ropes, tackles, oars, or spars, in a convenient place, where they may be disposed out of the way till they are wanted. Hence, beckets are either large hooks, or short pieces of rope, with a knot in one end and an eye in the other, or formed like a circular wreath; or they are wooden brackets; and, probably, from a corruption and misapplication of this last term, arose the word becket, which seems often to be confounded with bracket.

Put the tacks and sheets in the BECKETS! the order to hang up the weather main and fore-sheet, and the lee main and fore-tack, to a little knot and eye-becket on the foremost main and fore-shrouds, when the ship is close-hauled, to prevent them from hanging in the water.

BED, a flat thick piece of timber, usually formed of the rough staves of casks, or such like materials, to be lodged under the quarters of casks containing any liquid, and stowed in a ship's hold. The use of the beds is to support the cask, and keep the bilge, or middle-part of it, from bearing against the ship's floor, or against the body upon which it rests, lest the staves should give way and break in the place

where they are weakest: or lie in a wet place, so as to rot in the course of the voyage. See the article STOWING.

BED *of a river*, *lit.*, the bottom of the channel in which the stream or current usually flows.

BED *of a cannon*. See CARRIAGE.

To BELAY, *amarrer*, (from *beleygen*, Belg.) to fasten a rope, by winding it several times round a cleat, belaying-pin, or kevel: this term is peculiar to small ropes, and chiefly the running-rigging, there being several other expressions used for large ropes, as bitting, bending, making fast, stoppering, &c. See those articles.

BEND, *avuste*, (probably from *bindan*, Sax. to bind) the knot by which one rope is fastened to another, hence

To BEND, is to fasten one rope to another, of which there are several methods.

BENDING *the cable*, the operation of clinching, or tying the cable to the ring of its anchor.

BENDING *a sail*, fastening it to its yard or stay. See the articles SAIL, STAY, and YARD.

BENDS, the thickest and strongest planks in a ship's side. See WALES, by which name they are more properly called.

BETWEEN-DECKS, *entre-pont*, the space contained between any two decks of a ship.

BEVELLING, in ship-building, the art of hewing a timber with a proper and regular curve, according to a mould which is laid on one side of its surface.

'In order to hew any piece of timber to its proper bevel, it will be necessary, first, to make one side fair, and out of winding; a term used to signify that the side of a timber should be a plane. If this side be uppermost, and placed horizontally, or upon a level, it is plain, if the timber is to be hewed square, it may

be done by a plummet and line; but if the timber is not hewed square, the line will not touch both the upper and lower edge of the piece; or if a square be applied to it, there will be wood wanting either at the upper or lower side. This is called within or without a square. When the wood is deficient at the under-side, it is called under-bevelling; and when it is deficient in the upper-side, it is called standing-bevelling: and this deficiency will be more or less according to the depth of the piece; so that before the proper bevellings of the timbers are found, it will be sometimes very convenient to assign the breadth of the timbers; nay, in most cases it will be absolutely necessary, especially afore and abaft: though the breadth of two timbers, or the timber and room, which includes the two timbers and the space between them, may be taken without any sensible error, as far as the square body goes. For as one line represents the moulding-side of two timbers, the fore-side of the one being supposed to unite with the aft-side of the other; the two may be considered as one intire piece of timber.' *Murray's Ship-building.*

BIGHT, *balant*, (*bygan*, Sax. to bend) the double part of a rope when it is folded, in contradistinction to the end: as, her anchor hooked the *bight* of our cable, i.e. caught any part of it between the ends. The *bight* of his cable has swept our anchor; that is, the double part of the cable of another ship, as she ranged about, has entangled itself under the stock or fluke of our anchor.

BIGHT, *anse*, is also a small bay between two points of land.

BILANDER, *bilandre*, Fr. a small merchant-ship with two masts.

The BILANDER is particularly distinguished from other vessels of two masts by the form of her main-

sail, which is a sort of trapezia, the yard thereof being hung obliquely on the mast in the plane of the ship's length, and the aftmost or hinder end peeked or raised up to an angle of about 45 degrees, and hanging immediately over the stern; while the fore end slopes downward, and comes as far forward as the middle of the ship. To this the sail is bent or fastened; and the two lower corners, the foremost of which is called the tack, and the aftmost the sheet, are afterwards secured, the former to a ring-bolt in the middle of the ship's length, and the latter to another in the taffarel. The main-sails of larger ships are hung across the deck instead of along it, being fastened to a yard which hangs at right angles with the mast and the keel.

Few vessels, however, are now rigged in this method, which has probably been found more inconvenient than several others. See SHIP. It may not be improper to remark, that this name, as well as brigantine, has been variously applied in different parts of Europe to vessels of different sorts.

BILGE, (supposed from *bilik*, Sax. a storm) that part of the floor of a ship, on either side of the keel, which approaches nearer to an horizontal than to a perpendicular direction, and on which the ship would rest if laid on the ground: or more particularly, those parts of the bottom which are opposite to the heads of the floor-timbers amidships on each side of the keel. Hence, when a ship receives a fracture in this place, she is said to be *bilged*.

BILL *of lading*, *connoissement*, an acknowledgment signed by the master of a ship, and given to a merchant, containing an account of the goods which the former has received from the latter, &c. with a promise to deliver them at the intended place for a certain sum of money. Each bill of lading must be

treble; one for the merchant who ships the goods, another to be sent to the person to whom they are consigned, and the third to remain in the hands of the master of the said ship. It must, however, be observed, that a bill of lading is only used when the goods sent on board a ship are but part of the cargo; for when a merchant loads a vessel entirely on his own account, the deed passed between him and the master of the ship is called charter-party. See *Charter-party*.

BINACLE, a wooden case or box, which contains the compasses, log-glasses, watch-glasses, and lights to shew the compass at night.

As this is called *bittacle* in all the old sea-books, even by mariners, it appears evidently to be derived from the French term *habitacle*, (a small habitation) which is now used for the same purpose by the seamen of that nation.

The BINACLE (plate I. fig. 4.) is furnished with three apartments, with sliding shutters: the two side ones, a b, have always a compass in each, d, to direct the ship's way, while the middle division, c, has a lamp or candle, with a pane of glass on either side to throw a light upon the compass in the night, whereby the man who steers may observe it in the darkest weather, as it stands immediately before the helm on the quarter-deck.

There are always two binacles on the deck of a ship of war, one being designed for the man who steers, and the other for the person who superintends the steerage, whose office is called *conning*, or *cunning*.

BIRTH, or BERTH, *eviteé*, the station in which a ship rides at anchor, either alone or in a fleet; or the distance between the ship and any adjacent object; comprehending the extent of the space in which she

ranges at the length of her cables; as, *she lies in a good birth*, i. e. in a convenient situation, or at a proper distance from the shore and other vessels; and where there is good anchoring-ground, and shelter from the violence of the wind and sea.

BIRTH, *appartement*, also signifies the room or apartment where any particular number of the officers or ship's company usually mess and reside. In a ship of war there is commonly one of these between every two guns.

To BITE, *mordre*, to hold fast in the ground; expressed of the anchor.

BITS, *bittes*, (*bitol*, Sax.) a frame composed of two strong pieces of timber, fixed perpendicularly in the fore-part of a ship, whereon to fasten her cables as she rides at anchor. See b b, PIECES *of the* HULL.

These pieces being let down through square mortises cut in the decks above and below, are bolted and fore-locked to the ship's beams. There are several bits in a ship, the principal of which are those for the cables: their upper ends commonly reach about four or five feet above the lower deck, over which the cable passes. They are supported on the fore part by strong standards; one arm of which is bolted to the deck, and the other to the bits: and on the after part is fixed a strong beam of timber, g, (plate I. PIECES *of the* HULL) parallel to the deck, and at right angles with the bits, to which it is bolted and forelocked. The ends of this beam, which is called the cross-piece, reach about two or three feet beyond the bits, whose upper-ends are nearly two feet above the cross-piece. The cable being passed once round about these bits, may be gradually slackened at pleasure; without which it would be impossible to prevent it from running out with the utmost rapidity, when the ship rides a great strain, which is always

the case in a storm, or an impetuous tide. In ships of war there are usually two pair of cable bits, and when they are both used at once, the cable is said to be double-bitted. The plan of the bits, with their cross-pieces and standards, are represented in Plate III. where b b are the bits, e their standards, and g the cross-piece.

To BIT *the cable*, is to put it round the bits, in order to fasten it, or slacken it gradually, which last is called *veering away*.

The other bits are of a smaller kind, but constructed nearly in the same manner. They are used to fasten the top-sail-sheets, or the ropes by which the lower corners of the top-sails are extended.

BLACK-STRAKES, a range of planks immediately above the wales in a ship's side: they are always covered with a mixture of tar and lamp-black, forming an agreeable variety with the white bottom beneath, and the scraped planks of the side, covered with melted turpentine or varnish of pine, above. All the yards are likewise daubed with this mixture, which not only preserves them from the heat of the sun and the weather, but gives them a fine gloss, which makes a good appearance contrasted with the white varnish on the masts.

BLADE. See the article OAR.

BLOCK, *poulie*, a machine known in mechanics by the name of pully, and used for various purposes in a ship, particularly to increase the mechanical power of the ropes employed in contracting, dilating, or traversing the sails. The ends of these ropes, being arranged in certain places upon the deck, may thus be readily found whenever they are wanted. The blocks, which are for these purposes disposed in various places upon the masts, yards, and sails, and

amongst the rigging, are also of various sizes, shapes, and powers, according to the effect they are calculated to produce. They are single, double, or treble, being so denominated from the number of wheels they contain. There are even some of five, six, and seven fold, but these are only employed to raise or move some very weighty bodies, and are not used about the yards or sails. We shall begin by describing the most simple, and afterwards proceed to those which are more complicated.

A common single block is composed of three parts; the shell, the sheave, and the pins. The shell, *arcasse*, approaches nearest to the figure of a long spheroid, somewhat flatted in the middle. Between the two flat sides it is hollowed so as to receive a narrow cylindrical wheel called the sheave, *rouet*, formed of lignum vitæ, or other hard wood; and thro' the centre of this sheave is bored a round hole, to admit of a pin, which is driven through two corresponding holes in the middle of the shell, perpendicular to the hollow space within. The pin thus becomes the axis of the wheel or sheave, which completes the wooden work of the machine. Thus formed, it is bound with a sort of rope-ring, which is closely fitted to a notch passing round the surface of the shell, and over both ends of the pin: and by this ring, or wreath, which is called a block-strop, they are suspended upon the masts, shrouds, &c.

The complicated blocks, or those which contain a number of wheels, either have all the wheels to run upon one axis, (see plate I.) or have their shells so formed that the wheels are one above another. In the former shape they approach nearest the figure of a cylinder, and in the latter appear like two or more single blocks joined together endways.

In plate I. fig. 7. a, represents a single block, and b,

c, two double ones, of different kinds, without strops. Fig. e, f, two double tackle-blocks iron bound, the lower one, f, being fitted with a swivel, g, a double iron-bound block with a large hook, h, a snatch-block, i, a top-block, k, a voyal-block, and l, a clue-garnet-block. See SNATCH-BLOCK, TACKLE, and VOYAL.

The Cat-block (plate II. fig. 15.) is employed to draw the anchor up the cat-head. See the article CAT.

The swivel in the iron-bound block is to turn it, that the several parts of the rope of which the tackle is composed may not be twisted round each other, which would greatly diminish the mechanical power.

The top-block is used to hoist up or lower down the top-masts, and is for this purpose hooked in an eye-bolt driven into the cap. See CAP.

The clue-garnet blocks are used to draw the clues, or lower-corners of the *courses*, up to the yard, and are consequently fastened to the clues of those sails. See CLUE-GARNET. The use of the shoulder on the lower-end, is to prevent the strop from being fretted or chafed by the motion of the sail, as the ship rolls or pitches.

BOARD, in navigation, (*bordée*, Fr.) the space comprehended between any two places where the ship changes her course by tacking; or the line over which she runs between tack and tack, when she is turning to windward, or sailing against the direction of the wind. See the articles BEATING and TACKING.

She makes a good BOARD, i. e. sails nearly upon a streight line, without deviating to leeward when she is close-hauled. See CLOSE-HAULED.

BOARDING, *abordage*, an assault made by one ship upon another, by entering her in battle with a detachment of armed men; either because the efforts of the artillery and musquetry have proved

ineffectual, or because she may have a greater number of men, and be better equipped for this attack than the enemy who defends herself against it.

This stratagem, however, is chiefly practised by privateers upon merchant-ships, who are not so well provided with men, and rarely attempted in the royal navy; the battle being generally decided in men of war by the vigorous execution of a close cannonade.

An officer should maturely consider the danger of boarding a ship of war before he attempts it; and be well assured that his adversary is weakly manned: for perhaps he wishes to be boarded, and if so, a great slaughter will necessarily follow.

The swell of the sea ought also to be considered, because it may run so high as to expose both the ships to the danger of sinking.

There is perhaps very little prudence in boarding a ship of equal force; and when it is attempted, it may be either to windward or to leeward, according to the comparative force or situation of the ships. If there be any swell, or sea, it may be more adviseable to lay the enemy aboard on the lee-side, as the water is there the smoothest; besides, if the boarder is repulsed in that situation, he may more easily withdraw his men, and stand off from his adversary. But as the weather-ship can generally fall to leeward at any time, it is perhaps more eligible to keep to windward, by which she will be enabled to rake her antagonist, or fire the broadside into her stern as she crosses it, in passing to leeward, which will do great execution amongst her men, by scouring the whole length of the deck.

Boarding may be performed in different places of the ship, according to the circumstances, preparation and position of both: the assailant having previously selected a number of men armed with pistols and

cutlasses. A number of powder-flasks, or flasks charged with gun-powder and fitted with a fuse, are also provided, to be thrown upon the enemy's deck immediately before the assault. Besides this, the boarder is generally furnished with an earthen shell, called a stink-pot, which on that occasion is suspended from his yard-arms or bow-sprit-end. This machine is also charged with powder, mixed with other inflammable and suffocating materials, with a lighted fuse at the aperture. Thus prepared for the action, and having grappled his adversary, the boarder displays his signal to begin the assault. The fuses of the stink-pot and powder-flasks being lighted, they are immediately thrown upon the deck of the enemy, where they burst and catch fire, producing an intolerable stench and smoke, and filling the deck with tumult and distraction. Amidst the confusion occasioned by this infernal apparatus, the detachment provided rush aboard sword in hand, under cover of the smoke, on their antagonist, who is in the same predicament with a citadel stormed by the besiegers, and generally overpowered, unless he is furnished with extraordinary means of defence, or equipped with close-quarters, to which he can retreat with some probability of safety. See the article CLOSE-QUARTERS.

BOAT (*bæt*, Sax. *boot*, Belg.) a small open vessel, conducted on the water by rowing or sailing. The construction, machinery, and even the names of boats, are very different, according to the various purposes for which they are calculated, and the services on which they are to be employed.

Thus they are occasionally slight or strong; sharp or flat-bottomed; open or decked; plain or ornamented; as they may be designed for swiftness or burthen; for deep or shallow water; for sailing in a

harbour or at sea; and for convenience, or pleasure.

The largest boat that usually accompanies a ship is the long-boat, *chaloupe*, which is generally furnished with a mast and sails: those which are fitted for men of war, may be occasionally decked, armed, and equipped, for cruising short distances against merchant-ships of the enemy, or smugglers, or for impressing seamen, &c.

The barges are next in order, which are longer, slighter, and narrower: they are employed to carry the principal sea-officers, as admirals, and captains of ships of war, and are very unfit for sea. See the article BARGE.

Pinnaces exactly resemble barges, only that they are somewhat smaller, and never row more than eight oars; whereas a barge properly never rows less than ten. These are for the accommodation of the lieutenants, &c.

Cutters of a ship, *bateaux*, are broader, deeper, and shorter than the barges and pinnaces; they are fitter for sailing, and are commonly employed in carrying stores, provisions, passengers, &c. to and from the ship. In the structure of this sort of boats, the lower-edge of every plank in the side over-lays the upper-edge of the plank below, which is called by shipwrights clinch-work.

Yawls, *canots*, are something less than cutters, nearly of the same form, and used for similar services; they are generally rowed with six oars.

The above boats more particularly belong to men of war; as merchant-ships seldom have more than two, viz. a long-boat and yawl: when they have a third, it is generally calculated for the countries to which they trade, and varies in its construction accordingly.

Merchant-ships employed in the Mediterranean

find it more convenient to use a lanch, which is longer, more flat-bottomed, and better adapted every way to the harbours of that sea than a long-boat. See LANCH.

A wherry, *diligence*, is a light sharp boat, used in a river or harbour for carrying passengers from place to place.

Punts, *flette*, are a sort of oblong flat-bottomed boats, nearly resembling floating stages; they are used by shipwrights and caulkers, for breaming, caulking, or repairing a ship's bottom.

A moses is a very flat broad boat, used by merchant-ships amongst the Caribbee-islands, to bring hogsheads of sugar off from the sea-beach to the shipping which are anchored in the roads.

A felucca is a strong passage-boat used in the Mediterranean, from ten to sixteen banks of oars. The natives of Barbary often employ boats of this sort as cruisers.

For the larger sort of boats, see the articles CRAFT, CUTTER, PERIAGUA, and SHALLOP.

Of all the small boats, a Norway yawl seems to be the best calculated for a high sea, as it will often venture out to a great distance from the coast of that country, when a stout ship can hardly carry any sail.

Trim the BOAT! *barque-droit!* the order to sit in the boat in such a manner as that she shall float upright in the water, without leaning to either side.

To bale the BOAT, is to throw out the water which remains in her bottom or the well-room.

Moor the BOAT! the order to fasten a boat with two ropes, so as that the one shall counter-act the other.

For a representation of some of the principal boats of a ship of war, see plate III. where fig. 1. exhibits the elevation, or side view, of a ten-oared barge; a a, its keel; b, the stern-post; c, the stem; b c, the water-

line, which separates what is under the surface of the water from what is above it; e, the row-locks, which contain the oars between them; f, the top of the stern; g, the back-board; f g, the place where the cockswain stands or sits while steering the boat; l, the rudder, and m, the tiller, which is of framed iron.

Fig. 2. represents the plan of the same barge, where d is the ‘thwarts, or seats where the rowers sit to manage their oars; f, i, h, the stern-sheets; i k, the benches whereon the passengers sit in the stern-sheets: the rest is explained in fig. 1.

Fig 3. is a stern view of the same barge, with the projection of all the timbers in the after-body; and fig. 4, a head view, with the curves of all the timbers in the fore-body.

Having thus explained the different views of the barge, the reader will easily comprehend the several corresponding parts in the other boats; where fig. 5 is the plan, and fig. 6 the elevation of a twelve-oared cutter that rows double banked: which, although seldom employed unless in capital ships, because requiring twelve rowers, is nevertheless a very excellent boat, both for rowing and sailing. Fig. 7 and 8 are the head and stern of this boat.

Fig. 9 is the plan of a long-boat, of which fig. 10 is the elevation, 11 the stern-view, and 12 the head-view.

BOAT-HOOK, an iron hook with a sharp point on the hinder part thereof, to stick into a piece of wood, a ship’s-side, &c. It is stuck upon a long pole or shaft, (pl. III. fig. 1 n.) by the help of which a person in the boat may either hook any thing to confine the boat in a particular place, or push her off by the sharp point attached to the back of the hook.

BOATSWAIN, *Contre-maitre*, the officer who has the boats, sails, rigging, colours, anchors, and cables

committed to his charge.

It is the duty of the boatswain particularly to direct whatever relates to the rigging of a ship, after she is equipped from a royal dock-yard. Thus he is to observe that the masts are properly supported by their shrouds, stays, and back-stays, so that each of those ropes may sustain a proportional effort when the mast is strained by the violence of the wind, or the agitation of the ship. He ought also to take care that the blocks and running-ropes are regularly placed, so as to answer the purposes for which they are intended; and that the sails are properly fitted to their yards and stays, and well furled or reefed when occasion requires.

It is likewise his office to summon the crew to their duty; to assist with his mates in the necessary business of the ship; and to relieve the watch when it expires. He ought frequently to examine the condition of the masts, sails, and rigging, and remove whatever may be judged unfit for service, or supply what is deficient: and he is ordered by his instructions to perform this duty *with as little noise as possible*.

BOB-STAY, *sous-barbe*, a rope used to confine the bowsprit of a ship downward to the stem, or cut-water. It is fixed by thrusting one of its ends through a hole bored in the fore-part of the cut-water for this purpose, and then splicing both ends together so as to make it two-fold, or like the link of a chain: a *dead-eye* is then seized into it, and a *laniard* passing through this and communicating with another dead-eye upon the bowsprit, is drawn extremely tight by the help of mechanical powers. See BOWSPRIT.

The use of the bob-stay, is to draw down the bowsprit, and keep it steddy; and to counter-act the force of the stays of the fore-mast, which draw it

upwards. The bowsprit is also fortified by shrouds from the bows on each side; which are all very necessary, as the foremast and the upper-part of the main-mast are stayed and greatly supported by the bowsprit. For this reason, the bob-stay is the first part of a ship's rigging which is drawn tight to support the masts. To perform this task more effectually, it is usual to suspend a boat, anchor, or other weighty body, at the bowsprit-end, to press it downwards during this operation.

BOLSTERS, a sort of small cushions or bags, filled with tarred canvas, laid between the collars of the stays and the edge of some piece of wood on which they lie: they are used to preserve the stays from being chafed or galled by the motion of the masts, as the ship rocks or pitches at sea.

BOLT-ROPE, *ralingue*, a rope to which the edges or skirts of the sails are sewed, to strengthen, and prevent them from rending. Those parts of the bolt-rope which are on the perpendicular or sloping edges, are called leech-ropes; that at the bottom, the foot-rope; and that on the top or upper edge, the head-rope. Stay-sails, whose heads are formed like an acute angle, have no head-rope. To different parts of the bolt-rope are fastened all the ropes employed to contract or dilate the sails. The figure and position of the bolt-rope is exhibited in the plate referred to from the article SAIL.

BOMB. See the articles MORTAR and SHELL.

BOMB-VESSEL, a small ship particularly calculated to throw bombs into a fortress. They are said to be invented by M. Reyneau, and to have been first put in action at the bombardment of Algiers. Till then it had been judged impracticable to bombard a place from the sea. See a particular description of these ships in the article KETCH.

BOOM, *estacade*, *barre*, (from *boom*, a tree, Dutch) in marine fortification, a strong chain or cable, on which are fastened a number of poles, bars, &c. extending athwart the mouth of a harbour or river, to prevent the enemies ships of war from entering. It may be occasionally sunk, or drawn up to the surface of the water, by capsterns, and other mechanical powers.

BOOMS, *boute dehors*, certain long poles run out from different places in the ship to extend the bottoms of particular sails. Of these there are several sorts; as the jib-boom, studding-sail-booms, ring-tail-boom, driver-boom, main-boom, and square-sail-boom; the two last, however, are only appropriated to small ships of one or two masts. See JIB, &c.

BOOT-TOPPING, the act of cleaning the upper-part of a ship's bottom, or that part which lies immediately under the surface of the water, and daubing it over with tallow, or with a *coat* or mixture of tallow, sulphur, resin, &c.

BOOT-TOPPING is chiefly performed where there is no dock, or other commodious situation for breaming or careening; or when the hurry of a voyage renders it inconvenient to have the whole bottom properly trimmed and cleansed of the filth which gathers to it in the course of a sea-voyage. It is executed by making the ship lean to one side, as much as they can with safety, and then scraping off the grass, slime, shells, or other material, that adheres to the bottom, on the other side, which is elevated above the surface of the water for this purpose, and accordingly daubed with the coat of tallow and sulphur. Having thus finished one side, they make the ship lean to the other side, and perform the same operation, which not only preserves the bottom from the worm, but makes the ship slide smoothly through

the water. See CAREEN and DOCK.

BORE. See the article CANNON.

BOTH SHEETS AFT, *entre deux écoutes*, the situation of a ship that sails right afore the wind, or with the wind right astern.

BOTTOM, *carene*, (*botm*, Sax. *bodem*, Belg.) as a sea-term, is either used to denote the bottom of a ship, or that of the water: thus in the former sense we say, a clean or a foul bottom; a British, French, or Dutch bottom: and in the latter sense, a rocky, sandy, or oozy bottom.

The bottom of a ship, as we have described in the article *Naval* ARCHITECTURE, comprehends all that part which is under water when the ship is laden; the figure of it must therefore be determined by the qualities required in the ship, and the purposes for which the is designed.

It has been remarked, that a ship of war should carry her lowest tier of cannon sufficiently above the surface of the water to be used when necessary. If this quality is neglected, a small ship will have the advantage of a large one, inasmuch as the latter cannot open her lower battery in a fresh side-wind, without being exposed to extreme danger, by receiving a great quantity of water in at her ports between-decks.

A ship should be duly poised, so as not to dive or pitch heavily, but go smoothly and easily through the water, rising to the waves when they run high, or when the vessel has reduced her sail to the storm. If she is deficient in this article, the seas will frequently burst aboard, and strain the decks or carry away the boats. The masts are also greatly endangered from the same cause.

A ship should sail well when large, or before the wind; but particularly when *close-hauled*, or sailing

with a side-wind. She should also be enabled in the latter situation to keep her wind, without deviating much to leeward; to work and tack easily, and lie in a turbulent sea without straining violently.

Many of our shipwrights have considered it extremely difficult, if not impracticable, to make a ship carry her cannon well, bear a competent sail, and advance swiftly through the water; because a very full bottom is necessary to acquire the two first qualities; whereas a sharp floor is better fitted to procure the latter. But when it is remembered, that a full ship will carry a much greater force of sail than a sharp one, a good artist may form the body so as to unite all these three qualities with the additional one of steering easily, by paying a proper attention to the following general rules.

To make a ship carry a good sail. A flat floor-timber somewhat long, or the lower-futtocks pretty round, a streight upper-futtock, the top-timber to throw out the breadth aloft; at any rate to carry the main-breadth as high as the lower-deck. Now if the rigging be well adapted to such a body, and the upper-works lightened as much as possible, so that the whole contributes to lower the center of gravity, there will be no reason to doubt of the ship's carrying a good sail.

To make a ship steer well, and answer the helm readily. If the fashion-pieces be well formed, the tuck, or spreading-parts under the stern, carried pretty high; the midship-frame well forward; a considerable additional depth in the draught of water abaft more than forward; a great rake forward and none abaft; a snug quarter-deck and forecastle: all these will greatly facilitate the steerage; and a ship that sails well will always steer easily.

To make a ship carry her guns well out of the

water. A long floor-timber, and not of great rising; a very full midship-frame, and low tuck, with light upper-works.

To make a ship go smoothly through the water, and prevent her from pitching heavily. A long keel, a long floor, not to rise too high afore and abaft; but the area, or space contained in the fore-body, according to the respective weight it is destined to carry: all these are necessary to make a ship pass easily through the sea.

To make a ship keep a good wind and drive little to leeward. A good length by the keel; not too broad, but pretty deep in the hold, which will occasion her to have a short floor-timber and a very great rising. As such a ship will meet with great resistance in driving sideways, and feel very little, in advancing or going ahead, she will fall very little to leeward.

Being thus furnished with the methods to qualify a ship for the different purposes of navigation, the only difficulty remains to apply them properly in the construction, which must, in a great measure, be left to the judgment of the artist. The whole art then is evidently to form the body in such a manner, as that none of these qualities shall be entirely destroyed; and in giving the preference to that which is principally required in the service for which the ship is destined. As it therefore appears possible to unite them all in one vessel so that each of them may be easily discerned, a neglect of this circumstance ought to be attributed to the incapacity of the shipwright, who has not studied the principles of his art with proper application. See *Naval* ARCHITECTURE, BUILDING, and SHIP.

BOTTOMRY, *bomerie*, (from *bottom*) a contract for borrowing money on the keel or bottom of a ship; so that the commander binds the ship herself, that if the

money be not paid at the time appointed, the creditors shall have the ship.

BOTTOMRY is also where a person lends money to a merchant or adventurer who wants it in traffic, and the lender is to be paid a much greater sum at the return of the ship, standing to the hazard of the voyage. Although the interest on this account be greater than the law commonly allows, it is yet not esteemed usury; because the money being supplied at the lenders risk, if the ship perishes, he shares in the loss thereof.

BOW, *epaule*, in ship-building, the rounding part of a ship's side forward, beginning at the place where the planks arch inwards, and terminated where they close at the stem or prow. See the article Head, where the bow of a ship is represented at large. It is proved by a variety of experiments, that a ship with a narrow bow is much better calculated for sailing swiftly, than one with a broad bow; but is not so well fitted for a high sea, into which she always *pitches*, or plunges, her fore-part very deep, for want of sufficient breadth to repel the volume of water, which she so easily divides in her fall. The former of these is called by seamen a *lean*, and the latter a *bluff* bow.

"The bow which meets with the least resistance in a direct course, not only meets with the least resistance in oblique courses, but also has the additional property of driving the least to leeward; which is a double advantage gained by forming the bow so as to give it that figure which will be the least opposed in moving through any medium." *Bouguer's Traité du Navire.*

On the BOW, in navigation, an arch of the horizon, comprehended between some distant object, and that point of the compass which is right-ahead, or to

which the ship's stem is directed. This phrase is equally applicable, when the object is beheld from the ship, or discovered by trigonometrical calculation: as, we saw a fleet at day-break bearing three points *on the starboard bow*; that is, three points, from that part of the horizon which is right ahead, towards the right hand. See also the article BEARING.

BOWER. See the article ANCHOR.

BOWLINE, *bouline*, a rope fastened near the middle of the leech, or perpendicular edge of the square sails, by three or four subordinate parts, called bridles. It is only used when the wind is so unfavourable that the sails must be all braced sideways, or *close-hauled* to the wind: in this situation the bowlines are employed to keep the weather, or windward, edges of the principal sails tight forward and steddy, without which they would be always shivering, and rendered incapable of service. See the articles BRIDLE, CLOSE-HAULING, and SAIL.

To check the BOWLINE, is to slacken it, when the wind becomes large.

To BOWSE, *palanquer*, to draw on any body with a tackle, or complication of pullies, in order to remove it, or otherwise alter its state or situation: this is chiefly practised when such alteration or removal cannot be conveniently effected without the application of mechanical powers. This term is pronounced *bowce*.

BOWSPRIT, *beaupré*, (from *bow* and *sprit*) a large boom or mast, which projects over the stem, to carry sail forward, in order to govern the fore part of a ship, and counter-act the force of the sails extended behind, or, in the *after* part. It is otherways of great use, as being the principal support of the fore-mast,

by confining the *stays* whereby it is secured, and enabled to carry sail: these are great ropes stretching from the mast-head to the middle of the bowsprit, where they are drawn tight. See the articles STAY and DEAD-EYE.

BOXES *of the pump*. See the article PUMP.

BOX-HAULING, in navigation, a particular method of veering a ship, when the swell of the sea renders tacking impracticable. It is performed by putting the helm *a-lee*, to throw the head up to windward, where meeting with great resistance from the repeated shocks of the waves on the weather bow, it *falls off*, or turns to leeward, with a quicker effort, and without advancing. The aftermost sails are at this time diminished, or perhaps altogether deprived of their force of action, for a short time, because they would otherwise counteract the sails forward, and prevent the ship from turning. They are, however, extended as soon as the ship, in veering, brings the wind on the opposite quarter, as their effort then contributes to assist her motion of wheeling.

BOX-HAULING is generally performed when the ship is too near the shore to have room for veering in the usual way. See VEERING.

BOXING, an operation in sailing somewhat similar to box-hauling. It is performed by laying the head-sails, or the sails in the fore-part of the ship, aback, to receive the greatest force of the wind in a line perpendicular to their surfaces, in order to throw the ship's head back into the line of her course, after she had inclined to windward of it by neglect of the helmsman, or otherwise.

BRACE, *bras*, a rope employed to wheel, or traverse the sails upon the mast, in a direction parallel to the horizon, when it is necessary to shift the sails that they may correspond with the direction

of the wind and the course of the ship. Braces are, for this purpose, fastened to the extremities of the yards, which are called the *yard-arms*.

All the braces of the yards are double, except those of the top-gallant, and spritsail-topsail yards. The mizen-yard is furnished with *fangs*, or vangs, in the room of braces. See the article MIZEN.

BRACKETS, *consoles*, short crooked timbers resembling knees. They are fixed under the galleries and frame of a ship's head, to support the gratings.

BRAILS, *cargues*, (*breuils*, Fr.) certain ropes passing through pullies on the mizen-mast, and afterwards fastened, in different places, on the hinder, or aftmost ridge of the sail, in order to truss it up to the mast, as occasion requires. See MIZEN.

BRAILS, is likewise a general name given to all the ropes which are employed to *haul up*, or collect to their yards, the bottoms, lower corners, and skirts of the other great sails, for the more ready *furling* them whenever it is necessary. The operation of thus drawing them together, is called brailing them up, or hauling them up in the brails. See the article SAIL.

BRAKE, *brimbale*, the handle, or lever, by which a common ship-pump is usually managed. It operates by means of two iron bolts thrust through the inner end of it; one of which resting across two cheeks or ears, in the upper-end of the pump, serves as a fulcrum for the brake, supporting it between the cheeks. The other bolt connects the extremity of the brake to the pump-spear, which draws up the *box* or piston, charged with the water in the tube. See the article PUMP.

BREADTH, *largeur*, the measure of a ship from side to side in any particular place: it is usually distinguished into extreme-breadth, *ligne du fort*, main-breadth, and top-timber-breadth. See the

explanation of the plane of projection, in the article *Naval* ARCHITECTURE.

As the sides of the ship are formed by a variety of ribs, called timbers, and the areas of those timbers being of different breadths above and below, it is necessary to distinguish them in the construction, in order to form their several curves, and fix the corresponding pieces with more accuracy and precision. The part of every timber which encloses the greatest space from the middle-line of the ship's length, is therefore called the *main*-breadth; and the distance between the upper-part of the same timber and the middle-line of the ship's length, is called the top-timber-breadth.

As the ship is also broader at the midship-frame than in any other point of her length, the distance between her sides in the main-breadth of that timber, is called the extreme-breadth of the ship.

BREADTH-SWEEP, the radius of the arch which forms part of the curve of a ship's timber; as explained in the horizontal plane. See *Naval* ARCHITECTURE.

BREAKERS, *brisans*, a name given by sailors to those billows that break violently over rocks lying under the surface of the sea. They are distinguished both by their appearance and sound, as they cover that part of the sea with a perpetual foam, and produce a hoarse and terrible roaring, very different from what the waves usually have in a deeper bottom.

When a ship is unhappily driven amongst breakers, it is hardly possible to save her, as every billow that heaves her upwards, serves to dash her down with additional force, when it breaks over the rocks or sands beneath it.

BREAKING-BULK, the act of beginning to unlade a

ship; or of discharging the first part of the cargo.

To BREAK-UP, *déchirer*, to rip off the planks of a ship, and take her to pieces, when she becomes old and unserviceable.

BREAK-WATER, the hulk, or hull, of some old ship or vessel, sunk at the entrance of a small harbour, to break off, and diminish the force of the waves, as they advance towards the vessels moored within.

BREAK-WATER is also a sort of small buoy, fastened to a large one in the water, when the buoy-rope of the latter is not long enough to reach from the anchor, lying on the bottom, to the surface of the water. The use of this break-water is therefore to shew where the buoy swims. See BUOY.

To BREAM, *chauffer* (from *broom*) to burn off the filth, such as grass, ooze, shells, or sea-weed, from a ship's bottom, that has gathered to it in a voyage, or by lying long in a harbour. This operation is performed by holding kindled furze, faggots, or such materials, to the bottom, so that the flame incorporating with the pitch, sulphur, &c. that had formerly covered it, immediately loosens and throws off whatever filth may have adhered to the planks. After this, the bottom is covered anew with a composition of sulphur, tallow, &c. which not only makes it smooth and slippery, so as to divide the fluid more readily, but also poisons and destroys those worms which eat through the planks in the course of a voyage. Breaming may be performed either when the ship lies aground after the tide has ebbed from her, by *docking*, or by *careening*, which see; as also COAT and STUFF.

BREAST-FAST, a sort of hawser, or large rope, employed to confine a ship sideways to a wharf or key, or to some other ship; as the head-fast confines her forward, and the stern-fast, abaft.

BREAST-HOOKS, *guirlandes*, (from *breast* and *hook*) are thick pieces of timber, incurvated into the form of knees, and used to strengthen the fore-part of the ship, where they are placed at different heights directly across the stem, so as to unite it with the bows on each side.

The breast-hooks are strongly connected to the stem and hawse-pieces by tree-nails, and by bolts, driven from without, through the planks and hawse-pieces, and the whole thickness of the breast-hooks, upon whose inside those bolts are forelocked, or clinched, upon rings. They are usually about one third thicker, and twice as long, as the knees of the decks which they support.

There are generally four or five of these pieces in the hold between the kelson and the lower-deck, in the form of R, (plate I. PIECES *of the* HULL), upon the uppermost of which the planks of that deck are rabitted. There are two placed between the lower and the second decks, in the form of S, (plate I.), one of which is immediately beneath the hawse-holes, and the other under the second deck, whose planks are inlaid thereon, and upon which the inner-end of the bowsprit frequently rests.

The fore-side of the breast-hook, which is convex, is formed so as to correspond with the place in which it is stationed, that is to say, it conforms exactly to the interior figure of that part of the bow where it ought to be fayed: accordingly the branches, or arms, of the breast-hooks, make a greater angle as they are more elevated above the keel, whilst the lower ones are more incurvated, and are almost figured like the crotches.

As it is not necessary that the inner, or concave side of these pieces, should retain a regular form, the artificers frequently let them remain as thick as

possible, to give additional support to the ship's fore-part, where she sustains the whole shock of resistance in dividing the fluid, or in plunging down into it.

It is evident that the connexion and solidity of the ship in this place will be reinforced in proportion to the strength and extent of the breast-hooks, so that they may cover a greater number of the head-timbers.

BREAST-WORK, *fronteau*, a sort of balustrade or fence, composed of rails or mouldings, and frequently decorated with sculpture. It is used to terminate the quarter-deck and poop at the fore-ends, and to inclose the forecastle both before and behind.

BREECHING, *brague*, (from *breech*) a rope used to secure the cannon of a ship of war, and prevent them from recoiling too much in the time of battle.

It is fixed by fastening the middle of it to the hindmost knob or cascabel of the gun, which sailors call the pomiglion, or pummelion; the two ends of it are afterwards inserted through two strong rings on the sides of the carriage, and fastened to other bolts in the ship's sides.

The breeching is of sufficient length to let the muzzle of the cannon come within the ship's side to be charged.

The use of the breeching, as it checks the recoil of the cannon, is shewn in plate III. DECK, where it is expressed by e e, passing through the ring-bolts, f, on the side of the carriage, g, being fastened to the cascabel, h. It is also exhibited in the MIDSHIP-FRAME, where it is employed to lash the cannon when it is *housed* during the course of a voyage. See the article CANNON.

BREWING, the appearance of a collection of black

and tempestuous clouds arising gradually from a particular part of the hemisphere, as the fore-runner of a storm.

BRIDLES, the upper-part of the moorings laid in the king's harbours to ride ships or vessels of war. See the article MOORINGS.

BRIDLES *of the bowline*, *pattes*, the legs by which the bowline is fastened to different places on the edge or skirt of a large sail.

We have already explained the use of the *bowline*; that it is employed to confine or keep steddy the windward or weather edges of the principal sails when they are braced for a side-wind. For as the current of air enters the cavity of the sail in a direction nearly parallel to its surface, it follows that the ridge of the sail must necessarily be shaken by the wind, unless it is kept tight forward; but as a single rope has not been found sufficient to confine the whole skirt of the sail, inasmuch as it only draws upon one part thereof, it became necessary to apply bridles or legs spreading out from the bowline. They are represented in the figures annexed to the article SAIL.

BRIG, or BRIGANTINE, a merchant-ship with two masts. This term is not universally confined to vessels of a particular construction, or which are masted and rigged in a method different from all others. It is variously applied, by the mariners of different European nations, to a peculiar sort of vessel of their own marine.

Amongst English seamen, this vessel is distinguished by having her main-sail set nearly in the plane of her keel; whereas the main-sails of larger ships are hung athwart, or at right angles with the ship's length, and fastened to a yard which hangs parallel to the deck: but in a brig, the foremost edge

of the main-sail is fastened in different places to hoops which encircle the main-mast, and slide up and down it as the sail is hoisted or lowered: it is extended by a *gaff* above, and by a boom below.

To BRING *by the lee*. See *To* BROACH-TO.

To BRING-TO, in navigation, *caposer*, to check the course of a ship when she is advancing, by arranging the sails in such a manner as that they shall counteract each other, and prevent her either from retreating or moving forward. In this situation the ship is said to lie-by, or lie-to, having, according to the sea-phrase, some of her sails *aback*, to oppose the force of those which are *full*; or having them otherwise shortened by being *furled*, or *hauled up in the brails*.

BRINGING-TO, is generally used to detain a ship in any particular station, in order to wait the approach of some other that may be advancing towards her: or to retard her course occasionally near any port in the course of a voyage.

To BRING-UP, a provincial phrase peculiar to the seamen in the coal-trade, signifying to anchor, &c.

To BROACH-TO, in navigation, to incline suddenly to windward of the ship's course when she sails with a large wind; or, when she sails directly before the wind, to deviate from the line of her course, either to the right or left, with such rapidity as to bring the ship's side unexpectedly to windward, and expose her to the danger of oversetting.

It is easy to conceive that a ship will carry much more sail before the wind than when she makes a progress with her side to its direction; because when the current of wind acts nearly endways on her hull, the pressure of it on the masts must be considerably diminished as she yields to its impulse and flies before it; and that if she carries a great sail at this

time, it can only press her fore-part lower down in the water. But if, when she carries a great extension of sail, her side is suddenly brought to the wind, it may be attended with the most fatal consequences, as the whole force of it then pours like a torrent into the cavities of the sails. The masts therefore unavoidably yield to this strong impression, acting like levers on the ship sideways, so as nearly to overturn her, unless she is relieved by some other event, which may be also extremely pernicious, such as the sails rending to pieces, or the masts being carried away.

It is generally occasioned by the difficulty of steering the ship; by the negligence or incapacity of the helmsman; or by some disaster happening to the helm or its machinery, which renders it incapable of governing the ship's course.

The difference between broaching-to and bringing *by the lee*, may be thus defined. Suppose a ship with a great sail set is steering south, having the wind N.N.W. then is west the *weather*, and east the *lee-side*.

If by some deficiency in the steerage her head turns round to the westward, so as that her sails are all taken aback on the weather-side before she can be made to return to the course from which she has deviated, she is said to *broach-to*.

If otherwise her head, from the same cause, has declined so far eastward as to lay her sails aback on that side which was the lee-side, it is called bringing her by the lee.

BROADSIDE, *bordee*, in a naval engagement, the whole discharge of the artillery on one side of a ship of war above and below; as,

We poured a broadside into the enemy's ship, i. e. discharged all the ship's cannon on one side upon her.

She brought her broadside to bear on the castle; that is, disposed the ship so as to point all her cannon to it within point-blank range.

A squall of wind laid the ship on her broadside; that is, pressed her down in the water, so as nearly to overturn her.

BROKEN-BACKED, *arcqué*, the state or quality of a ship, which is so loosened in her frame, either by age, weakness, or some great strain, as to droop at each end.

This circumstance is more common amongst French than the English or Dutch ships, owing partly to their great length, and to the sharpness of the floor, whose breadth is not sufficiently carried from the middle towards each end; and partly from being frequently obliged to have a great weight in both ends, when they are empty in the middle, at the time of discharging one cargo and taking in another. See CAMBERING.

BUCCANEER, a name given to certain piratical rovers of various European nations, who formerly infested the Spanish coasts in America, and, under pretence of traffic with the inhabitants, frequently seized their treasure, plundered their houses, and committed many other depredations.

Ship-BUILDING may be defined the manner of constructing ships, or the work itself, as distinguished from naval architecture, which we have rather considered as the theory or art of delineating ships on a plane, and to which this article may properly be understood as a supplement.

The pieces by which this complicated machine is framed, are joined together in various places, by scarfing, rabitting, tenanting, and scoring. See those articles.

During the construction of a ship, she is supported

in the dock, or upon a wharf, by a number of solid blocks of timber placed at equal distances from, and parallel to, each other, as may be seen in the article LANCHING; she is then said to be on the stocks.

The first piece of timber laid upon the blocks is generally the keel; I say *generally*, because, of late, a different method has been adopted in some of the royal dock-yards, by beginning with the floor-timbers; the artists having found that the keel is often apt to rot during the long period of building a large ship of war. The pieces of the keel, as exhibited in plate I. are scarfed together, and bolted, forming one entire piece, A A. which constitutes the length of the vessel below. At one extremity of the keel is erected the *stem*. It is a strong piece of timber incurvated nearly into a circular arch, or, according to the technical term, *compassing*, so as to project outwards at the upper-end, forming what is called the *rake* forward. In small vessels this is framed of one piece, but in large ships it is composed of several pieces scarfed and bolted together, as expressed in the explanation of plate I. PIECES *of the* HULL, and in those terms separately. At the other extremity of the keel, is elevated the stern-post, which is always of one entire strait piece. The heel of it is let into a mortise in the keel, and having its upper-end to hang outwards, making an obtuse angle with the keel, like that of the stem: this projection is called the *rake* abaft. The stern-post, which ought to support the stern, contains the iron-work or hinges of the rudder, which are called *googings*, and unites the lower-part of the ship's sides abaft. See the connexion of those pieces in the ELEVATION, pl. I.

Towards the upper-end of the stern-post, and at right angles with its length, is fixed the middle of the *wing-transom*, where it is firmly bolted. Under this is

placed another piece parallel thereto, and called the deck-transom, upon which the after-end of the lower-deck is supported. Parallel to the deck-transom, and at a proper distance under it, another piece is fixed to the stern-post, called the first transom, all of which serve to connect the stern-post to the *fashion pieces*. Two more transoms, called the second and third, are also placed under these, being likewise attached to the fashion pieces, into which the extremities of all the transoms are let, as exhibited in plate X. fig. 1. The fashion-pieces are formed like the other timbers of the ship, and have their heels resting on the upper-part of the kelson, at the after extremity of the floor ribbands.

All these pieces, viz. the transoms, the fashion-pieces, and their top-timbers, being strongly united into one frame, are elevated upon the stern-post, and the whole forms the structure of the stern, upon which the galleries and windows, with their ornaments, are afterwards built,

The stem and stern-post being thus elevated upon the keel, to which they are securely connected by knees and arched pieces of timber bolted to both; and the keel being raised at its two extremities by pieces of dead-wood, the midship *floor-timber* is placed across the keel, whereto it is bolted through the middle. The floor-timbers before and abaft the midship-frame are then stationed in their proper places upon the keel; after which the *kelson*, which, like the keel, is composed of several pieces scarfed together, is fixed across the middle of the floor-timbers, to which it is attached by bolts driven through the keel, and clinched on the upper-part of the kelson. The futtocks are then raised upon the floor-timbers, and the *hawse-pieces* erected upon the cant-timbers in the fore-part of the ship. The top-

timbers on each side are next attached to the head of the futtocks, as already explained in the article *naval* ARCHITECTURE. The frames of the principal timbers being thus completed, are supported by ribbands, as exhibited in the plate referred to from the article RIBBANDS.

The ribs of the ship being now stationed, they proceed to fix on the planks, of which the wales are the principal, being much thicker and stronger than the rest; as is represented in the MIDSHIP-FRAME. The harpins, which may be considered as a continuation of the wales at their fore-ends, are fixed across the hawse-pieces, and surround the fore-part of the ship. The planks that inclose the ship's sides are then brought about the timbers, and the *clamps*, which are of equal thickness with the wales, fixed opposite to the wales within the ship; these are used to support the ends of the beams, and accordingly stretch from one end of the ship to the other. The *thick stuff*, or strong planks of the bottom within-board, are then placed opposite to the several scarfs of the timbers, to reinforce them throughout the ship's length. The planks employed to line the ship, called the *ceiling*, or *foot-waling*, is next fixed in the intervals between the thick-stuff of the hold. The *beams* are afterwards laid across the ship to support the decks, and are connected to the side by lodging and hanging knees; the former of which are exhibited in their proper stations in plate III. F. and the hanging ones, together with the breadth, thickness, and position of the keel, floor-timbers, futtocks, top timbers, wales, clamps, thick-stuff, planks within and without, beams, decks, &c. are seen in the MIDSHIP-FRAME.

The cable-bits being next erected, the *carlings* and *ledges*, which are represented in plate III. and

described in their proper places, are disposed between the beams to strengthen the deck. The *water-ways* are then laid on the ends of the beams throughout the ship's length, and the spirketting fixed close above them. The upper-deck is then planked, and the *string* placed under the *gunnel* or *plansheer* in the waist. The disposition of those latter pieces on the timbers, viz. the water-ways, spirketting, upper-deck, string, and gunnel, are also represented in the MIDSHIP-FRAME.

They proceed next to plank the quarter-deck and forecastle, and to fix the *partners* of the masts and capsterns with the *coamings* of the hatches. The *breast-hooks* are then bolted across the stem and bow within-board, the *step* of the fore-mast placed on the kelson; and the *riders*, exhibited in the MIDSHIP-FRAME, fayed on the inside of the timbers to reinforce the sides in different places of the ship's length. The *pointers*, if any, are afterwards fixed across the hold diagonally to support the beams; and the *crotches* stationed in the after-hold to unite the half-timbers. The *steps* of the main-mast and capsterns are next placed; the planks of the lower-decks and orlop laid; the *navel hoods* fayed on the hawse-holes; and the *knee of the head*, or cutwater, connected to the stem. The figure of the head is then erected, and the *trail-board* and cheeks fixed on the sides of the knee.

The *taffarel* and *quarter pieces*, which terminate the ship abaft, the former above, and the latter on each side, are then disposed; and the stern and quarter galleries framed and supported by their brackets. The *pumps*, with their well, are next fixed in the hold; the *limber-boards* laid on each side of the kelson, and the *garboard* strake fixed on the ship's bottom next to the keel without.

The hull being thus fabricated, they proceed to separate the apartments by *bulk-heads*, or partitions; to frame the *port-lids*; to fix the *catheads* and *chess-trees*; to form the *hatchways* and *scuttles*, and fit them with proper covers or *gratings*. They next fix the ladders whereby to mount or descend the different hatchways, and build the *manger* on the lower deck, to carry off the water that runs in at the hawse-holes when the ship rides at anchor in a sea. The bread-room and magazines are then lined, and the *gunnel*, *rails*, and *gangways*, fixed on the upper part of the ship. The *cleats*, *kevels*, and *ranges*, by which the ropes are. fastened, are afterwards bolted or nailed to the sides. in different places.

The *rudder*, being fitted with its irons, is next hung to the stern-post; and the *tiller*, or bar, by which it is managed, let into a mortise at its upper-end. The *scuppers*, or leaden tubes, that carry the water off from the decks, are then placed in holes cut through the ship's sides; and the *standards*, represented in the MIDSHIP-FRAME, bolted to the beams and sides above the decks to which they belong. The poop-lanthorns are last fixed upon their cranes over the stern, and the bilge-ways, or cradles, placed under the bottom, to conduct the ship steadily into the water whilst lanching.

As the various pieces, which have been mentioned above, are explained at large in their proper places, with references to their figures according to the plan of this work, it would have been superfluous to have entered into a more particular description of them here. It is perhaps necessary to observe, that as the theory ought always to precede the practice, this article would probably be much better understood by previously reading that of *Naval* ARCHITECTURE, which may be considered as a proper introduction to

it.

BUILT, *fabrique*, the particular form or structure of a ship, by which she is distinguished from others of a different class or nation. Thus a ship is said to be frigate-built, galley-built, a hag-boat, a pink, a cat, &c. or to be English-built, French-built, American-built, &c.

BULK-HEADS, certain partitions, or walls, built up in several places of a ship between two decks, either lengthwise or across, to form and separate the various apartments. Some of those which are built across the ship are remarkably strong. See the article CLOSE-QUARTERS.

BULL'S-EYE, *cosse*. a sort of small pulley in the form of a ring, having a rope spliced round the outer edge of it, (which is hollowed to admit of the rope) and a large hole in the middle for another rope to slide in. It is seldom used but for the main and fore bowline-bridles of some ships, particularly the colliers of Northumberland, &c. It is spliced in the outer-end of the bowline, and sliding along the bridle, to rest in the most apposite place, draws it tight above and below. This implement is more frequently used by Dutch than English seamen.

BUMKIN, or BOOMKIN, *boute-lof*, a short boom or bar of timber, projecting from each *bow* of a ship, to extend the lower-edge of the fore-sail to windward; for which purpose there is a large block fixed on its outer end, through which the rope is passed that is fastened to the lower-corner of the sail to windward, called the *tack*; and this being drawn tight down, brings the corner of the sail close to the block, which being performed, the *tack* is said to be *aboard*.

The bumkin is secured by a strong rope which confines it downward to the ship's bow, to counteract the strain it bears from the fore-sail above,

dragging it upwards.

BUNT, the middle part, or cavity of the principal square sails, as the main-sail, fore-sail, top-sails, and top-gallant-sails. If one of those sails is supposed to be divided into four equal parts, from one side to the other, then may the two middle divisions, which comprehend half of the sail, be properly called the limits of the bunt.

BUNTINE, *etamine*, a thin woollen stuff, of which the colours and signals of a ship are usually formed.

BUNTLINES, *cargues fond*, are ropes fastened to the bottoms of the square sails, to draw them up to the yards: they are inserted through certain blocks above, or on the upper-part of the yard, whence passing down-wards on the fore-part of the sail, they are fastened below to the lower-edge in several places of the *bolt-rope*.

BUOY, (*bouée*, Fr.) a sort of close cask, or block of wood, fastened by a rope to the anchor, to determine the place where the anchor is situated, that the ship may not come too near it, to entangle her cable about the stock, or the flukes of it.

BUOYS are of various kinds; as,

Can-BUOYS; these are in the form of a cone, (see plate II. fig. 8.) and of this construction are all the buoys which are floated over dangerous banks and shallows, as a warning to passing ships, that they may avoid them. They are extremely large, that they may be seen at a distance, and are fastened by strong chains to the anchors which are sunk for this purpose at such places.

Nun-BUOYS, are shaped like the middle frustum of two cones, abutting upon one common base, (plate II. fig. 9.) being casks, which are large in the middle, and tapering, nearly to a point, at each end.

Wooden BUOYS, are solid pieces of timber,

sometimes in the shape of a cylinder, and sometimes of a nun-buoy; they are furnished with one or two holes, in which to fix a short piece of rope, whose two ends being spliced together make a sort of circle or ring called the strop.

Cable-BUOYS, common casks employed to buoy up the cable in different places from any rocky ground. In the harbour of Alexandria, in Egypt, every ship is moored with at least three cables, and has three or four of these buoys on each cable for this purpose.

BUOY-ROPE, the rope which fastens the buoy to the anchor: it should be little more than equal in length to the depth of the water where the anchor lies, as it is intended to float near, or immediately above the bed of it, that the pilot may at all times know the situation thereof. See plate I. fig. 6. b is the anchor, c the buoy-rope, and d the buoy floating on the surface of the water.

The BUOY-ROPE is often extremely useful otherways, in drawing up the anchor when the cable is broke. It should therefore be always of sufficient strength for this purpose, or else the anchor may be lost through negligence.

Slings of the BUOY, the ropes which are fastened about it, and by which it is hung: they are curiously spliced round it, something resembling the braces of a drum.

To stream the BUOY, is to let it fall from the ship's side into the water, which is always done before they let go the anchor, that it may not be retarded by the buoy-rope as it sinks to the bottom.

BURTHEN, or BURDEN, *port*, (*byrthen*, Sax.) the weight or measure of any species of merchandize that a ship will carry when fit for sea.

To determine the burthen, or, in other words, the tonnage, of a ship, it is usual to multiply the length

of the keel into the extreme breadth of the ship within-board, taken along the midship-beam, and multiply the product by the depth in the *hold* from the plank joining to the *kelson* upwards, to the main-deck, and divide the last product by 94, then will the quotient be the burden required, in tons.

BURTON, *bredindin*, a sort of small tackle, formed by two blocks or pullies, till the rope becomes three or four fold, and acquires an additional power in proportion.

It is generally employed to tighten the shrouds of the top-masts, but may be otherways used to move or draw along any weighty body in the *hold*, or on the *deck*, as anchors, bales of goods, large casks, &c.

BUSS, *buche*, (*busse*, Germ.) a ship of two masts, used by the English and Dutch in their herring fisheries. It is generally from fifty to seventy tons burthen; being furnished with two small sheds or cabins, one at the prow and the other at the stern; the former of which is employed as a kitchen.

BUTT, *about*, the end of any plank in a ship's side which unites with the end of another, continuing its length: when a plank is loosened at the end by the ship's weakness or labouring, she is said to have started or sprung a butt.

BUTTOCK, the convexity of a ship behind, under the stern; it is terminated by the counter above, and by the after part of the bilge below, by the rudder in the middle, and by the quarter on the side.

BUTTONS. See the article BONNET.

C.

CABIN, *cabane*, a room or apartment in a ship where any of the officers usually reside.

There are many of these in a large ship; the principal of which is designed for the captain, or commander. In ships of the line, this chamber is furnished with an open gallery in the ships stern, as also a little gallery on each quarter. The apartments where the inferior officers or common sailors sleep and mess, are usually called births; which see.

The bed-places built up for the sailors at the ships side in merchantmen, are also called cabins.

CABLE, (*cable*, Fr.) a large, strong rope of a considerable length, used to retain a ship at anchor in a road, bay, or haven.

Cables are of various sorts and sizes. In Europe they are usually manufactured of hemp; in Africa they are more frequently composed of bass, which is a sort of long straw or rushes; and in Asia of a peculiar sort of Indian grass.

Cables, of what thickness soever, are generally formed of three ropes twisted together, which are then called *strands*: each of these is composed of three smaller strands; and those last of a certain number of rope-yarns. This number is therefore greater or smaller in proportion to the size of the cable required.

There are some cables, however, manufactured of four strands; which are chiefly the production of

Italy and Provence.

All ships ought to be furnished with at least three good cables; the *sheet* cable, and the two *bowers*; best and small.

All cables ought to be one hundred and twenty fathoms in length; for which purpose the threads or yarns must be one hundred and eighty fathoms; inasmuch as they are diminished one third in length by twisting. Besides this length, it is necessary to splice at least two cables together, in order to double the length when a ship is obliged to anchor in deep water. For although it is not common to anchor in a greater depth than forty fathoms, yet if there is only one cable, and the ship rides in a storm and tempestuous sea, the anchor will of necessity sustain the whole weight and violent jerking of the ship, in a direction too nearly perpendicular. By this effort it will unavoidably be loosened from its hold, and dragged by the ship, which thus driven from her station, is in immediate danger of being wrecked on the nearest rocks or shallows; whereas it is evident, that if the cable, by its great length, were to draw more horizontally on the anchor, it would bear a much greater force. See ANCHOR.

The long cable is not so apt to break as the short one; because it will bear a great deal more stretching before it comes to the greatest strain: it therefore resembles a sort of spring, which may be very easily extended, and afterwards recovers its first state, as soon as the force which extended it is removed. Besides all this, a ship will ride much smoother with a long cable, and be less apt to *pitch*, or plunge deep in the water with her fore-part.

On the contrary, the short cable, being too nearly vertical to the anchor, cannot bear such a strain, because it is charged with a greater effort; and, as it

will not bear stretching, may break at the first violent tug. The ship also rides with much greater difficulty, labours extremely, and often plunges all her fore-part under water.

By what has been said on this subject, we may see how very necessary it is to furnish a ship with sufficiency of cables, or what is called ground-tackle; and what an inconsiderate policy it is in merchants to expose their vessels to such evident dangers from the want of them. For we may venture to assert, without violation of truth, that many good ships have been lost only on account of a deficiency in this important article.

A cable ought neither to be twisted too much or too little; as in the former state it will be extremely stiff, and difficult to manage; and in the latter, it will be considerably diminished in its strength.

All cables are to each other as the cubes of their diameters.

The number of threads also, of which each cable is composed, being always proportioned to its length and thickness, the weight and value of it are determined by this number. Thus a cable of ten inches in circumference, ought to consist of four hundred and eighty-five threads; and weigh one thousand nine hundred and forty pounds: and on this foundation is calculated the following table, very useful for all persons engaged in marine commerce, who equip merchant-ships on their own account, or freight them for the account of others.

A table of the number of threads and weight of cables of different circumference.

Circumference in inches.	Threads or rope-yarns.	Weight in pounds.

9	393	1572
10	485	1940
11	598	2392
12	699	2796
13	821	3284
14	952	3808
15	1093	4372
16	1244	4976
17	1404	5616
18	1574	6296
19	1754	7016
20	1943	7772

Stream-CABLE, a hauser, or rope, something smaller than the bowers, and used to moor the ship in a river or haven, sheltered from the wind and sea, &c.

To bit the CABLE. See the article BITS.

To serve the CABLE, is to bind it round with ropes, leather, or other materials, to prevent it from being galled, or fretted in the hawse by friction.

Heave in the CABLE! the order to draw it into the ship by winding about the capstern or windlass.

Pay away the CABLE! slacken it, that it may run out of the ship. This phrase is the same with *veer away* the cable. See the French term *cable*, and the phrases following it.

CABLE'S *length*, a measure of 120 fathoms, or of the usual length of the cable.

To CALK, or CAULK, *calfater*, (probably from *calage*, Fr. hemp) to drive a quantity of oakum, or old ropes untwisted and drawn asunder, into the seams of the planks, or into the intervals where the planks are joined to each other in the ship's decks or sides,

in order to prevent the entrance of water. After the oakum is driven very hard into these seams, it is covered with hot melted pitch or resin, to keep the water from rotting it.

Amongst the ancients, the first who made use of pitch in calking, were the inhabitants of Phæacia, afterwards called Corsica. Wax and resin appear to have been commonly used previous to that period; and the Poles at this time use a sort of unctuous clay for the same purpose, on their navigable rivers.

CALL, *sifflet*, a sort of whistle, or pipe, of silver or brass, used by the boatswain and his mates to summon the sailors to their duty, and direct them in the different employments of the ship.

As the call can be sounded to various strains, each of them is appropriated to some particular exercise; such as hoisting, heaving, lowering, veering away, belaying, letting-go a tackle, &c. The act of winding this instrument is called *piping*, which is as attentively observed by sailors, as the beat of the drum to march, retreat, rally, charge, &c. is obeyed by soldiers.

CALM, the state of rest which appears in the air and sea when there is no wind stirring.

That tract of the Atlantic ocean, situated between the tropic of Cancer and the latitude of 29° north; or the space that lies between the *trade* and the variable winds, is frequently subject to calms of very long duration: and hence it has acquired, amongst seamen, the name of the Calm Latitudes.

A long calm is often more fatal to a ship than the severest tempest, because if the ship is tight and in good condition, she may sustain the latter without much injury; whereas in a long calm, the provision and water may be entirely consumed, without any opportunity of obtaining a fresh supply. The surface

of the sea in a continued calm is smooth and bright as a looking-glass.

CAMBERED-DECK, the deck or flooring of a ship is said to be cambered, or to lie cambering, when it is higher in the middle of the ship's length, and droops towards the stem and stern, or the two ends. Also when it lies irregular; a circumstance which renders the ship very unfit for war. See the article BROKEN-BACKED.

CAN-BUOY. See BUOY.

CAN-HOOKS, an instrument used to sling a cask by the ends of the staves: it is formed by fixing a broad and flat hook at each end of a short rope, and the tackle by which the cask so slung may be hoisted or lowered, is hooked to the middle of the rope. See plate II. fig. 8 and 9. The canhooks commonly used ashore by brewers, &c. are all iron, the middle part being fitted with a chain in the place of a rope.

CANNON, a well known piece of artillery, mounted in battery on the decks of a ship, and used in all naval engagements.

This engine has already been so accurately described by a variety of authors, that it may seem unnecessary to give a particular description of it here. As it forms, however, so important an article in all the military operations of the marine, it cannot, consistently with our plan, be omitted in this place.

CANNON then may be defined a long, conical fire-arm of brass or iron, concave within, and smaller at the muzzle, or face, than at the opposite end.

The principal parts of a sea-cannon, as represented in plate VII. fig. 3, are, 1st. The breech, A C, and its button, or cascabel, A h, called by seamen the pomiglion. The breech is generally understood to be the solid metal from the bottom of the concave cylinder to the cascabel, which is the extremity of

the cannon opposite to its muzzle.

2d. The trunnions, T, which project on each side like arms, and serve to support the cannon near the middle of its length: on these it may be poised, and held almost in *equilibrio*. As the metal is thicker at the breech than towards the mouth, the trunnions are placed nearer to that end than the other.

3d. The bore, or caliber, which is comprehended between the dotted lines, and particularly expressed in the longitudinal section of a thirty-two-pounder, fig. 15. This represents the interior or concave cylinder, wherein the powder and shot are lodged with which the cannon is charged: the entrance of the bore is called the mouth.

Names of the other parts, including the above plate VII. fig. 3.

A B, the length of the cannon.
A E, the first reinforce.
E F, the second reinforce.
F B, the chace.
H B, the muzzle.
A o, the cascabel, or pomiglion.
A C, the breech.
C D, the vent-field.
F I, the chace-girdle.
r s, the base-ring and ogee.
t, the vent-astragal and fillets.
p q, the first reinforce-ring and ogee.
v w, the second reinforce-ring and ogee.
x, the chace-astragal and fillets.
z, the muzzle-astragal and fillets.
n, the muzzle-mouldings.
m, the swelling of the muzzle,
A i, the breech-mouldings.

The use of these machines is to discharge upon the

enemy globes or balls of iron, called *shot*, which are therefore of various sizes, in proportion to the caliber of the cannon. The diameter of the ball is always somewhat less than the bore of the piece, that it may be discharged with the greater ease, and not damage the piece by rubbing it too forcibly in its passage; and the difference between these diameters is called the windage of the cannon.

The length of any cannon is always reckoned from the hind part of the base ring, or beginning of the cascabel, to the extremity of the muzzle. The second reinforce begins at the same circle where the first terminates; and the chace at the same circle where the second reinforce ends.

The first reinforce therefore includes the base ring; the ogee nearest thereto; the vent-field; the vent-astragal, and first reinforce-ring. The second reinforce contains the ogee next to the first reinforce-ring and the second reinforce-ring. The chace comprehends the ogee nearest to the second reinforce-ring; the chace-girdle and astragal; and the muzzle and astragal. The trunnions are always placed on the second reinforce, so as that the breech part of the cannon may weigh something more than the muzzle-part, to prevent the piece from starting up behind when it is fired.

A variety of experiments, made with great care and accuracy, prove that powder when on fire possesses at least 4000[2] times more space than when in grains. Therefore if we suppose that the quantity of powder with which a cannon is charged possesses one fourth of a cubical foot in grains, it will, when on fire, occupy the space of about 1000 cubical feet. The same experiments evince also that the powder when inflamed, is dilated equally round its center. One grain of powder fired in the center of

different concentric circles, round which grains of powder are placed, shall therefore set fire to all those grains at once.

From this principle it necessarily follows, that powder, when fired in a cannon, makes at the same instant an equal effort on every part of the inside of the piece, in order to expand itself about its center every way, But as the resistance from the sides of the piece turns the action of the powder, so as to follow the direction of the bore of the cannon when it presses upon the ball, so as to force it outwards, it presses also on the breech of the cannon; and this gives the piece a motion backwards, that is called its *recoil* which, as we have already observed, is restrained by the *breeching* and the convexity of the decks. The recoil in some degree diminishes the action of the powder upon the shot. But this cannot be avoided; for, if the carriages were fixed so as not to give way to this motion, the action of the powder, or the effort that causes the recoil, would tear them to pieces in a very short time.

All pieces of artillery were formerly distinguished into the names of sakers, culverins, cannon, and demi-cannon; but at present their names are derived from the weight of the ball which they discharge: thus a piece that discharges a ball of twenty-four pounds, is called a twenty-four-pounder; and one that carries a shot of thirty-two pounds, a thirty-two-pounder; and so of the rest.

The metal of cannon is not equally thick in all parts, but is in some measure proportioned to the force of the powder which it is to resist. At the breech, where the effort is strongest, the thickness of the metal is equal to the diameter of the corresponding shot. At the first reinforce, where this begins to slacken, the thickness is somewhat less

than at the breech: at the second, where the force is still further diminished, the thickness is more reduced than at the first: and, by the same rule, the chace has less thickness than the second reinforce. The thickness of the chace gradually diminishes from the trunnions to the mouth of the piece; so that if a cannon was without cascabel, trunnion, and mouldings, it would exactly resemble the frustum of a cone, or a cone deprived of the small end.

In a vessel of war, cannon are placed on a sort of wheeled sledge, called the *carriage*, of which fig. 16. plate VII. is the plan, and fig. 17. the elevation. This carriage is composed of two large pieces of plank, called sides or cheeks, connected together by means of cross-pieces, which are either bolts, axle-trees, or transoms. The two axle-trees are fixed across under the fore and hinder parts of the carriage, being supported at their extremities by solid wooden wheels called trucks. The transom is placed directly over the fore axle-tree, and exactly in the middle of the height of the cheeks or side-pieces. The height of the transom is equal to two diameters of the shot, and the breadth to one diameter.

Explanation of the iron-work, and different parts of a sea-carriage, as exhibited in the plan and elevation of a thirty-two pounder, pl. VII. fig. 16. and 17.

a. The cap-squares, commonly called clamps in the sea-service.

b. Eye-bolts, by which one end of the clamp is fixed to the carriage.

c. Joint-bolts, upon which the other end of the clamp is fixed over the trunnions; after which it is fore-locked, to prevent the cannon from starting out of its carriage when fired.

b g. The cheeks or sides of the carriage.

d. The transom-bolt.

e. The bed bolt, upon which the bed rests to support the breech of the cannon. The bed is expressed by fig. 4.

f. Hind axle-tree bolts.

g. Breeching-bolts, with rings, through which the breechings pass.

h. Loops, or eye-bolts, to which the gun-tackles are hooked.

i. The fore axle-tree, with its trucks, k.

l. The hind axle-tree, with its trucks, k.

The wheels are firmly retained upon their axle-trees by means of iron bolts passing through the latter without the wheels: these bolts are called linch-pins.

The breadth of the wheels is always equal to that of the cheeks; but the height of the cheeks and diameter of the trucks must conform to the height of the gun-ports above the deck. The carriages of the lower tiers should therefore be so formed, that when the breech of the cannon lies upon the hind axle-tree, the muzzle of the piece should touch above the port, as expressed in fig. 19. which represents a cannon secured by its tackles and breechings, to prevent it from straining the ship as she rolls in a stormy sea.

Cannon are charged by putting down into the bottom first a quantity of powder, one third or one half the weight of the ball. This is done with an instrument, fig. 7. termed a *ladle* which is a kind of cylindrical spoon, generally made of copper, and fixed to the end of a staff, called its handle. Upon the powder is put in a wad of rope-yarn, formed like a ball, which is pressed down upon the powder with the instrument expressed by fig. 17. called a *rammer*.

Upon this wad is put the ball or shot; and to secure it in its place, another wad is firmly pressed down upon it, which operation is called *ramming-home* the wad and shot. The touch-hole of the piece is then filled with powder, from the upper-part of which a little train is laid that communicates with it. The use of this train is to prevent the explosion of the powder from operating directly upon the instrument employed to fire the piece, which in that case might be forced out of the hand of the gunner.

In the modern pieces, a little gutter or channel is framed on the upper part of the breech, to prevent the train from being dispersed by the wind. This channel reaches from the touch-hole to the base-ring.

The cannon being pointed to its *object*, or the place which it is intended to strike, the train is fired, and the flame immediately conveyed to the powder in the touch-hole, by which it is further communicated to that in the piece. The powder being kindled, immediately expands so as to occupy a much greater space than when in grains, and thus dilated it makes an effort on every side to force itself out. The ball making less resistance than the sides of the piece, upon which the powder presses at the same time, is driven out by its whole effort, and acquires that violent motion which is well known to the world.

In plate VII. all the instruments necessary for charging cannon are exhibited. Besides these already described, there is the spunge, fig. 10. which is used to clean the piece after firing, and to extinguish any sparks that may remain behind. In the land-service, the handle of the spunge is nothing else than a long wooden staff; but in ships of war this handle, that usually contains the rammer at its other end, is a piece of rope well stiffened by *spun-yarn*, which is for this purpose firmly wound about it. By this

convenience the rammer becomes flexible, so that the piece is charged within the ship, as the person who loads it may bend and accommodate the length of the rammer to the distance between the muzzle and the ship's side; being at the same time sheltered from the enemy's musquetry, to which he would be exposed when using a wooden rammer without the ship. To spunge a piece therefore is to introduce this instrument into the bore, and thrusting it home to the farthest end thereof, to clean the whole cavity. The figures 8 and 9 represent spunges of a different kind; one of which is formed of sheep-skin, and the other of the strongest bristles of a hog. See the article EXERCISE.

The *worm*, of which there are also different kinds, fig. 6. and 9. is used to draw the charge when necessary.

The bit, or priming-iron, is a kind of large needle, whose lower end is formed into a gimblet, serving to clear the inside of the touch-hole, and render it fit to receive the prime.

The lint-stock is a kind of staff about three feet long, to the end of which a match is occasionally fastened to fire the piece.

The fluctuating motion of the sea renders it necessary to secure and confine the artillery in vessels of war, by several ropes and pullies, which are called the *gun-tackles* and *breechings*, without which they could never be managed in a naval engagement. The breeching has been already explained, as employed to restrain the recoil. The tackles * fig. 18, are hooked to ring-bolts in the sides of the carriage, and to other ring-bolts in the side of the ship, near the edges of the gun-ports, and are used to draw the piece out into its place after it is loaded. Besides these, there is another tackle hooked

to the rear or *train* of the carriage, to prevent the cannon from rolling into its place till it is charged: this is called the train-tackle, and is exhibited in fig. 17.

In ships of war, the cannon of the lower-decks are usually drawn into the ship during the course of an expedition at sea, unless when they are used in battle. They are secured by lowering the breech so as that the muzzle shall bear against the upper-edge of the port, after which the two parts of the breeching are firmly braced together by a rope which crosses them between the front of the carriage and the port; which operation is called *frapping* the breeching. The tackles are then securely fastened about it with several turns of the rope extended from the tackle and breeching, over the chace of the cannon, as represented in fig. 19.

The service of the artillery, or the method of employing it in a naval action, is explained in the articles ENGAGEMENT and EXERCISE. The manner of pointing, or directing them to different objects; the effects of different quantities of powder upon the cannonball; and the different lines described by its flight, are also treated at large in the article RANGE.

We shall here subjoin a table of the length and weight of different cannon, for the information of those who may be entirely unacquainted therewith; and particularly our sea-gunners.

Length and weight of brass cannon according to the mensuration in 1753.

Pounders.	Length. Feet. Inches.	Weight. Hundreds. Quarters. lb.

42	9	6	61	2	10
32	9	5	55	2	7
24	9	5	51	1	12
18	9	0	48	1	0
12	9	0	29	0	0
9	8	5			
6	8	0	19	0	0
3	6	5	11	0	0

Length and weight of iron guns used in the sea-service, according to the mensuration in 1753.

Pounders.	Length.			Weight.		
	Feet.	Inches.	Quarters.		lb.
42	10	0	55	1	12
32	9	6	53	3	23
24	9	5	48	0	0
18	9	0	41	1	8
12	9	0	32	3	3
9	8	5	23	2	2
6	7	0	17	1	14
4	6	0	12	2	13
3	4	6	7	1	7

For an account of the particular number of men appointed to manage the different degrees of cannon, and the arrangement or distribution of the cannon according to the several classes of ships, see QUARTERS and RATE.

The following judicious remarks for increasing the

strength of the British navy, by changing the cannon used in ships of war into others of equal weight but of greater bore, have been selected from the proposal of the late ingenious Mr. Robins.

The advantage of large cannon over those of a smaller bore is so generally acknowledged, that a particular discussion of it might perhaps be spared. * * *

“The most important advantage of heavy bullets is this, that with the same velocity they break holes out in all solid bodies in a greater proportion than their weight; that is, for instance, a twenty-four pound shot will, with the same velocity, break out a hole in any wall, rampart, or solid beam, in which it lodges, above eight times larger than will be made by a three pound shot; for its diameter being double, it will make a superficial fracture above four times as great as the three-pounder, (more of a smaller hole being closed up by the springing of the solid body than of a great one) and it will penetrate to more than twice the depth; by this means the firmest walls of masonry are easily cut through their whole substance by heavy shot, which could never be affected by those of a smaller caliber; and in ships the strongest beams and masts are hereby fractured, which a very great number of small bullets would scarcely injure.

“To this last advantage of large cannon, which is indeed a capital one, there must be that of carrying the weight of their bullet in grape or lead shot, and thereby annoying the enemy more effectually than could be done by ten times the number of small pieces.

“These are the principal advantages of large cannon, and hence it is no wonder that those entrusted with the care of the British navy have always endeavoured to arm all ships with the largest

cannon they could with safety bear; and indeed, within these last hundred years, great improvements have been made on this head, by reducing the weight of many of the species of cannon, and thereby enabling the same ships to carry guns of a larger bore: and, very lately, the six pounders in some of the smaller ships have been changed for nine pounders of a larger fabric than usual, which hath been justly esteemed a very great addition, to the strength of those ships.

"The importance then of allotting to all ships the largest cannon they can with safety bear being granted, it remains to shew on what foundation a change is proposed to be made in the fabric of all pieces from the present eighteen pounders downwards, so that they may be changed for others of the same, or less weight, but of a larger bore. This proposition turns on the following considerations.— The species of cannon proper for each ship is limited by the weight of the pieces; and when the charge and effort of the bullet are assigned, this weight in each species is, or ought to be determined by the following circumstances;

That they shall not be in danger of bursting;
That they shall not recoil too boisterously;
And that they shall not heat too much in frequent firing.

"All this is to be done by a proper quantity of metal properly disposed; and when the pieces are secured from these accidents, all additional weight of metal, is not only useless but prejudicial.

"Now what dimensions and weight of metal are more than sufficient for these purposes, we may learn from the present practice of the navy, in the fabric of the thirty-two pounders, the heaviest guns in common use; these are made to weigh (if the

author's information be right) from fifty-two to fifty-three hundred weight; that is somewhat less than an hundred and two-thirds for each pound of bullet.

"From this then the author concludes, that any smaller piece, made upon the model of these thirty-two pounders, and having their weight proportioned in the same manner to the weight of their bullet, will fully answer all the purposes recited above, and will be of unexceptionable service.

"And he founds his opinions on these two principles: first, that the strength of iron, or of any other metal, is in proportion to its substance; so that, for instance, where it has one half the substance, it has one half the strength; and this supposition, he presumes, will be scarcely contested. Secondly that the force of different quantities of powder fired in spaces which they respectively fill, is not exactly in the proportion of those quantities; but the lesser quantity has in proportion the least force: that is, for instance, the force of one pound of powder, in like circumstances, is less than one half the force of two pounds. And this principle the author has deduced from many repeated and diversified trials of his own; and he believes it will be found agreeable to all the observations which have been made, or shall be made, on this subject.

"From these two considerations, he hopes, it will be granted him, that, if two pieces, a large one and a small one, are made with all their dimensions in proportion to the diameter of their respective bullets, and consequently their weights in the same proportion with the weights of their bullets, then the larger piece, with the same proportion of powder, will be more strained, will heat more, and recoil more than the smaller.

"Hence then, as we are assured, that the present

thirty-two pounders are of a sufficient strength and weight for all marine purposes, we have the greatest reason to suppose, that, if all the pieces of an inferior caliber were formed upon the same model, measuring by the diameter of the bullet, these smaller pieces would not be defective, either in strength or weight, but would be to the full as serviceable on ship-board, as the present pieces, which are so much overloaded with metal.

"The author's scheme then for augmenting the force of the present sea-batteries, is no more than this plain principle, that all ship-guns should be cast upon the model of the thirty-two pounders, measuring by the diameter of the respective bullet; so that for each pound of bullet, there should be allowed one hundred and two thirds of metal only.

"The advantages of this scheme will appear, by the following comparison of the weight of the present pieces with their weight proposed by this new fabric.

Pieces.	**Weight now in hundreds.**	**Ditto by new fabric.**
24	48 to 46	40
18	41 to 39	30
12	34 to 31	20
9	29 to 26	15
6	24 to 18	10

"Hence then it appears, that the twenty-four-pounders will be eased of six or eight hundred of useless metal; and instead of an inferior caliber now used, much larger ones of the same weight may be borne, especially when it is remembered, that this computation exceeds even the present proportion of the thirty-two-pounders; so that from the above projected eighteen pounders, for instance, two or

three hundred weight may be safely taken."

The changes then proposed by the author are these:

	Pounders.		Hundreds.		Pounders.		Hu
For	6	of	24 and 18	new	12	of	
	9		29 and 26		18	of	
	12		34 and 31		18	of	
	18		41 and 39		24	of	

"The nine pounders lately cast, being, as the author is informed, still lighter than what is here represented, they may perhaps be only transformed into twelve pounders; but this will be a very great addition of strength, and the twelve-pounders thus borne will be considerably lighter than the smallest nine-pounders now in use. The weight of the present three-pounders are not remembered exactly by the author; but he doubts not, but they are heavier than the proposed six-pounders, and may therefore be changed for them.

"That many objections will be made to the present proposal is not to be questioned; but, as they will equally hold against the use of the present thirty-two-pounders, which are known to be guns of unexceptionable service, that alone, it is conceived, will be an answer.

"If it be supposed (as ancient practice is always favourably heard) that the excesses in the proportionate weight of the small pieces must have been originally founded on some approved principle, or otherwise they could not have been brought into use, it may be answered, that a hundred years since there were four-pounders made use of, which were heavier than some of the present nine-pounders, and had the same prescription to plead in their behalf.—Perhaps the origin of this excess in the smaller pieces

may be accounted for by supposing, that when guns are used in batteries on shore, their length cannot be in proportion to the diameter of their bore; because the parapet being of a considerable thickness, a short piece would, by its blast, ruin the embrasures; and the smaller pieces being for this reason made nearly of the same length with the larger, did hence receive their additional weight of metal. But this reason holds not at sea, where there is no other exception to the shortness of a piece, but the loss of force, which, in the instances here proposed, is altogether inconsiderable; for the old twelve-pounders, for example, being in length from nine feet to nine feet, and a half, the new ones here proposed will be from seven feet to seven and a half long. The difference in the force of the bullet, fired from these different pieces, is but little; and it will hereafter appear, that in the present subject much greater differences than these are of no consequence.

"If it should be said, that the new fabric here proposed must have the present allowance of powder (which in the smaller pieces is half the weight of the ball) diminished, and that it must be reduced to the rate of the thirty-two-pounders, which is only seven-sixteenths of the weight of the ball; it is answered, that if the powder in all ship-cannon whatever, was still farther reduced to one-third of the weight of the ball, or even less, it would be a considerable advantage, not only by the saving of ammunition, but by keeping the guns cooler and more quiet, and at the same time more effectually injuring the ships of the enemy[3]; for with the present allowance of powder the guns are heated, and their tackles and furniture strained, and this only to render the bullet less efficacious than it would prove if impelled by a smaller charge. Indeed in battering of walls, which

are not to be penetrated by a single shot from any piece whatever, the velocity of the bullet, how much soever augmented, still produces a proportionate effect, by augmenting the depth to which it penetrates: but the sides of the strongest ships, and the greater part of her timbers, are of a limited thickness, insufficient to stop the generality of cannon bullets, fired at a reasonable distance, even with a less charge than is here proposed. And it is a matter of experiment, that a bullet, which can but just pass through a piece of timber, and loses almost all its motion thereby, has a much better chance of rending and fracturing it, than if it passed through it with a much greater velocity.

"That a much better judgment may be made of the reasonableness of this speculation, the author thinks proper to add (and he believes future experience will not contradict him) that a twelve-pounder, as here proposed, which is one of the smallest pieces at present under consideration, when charged with one-third of the weight of the bullet in powder, will penetrate a beam of the best seasoned toughest oak, to more than twenty inches depth; and if, instead of one solid beam, there are a number of small ones, or of planks laid together; then allowing for rending and tearing, frequent in such cases, he doubts not, but it will often go through near double that thickness, and this any where within a hundred yards distance: that is, any where within that distance, which the most experienced officers have recommended for naval engagements. In the same distance, a bullet from the twelve-pounders now in use, charged with half the weight of powder, will penetrate about one-third part deeper: but if the efforts of each piece are compared together at five hundred yards distance, the differences of their

forces will not be considerable. If this be so, it will not be asserted, I imagine, that the twelve-pounder here proposed is less useful, or less efficacious, for all naval purposes, than the weightier twelve-pounder hitherto made use of.

"The author has in this proposal fixed on the thirty-two pounders, as the standard for the rest; because experience has long authorised them. But from the trials he has made, he is well satisfied, a much greater reduction of weight, than is here proposed, might safely take place; and that one fourth, or even one fifth of the weight of the bullet in powder, if properly disposed, is abundantly sufficient for every species of ship-guns[4]. However, the author is far from desiring, that his speculations should be relied on in an affair of this nature, where he pretends not to have tried the very matter he proposes, but founds his opinion on certain general principles and collateral experiments, which he conceives, he may apply to the present case without error. He would himself recommend an experimental examination of this proposal, as the only one to which credit ought to be given. What he intends by the present paper, is to represent it as a matter worthy of consideration, and really such as it appeared to him: if those to whose censure he submits it, are of the same opinion, there is an obvious method of determining how far his allegations are conclusive; and that is by directing one of these pieces to be cast, a twelve-pounder for instance, and letting it be proved with the same proportion of powder allotted for the proof of the thirty-two-pounders: Then if this piece be fired a number of times successively on a carriage, and its recoil, and degree of heat be attended to, and if the penetration of its bullet into a thick butt of oak-

beams or plank be likewise examined, a judgment may thence be formed, of what may be expected from the piece in real service; and the result of these trials will be the most incontestable confutation or confirmation of this proposal."

CANNONADE, as a term of the marine, may be defined the application of artillery to the purposes of naval war, or the direction of its efforts against some distant object intended to be seized or destroyed, as a ship, battery, or fortress.

Cannonading is therefore used in a vessel of war to take, sink, or burn the enemy's ships, or to drive them from their defences ashore, and to batter and ruin their fortifications.

Since a large man of war may be considered as a combination of floating batteries, it is evident that the efforts of her artillery must in general be greatly superior to those of a fortress on the sea-coast: I say in general, because on some particular occasions her situation may be extremely dangerous, and her cannonading ineffectual. Her superiority consists in several circumstances, as, the power of bringing her different batteries to converge to one point; of shifting the line of her attack so as to do the greatest possible execution against the enemy; or to lie where she will be the least exposed to his shot: and chiefly because, by employing a much greater number of cannon against a fort than it can possibly return, the impression of her artillery against stone-walls soon, becomes decisive and irresistible. Besides these advantages in the attack, she is also greatly superior in point of defence: because the cannon shot passing with rapidity through her sides, seldom do any execution out of the line of their flight, or occasion much mischief by their splinters: whereas they very soon shatter and destroy the faces of a parapet, and

produce incredible havoc amongst the men, by the fragments of the stones, &c. A ship may also retreat when she finds it too dangerous to remain longer exposed to the enemy's fire, or when her own fire cannot produce the desired effect. Finally, the fluctuating situation of a ship, and of the element on which she rests, renders the efforts of bombs very uncertain, and altogether destroys the effect of the *ricochet*, or rolling and bounding shot, whose execution is so pernicious and destructive in a fortress or land-engagement; both of which, however, a ship may apply with great success. See RANGE.

The chief inconveniency to which a ship is exposed, on the contrary, is, that the low-laid cannon in a fort near the brink of the sea, may strike her repeatedly, on or under the surface of the water, so as to sink her before her cannonade can have any considerable efficacy.

CANOE, a sort of Indian boat or vessel, formed of the trunk of a tree hollowed, and sometimes of several pieces of the bark fastened together.

Canoes are of various sizes, according to the uses for which they may be designed, or the countries wherein they are formed. The largest are made of the cotton tree, some of which will carry between twenty and thirty hogsheads of sugar or molasses. Some are made to carry sail, and for this purpose are steeped in water till they become pliant, after which their sides are extended, and strong beams placed between them, on which a deck is afterwards laid that serves to support their sides. The other sorts very rarely carry sail, unless when going before the wind: their sails are made of a sort of silk grass or rushes. They are commonly rowed with paddles, which are pieces of light wood somewhat resembling a corn-shovel;

and instead of rowing with it horizontally, like an oar, they manage it perpendicularly. The small canoes are very narrow, having only room for one person in breadth, and seven or eight lengthways. The rowers, who are generally negroes or American savages, are very expert in managing their paddles uniformly, and in ballancing the canoes properly with their bodies, which would be difficult for a stranger to do, how well accustomed soever to the conducting of European boats, because the canoes are extremely light, and liable to be overturned.

The American Indians, when they are under the necessity of landing to avoid a water-fall, or of crossing the land from one river to another, carry their canoes on their heads; till they arrive at a place where they can lanch them again.

The following curious account of the canoes of the Esquimaux Indians in Labrador, has been lately transmitted to the author, which he apprehends will not be displeasing to his readers.

The Esquimaux canoe has a light wooden frame, and the shell, instead of plank, is made with seal-skins sewed together, which are not only extended round the bottom and sides, but likewise over the top; forming a compleat deck, and having only one opening, conveniently framed and situated to admit the Indian into his seat. A flat hoop is fitted to this hole, rising about four inches, to which the surrounding skin is sewed. The Indian's seal-skin jacket, being of a proper length, he can occasionally bind the skirt of it round the outside of this hoop; by which means he keeps the canoe free from water, and is enabled to pursue his game far from land or in stormy seas. His paddle is about ten feet long, light, and flat at each end, with which he both rows and steers with great velocity and exactness. Mr. Crantz,

in his History of Greenland, informs us, that the young men in their exercise are taught to overset their canoes, and when the bottom is upward, to recover, by the dextrous management of their paddle, their former upright position, the men rising again either on the side by which they went down, or on the contrary, as they please. The construction of this extraordinary little vessel, so admirably well adapted to the purposes of its owner, does the greatest credit to the ingenuity of this savage people. Though natives of the extensive country of Labrador, they inhabit only the sea-coasts, particularly the islands, the interior parts being no less barren, and possessed by other wandering tribes, their perpetual enemies and superiors at land; so that they are reduced to almost an entire dependance upon the sea for the common necessaries of life. Seals-flesh and oil are amongst the chief articles of their food; and with the skins they make tents, canoes, and apparel. Those islands on which the sea-fowl breed, they visit for their eggs and young; and kill birds in the water with their darts. We are surprised, that provided thus, they should do so much execution amongst these creatures; but when we behold a party of savages, each in his canoe, with only his harpoon and his lance, pursue, attack, and kill the largest whale, how justly are we filled with admiration. The whale's flesh and oil they eat; and the tough substance of the gills, commonly called whalebone, they apply very ingeniously to a great variety of uses; trafficking with the overplus for such European goods as they want. In their language, the canoe is called *kaiak*, or man's-boat, to distinguish it from *umiak*, the woman's boat. The latter is a large boat managed by the women for transporting their families and possessions, when they shift their encampment from place to place, as

most convenient for the particular hunting of the season. A kind of wolf-dog, natural to that country, is the only animal they breed for food. The same canoes, language, customs, and way of life, being common to the Greenlanders with the Esquimaux, it is evident they have been originally one people.

There is a Greenland canoe in the Repository of the Royal Society, covered with seal-skins, and exactly conformable to the above description.

CANTING, as a sea-phrase, denotes the act of turning any thing about.

CANT-TIMBERS, in ship-building, those timbers which are situated at the two ends of a ship. They derive their name from being *canted*, or raised obliquely from the keel; in contradistinction to those whose planes are perpendicular to it. The upper-ends of those on the *bow*, or fore-part of the ship, are inclined to the stem; as those in the *after*, or hind-part, incline to the stern-post above. See the articles TIMBER and *Naval* ARCHITECTURE.

The principal of these last is the fashion-piece, which forms the outline of the counter, terminating it on the sides.

CAP, *chouquet*, a strong, thick block of wood, used to confine two masts together, when the one is erected at the head of the other, in order to lengthen it. It is for this purpose furnished with two holes perpendicular to its length and breadth, and parallel to its thickness; one of these is Square, and the other round; the former being solidly fixed upon the upper-end of the lower-mast, whilst the latter receives the mast employed to lengthen it, and Secures it in this position.

The principal caps of a ship are those of the lower-masts, which are fitted with a strong eye-bolt on each side, wherein to hook the block by which the

top-mast is drawn up through the cap; the process of which is explained in the article MAST.

The breadth of all caps is equal to twice the diameter of the top-mast, and the length to twice the breadth. The thickness of the main and fore-caps is half the diameter of their breadths; the mizen-cap three-sevenths, and the top-mast-caps two-fifths of their respective breadths.

In the same manner as the top-mast slides up through the cap of the lower-mast, the *top-gallant mast* slides up through the cap of the top-mast. The cap is represented by fig. 9. plate II.

CAPE, a promontory, or head-land, which projects into the sea farther than the rest of the coast.

CAPPANUS, a name given by some authors to the worm which adheres to, and gnaws the bottom of a ship.

The cappanus is extremely pernicious to ships, particularly in the East and West Indies: to prevent this, several ships have lately been sheathed with copper; the first trial of which was made on his majesty's frigate Alarm.

CAP-SQUARE. See the article CANNON.

CAPSTERN, or CAPSTAN, (*cabestan*, Fr.) a strong, massy column of timber, formed like a truncated cone, and having its upper extremity pierced with a number of holes to receive the bars or levers. It is let down perpendicularly through the decks of a ship, and is fixed in such manner, that the men, by turning it horizontally with their bars, may perform any work which requires an extraordinary effort.

A capstern is composed of several parts, (see plate II. fig. 11.) where A is the barrel, b the whelps, c the drum-head, and d the spindle.

The whelps rise out from the main body of the capstern like buttresses, to enlarge the sweep; so that

a greater portion of the cable, or whatever rope encircles the barrel, may be wound about it at one turn, without adding much to the weight of the capstern. The whelps reach downwards from the lower part of the drum-head to the deck.

Plate II. fig. 10. The drum-head is a broad cylindrical piece of wood, resembling a mill-stone, and fixed immediately above the barrel and whelps. On the outside of this piece are cut a number of square holes, parallel to the deck, to receive the bars.

The pivot, or spindle, d, which is shod with iron, is the axis or foot upon which the capstern rests, and turns round in the saucer, which is a sort of iron socket let into a wooden stock or standard, called the step, resting upon, and bolted to the beams.

Besides the different parts of the capstern above explained, it is furnished with several appurtenances, as the *bars*, the *pins*, the *pawls*, the *swifter*, and the *saucer*, already described.

The bars are long pieces of wood, or arms, thrust into a number of square holes in the drum-head all round, in which they are as the radii of a circle, or the spokes to the nave of a wheel. They are used to heave the capstern round, which is done by the men setting their breasts against them and walking about, like the machinery of a horse-mill, till the operation is finished.

The pins, e, are little bolts of iron thrust perpendicularly through the holes of the drum-head, and through a correspondent hole in the end of the bar, made to receive the pins when the bars are fixed. They are used to confine the bars, and prevent them from working out as the men heave, or when the ship labours. Every pin is fastened to the drum-head with a small iron chain; and, that the bars may exactly fit their respective holes, they are all

numbered.

The pawls, f, fig. 10. are situated on each side of the capstern, being two short bars of iron, bolted at one end through the deck to the beams close to the lower part of the whelps; the other end, which occasionally turns round on the deck, being placed in the intervals of the whelps, as the capstern turns, prevents it from recoiling or turning back by any sudden jerk of the cable as the ship rises on the sea, which might greatly endanger the men who heave. There are also hanging pawls g, g, fig. 12, used for the same purposes, reaching from the deck above to the drum-head immediately beneath it.

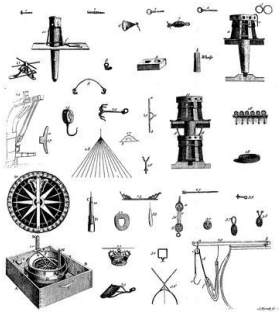


Plate ii. To pace Capstern.

The *swifter*, is a rope passed horizontally through holes in the outer ends of the bars, and drawn very tight: the intent of this is to keep the men steddy as they walk round, when the ship rocks, and to give room for a greater number to assist by pulling upon the swifter itself.

The most frequent use of the capstern is to heave in the cable, and thereby remove the ship, or draw up the anchor. It is also used to wind up any weighty

body, as the masts, artillery, &c. In merchant-ships it is likewise frequently employed to discharge or take in the cargo, particularly when consisting of weighty materials that require a great exertion of mechanical powers to be removed.

There are commonly two capsterns in a ship of war, the *main* and the *gear* capstern; the former of which has two drum-heads, and may be called a double one. This is represented by fig. 12. of plate II. the latter is exhibited in fig. 11.

Formerly the bars of the capstern went intirely through the head of it, and consequently were more than twice the length of the present ones; the holes were therefore formed at different heights, as represented in fig. 10. plate II. But this machine had several inconveniencies, such as the persons who heaved at the higher bars incommoding those at the lower ones; the bars being lifted or lowered by the persons who heaved at their opposite ends; some of the bars being too high, and others two low, &c. It has therefore been long intirely disused in the navy. Some of these sort of capsterns, however, are still retained in merchant ships, and are usually denominated crabs. The situation of the bars in a crab, as ready for heaving, is represented in fig. 13. plate II.

To rig the CAPSTERN, *garnir*, is to fix the bars in their respective holes, and thrust in the pins in order to confine them.

Surge the CAPSTERN, *choquer*, is the order to slacken the rope heaved round upon it, of which there is generally two turns and a half about the barrel at once, and sometimes three turns.

To heave the CAPSTERN, *virer au cabestan*, is to go round with it heaving on the bars, and drawing in any rope of which the purchase is created.

To come up the CAPSTERN, is to let go the rope upon which they had been heaving. See the French term CABESTAN, and the phrases annexed thereto.

To pawl the CAPSTERN, is to fix the pawls to prevent it from recoiling during any pause of heaving.

CAPTAIN *of a ship of war*, *capitaine du haut bord*, the officer who commands a ship of the line of battle, or a frigate carrying twenty or more cannon. The charge of a captain in his majesty's navy is very comprehensive, inasmuch as he is not only answerable for any bad conduct in the military government, navigation, and equipment of the ship he commands; but also for any neglect of duty, or ill management in his inferior officers, whose several charges he is appointed to superintend and regulate.

On his first receiving information of the condition and quality of the ship he is appointed to command, he must attend her constantly, and hasten the necessary preparations to fit her for sea. So strict indeed are the injunctions laid on him by the lord high admiral, or commissioners of the admiralty, that he is forbid to lie out of his ship, from his arrival on board, till the day of his discharge, unless by particular leave from the admiralty, or his commander in chief.

He is enjoined to shew a laudable example of honour and virtue to the officers and men, and to discountenance all dissolute, immoral, and disorderly practices, and such as are contrary to the rules of discipline and subordination, as well as to correct those who are guilty of such offences, as are punishable according to the usage of the sea.

He is ordered particularly to survey all the military stores which are sent on board, and to return whatsoever is deemed unfit for service. His diligence

and application are required to procure his complement of men; observing carefully to enter only such as are fit for the necessary duty, that the government may not be put to improper expence. When his ship is fully manned, he is expected to keep the established number of men complete, and superintend the muster himself, if there is no clerk of the check at the port.

When his ship is employed on a cruising station, he is expected to keep the sea the whole length of time previously appointed; but if he is compelled by some unexpected accident to return to port sooner than the limited time, he ought to be very cautious in the choice of a good situation for anchoring, ordering the master, or other careful officers, to sound, and discover the depths of water, and dangers of the coast.

Previous to any possibility of engagement with an enemy, he is to quarter the officers and men to the necessary stations according to their office or abilities, and to exercise them in the management of the artillery, that they may be more expert in the time of battle. See the articles EXERCISE and QUARTERS.

His station in an engagement is on the quarter-deck; at which time he is expected to take all opportunities of annoying his enemy, and improving every advantage over him; to exhibit an example of courage and fortitude to his officers and crew; and to place his ship opposite to his adversary in such a position as that every cannon shall do effectual execution. See ENGAGEMENT.

At the time of his arrival in port after his return from abroad, he is to assemble his officers, and draw up a detail of the observations that have been made during the voyage; of the qualities of the ship, as to

her trim, ballast, stowage, and manner of sailing, for the information and direction of those who may succeed in command; and this account is to be signed by himself and officers, and to be returned to the resident commissioner of the navy at the port where the ship is discharged.

CAREENING, *faire abattre*, (*cariner*, Fr.) the operation of heaving the ship down on one side, by the application of a strong purchase to her masts, which are properly supported for the occasion, to prevent them from breaking with so great a strain.

Careening is used to heave one of the ship's sides so low in the water, as, that her bottom being elevated above its surface on the other side, (See Plate I. fig. 5.) may be cleansed of any filth which adheres to it, by BREAMING, which see.

When a ship is laid on a careen, every thing is taken out of her: she is also said to careen, when inclining to one side at sea, as pressed with a weight of sail.

CARGO, *chargement*, the whole lading, or quantity, of whatever species of merchandise a ship is freighted with, in order to proceed from port to port.

CARLINGS, *entremises*, short pieces of timber ranging fore and aft, from one of the deck beams to another, into which their ends are scored: they are used to sustain and fortify the smaller beams of the ship, and are exhibited in the DECK, plate III.

CARPENTER *of a ship*, *charpentier*, an officer appointed to examine and keep in order the frame of the ship, together with her masts, yards, boats, and all other wooden machinery.

It is his duty in particular to keep the ship *tight*; for which purpose he ought frequently to review the decks, and sides, and to calk them when it is found necessary. In the time of battle he is to examine up

and down, with all possible attention, in the lower apartments of the ship, to stop any holes that may have been made in the sides by shot, with wooden plugs provided, of several sizes, for that purpose.

CARTEL, *cartel*, a ship commissioned in time of war to exchange the prisoners of any two hostile powers; also to carry any particular request or proposal from one to another: for this reason the officer who commands her is particularly ordered to carry no cargo, ammunition, or implements of war, except a single gun for the purpose of firing signals.

CASTING, in navigation, *abattre*, the motion of falling off, so as to bring the direction of the wind on either side of the ship after it had blown for some time right a-head.

This term is particularly applied to a ship when her anchor first loosens from the ground, when she is about to depart from any place where she had anchored; and as she had probably rested at anchor with her head to windward, it is plain she must turn it off, so as to *fill* the sails before she can advance in her course, which operation is called casting.

Hence she is said to cast the right way, or the wrong way. See TRIM.

CAT, *chatte*, a ship employed in the coal trade, formed from the Norwegian model. It is distinguished by a narrow stern, projecting *quarters*, a deep *waiste*, and by having no ornamental figure on the prow.

These vessels are generally built remarkably strong, and carry from four to six hundred tons; or, in the Language of their own mariners, from twenty to thirty *keels* of coals.

Cat, *capon*, is also a sort of strong tackle, or complication of pullies, to hook and draw the anchor perpendicularly up to the *cat-head*. The use of this

machine is represented in plate II. fig. 14.

CATAMARAN, *catimoran*, a sort of raft or float, formed by the fastening a number of poles to each other sideways, and laying boards, planks, &c. on the top, so as to convey goods or passengers to some distant place by water when no boat can be procured. This, however, can only be performed when the surface of the water is not much agitated.

CAT-HARPINGS, a purchase of ropes employed to brace in the *shrouds* of the lower masts behind their yards, for the double purpose of making the shrouds more tight, and of affording room to draw the yards in more obliquely, to *trim* the sails for a side-wind, when they are said to be close-hauled.

CAT-HEADS, *bossoirs*, two strong short beams of timber, which project almost horizontally over the ship's bows, on each side of the bow-sprit, being like two radii which extend from a center taken in the direction of the bow-sprit.

That part of the cat-head which rests upon the fore-castle is securely bolted to the beams: the other part projects like a crane, as above described, and carries in its extremity two or three small wheels, or *sheaves*, of brass, or strong wood, about which a rope called the *cat-fall* passes, and communicates with the cat block, which also contains three sheaves. The machine formed by this combination of pullies is called the *cat*, which serves to pull the anchor up to the cat head without tearing the ship's side with its flukes.

The cat-head also serves to suspend the anchor clear of the bow, when it is necessary to let it go: it is supported by a sort of knee, which is generally ornamented with sculpture.

The cat-block is fitted with a large and strong hook, which catches the ring of the anchor when it is

to be drawn up. See a representation of this article plate II. fig. 14.

CATS PAW, *echars*, a light air of wind perceived at a distance in a calm, by the impression made on the surface of the sea, which it sweeps very lightly, and then decays.

CAULKING. See the article CALKING.

CEILING, the inside planks of a ship. See FOOT-WALEING.

CENTER *of a* FLEET, *or* SQUADRON, *corps de bataille*, the middle of the line, which is always the station of the admiral or commander in chief, and ought to be the strongest proportionably, as it reaches from the van and rear. See LINE OF BATTLE.

To CHAFE, *racquer*, is to rub or fret the surface of a cable, mast, or yard, whilst the ship is agitated by the motion of the sea, or otherwise.

CHAIN-PUMP. See the article PUMP.

CHAINS, *cadenes*, strong links or plates of iron, the lower ends of which are bolted through the ship's side to the timbers.

They are placed at short distances from each other on the ship's out-side, as being used to contain the blocks called *dead-eyes*, by which the *shrouds* of the masts are extended. The disposition of the chains, and that of their *channels*, is represented by the letters I, I, in the plane of ELEVATION, plate I. as also by fig. 16, plate II.

CHAIN-SHOT, a particular kind of shot formed by fastening two cannon-balls together with a short chain, and designed to mangle and ruin a ship's sails and rigging, or to destroy her masts and yards. See SHOT.

Top CHAIN, a chain to sling the sail-yards in the time of battle, in order to prevent them from falling down when the ropes, by which they are hung,

happen to be shot away, or rendered incapable of service.

CHAIN-WALE. See CHANNEL.

CHANNEL, *manche*, in hydrography, the deepest part of a river, harbour, or streight, which is most convenient for the track of shipping.

CHANNELS, or CHAIN-WALES *of a ship*, *porte bossoirs*, broad and thick planks projecting horizontally from the ship's out-side, a-breast of, and somewhat behind, the masts. See plate II. fig. 16.

They are formed to extend the shrouds from each other, and from the axis or middle line of the ship, so as to give a greater security and support to the masts, as well as to prevent the shrouds from damaging the gun-wale, or being hurt by rubbing against it. See also SHROUD.

Every mast has its chain-wales, which are either built above or below the second deck-ports in a ship of the line: they are strongly connected to the side by knees, bolts, and standards, besides being confined thereto by the chains, whose upper ends pass through notches on the outer edge of the chain-wales, so as to unite with the shrouds above.

CHAPELING *a ship*, *faire chapelle*, the act of turning her round in a light breeze of wind when she is close-hauled, so as that she will lie the same way she did before. This is commonly occasioned by the negligence of the steersman, or by a sudden change of the wind.

CHARGE *of a cannon*. See the article CANNON.

CHART, (*charta*, Lat.) a marine map or draught, upon which are represented the coasts, isles, banks, rocks, and dangers of the sea, together with the rumbs of the wind, and the entrance of bays and rivers, whereby to shape and regulate the various courses of a ship in her voyage.

CHARTER-PARTY, *charte-partie*, a deed or writing made between merchants and sea-faring men, concerning their merchandise and maritime affairs.

A charter-party of affreightment settles the agreement in relation to the freight and cargo of a ship between the merchant and master, or commander of the vessel. It binds the master to deliver the cargo in good condition at the place where his ship is to be discharged, &c.

In those charter-parties, if the dangers of the sea are excepted, it has been adjudged that such exception extends as well to any danger upon sea from ships of war or pirates, as to common hazards by shipwreck, tempests, &c.

CHASE, a vessel pursued by some other, which she apprehends or knows to be an enemy.

Bow CHASE, a cannon situated in the fore-part of a ship to fire upon any object a-head of her.

Stern CHASES, the cannons which are placed in the after-part of a ship's gun-room, pointing a-stern, and intended to strike any ship which chases her, or other object in her rear.

CHASING, the act of pursuing a ship or fleet, supposed or known to be hostile. The admiral displayed the signal for a general chace, i. e. gave the alarm to the whole fleet or squadron to pursue some other fleet in sight.

CHEARLY, a phrase which usually implies heartily, chearfully, or quickly, as row chearly in the boats! lower away chearly! i. e. row heartily, lower speedily, &c.

CHEEKS *of the mast*, *jottereaux*, the faces or projecting parts on each side of the masts, used to sustain the frame of the top, together with the top-mast, which rests immediately upon them.

CHESTREES, *taquets d' amure*, two pieces of wood

bolted perpendicularly, one on the starboard, and the other on the larboard side of the ship. They are used to confine the *clue*, or lower corners of the main-sail; for which purpose there is a hole in the upper part through which the rope passes that usually extends the clue of the sail to windward. See the article TACK.

The chess-trees are commonly placed as far before the main-mast as the length of the main-beam.

Clerk of the CHECK, an officer in the royal dock-yards, who keeps a muster or register of all the men employed aboard his majesty's ships and vessels, and also of all the artificers and others in the service of the navy at the port where he is settled.

To CHINSE, is to thrust oakum into a seam or chink with the point of a knife or chissel. This is chiefly used as a temporary expedient when calking cannot be safely or conveniently performed.

CHOCK, a sort of wedge used to confine a cask, or other weighty body, in a certain place, and to prevent it from fetching way when the ship is in motion, &c.

CLAMPS, *bauquieres*, thick planks in a ship's side, used to sustain the ends of the beams. See the article MIDSHIP FRAME.

The clamps extend from the stem to the fashion-pieces of the stern, including the whole interior range of the side. They are placed close under each deck so as to be securely fayed to all the timbers, to which they are fastened by nails driven through the clamp, and penetrating two thirds of the thickness of the timbers.

The clamps of the lower and second decks ought to be equal in thickness to half the corresponding timbers in that part, and as broad as can be procured. In their disposition it is essentially

necessary to avoid their being wounded by the ports, as the strength and firmness of a ship greatly depend on the substance and solidity of those pieces which lie horizontally in her frame.

CLAMPS are also small crooked plates of iron, fore-locked upon the trunnions of the cannon, to keep them steddy in their carriages at sea. These, however, are more properly termed cap-squares. See CANNON.

Clamps of the latter sort are likewise frequently used to fasten the masts or bowsprits of small vessels or boats.

CLAWING, or CLAWING-OFF, *chicaner*, in navigation, the act of *beating* or turning to windward from a lee-shore, so as to acquire a sufficient distance from it, to escape the dangers of shipwreck, which often attend so hazardous a situation.

CLEAR, as a naval term, is variously applied to the weather, the sea-coasts, cordage, navigation, &c. The weather is said to be clear (*fin*) when it is fair and open, as opposed to cloudy or foggy.

The sea-coast is called clear (*saine*) when the navigation is not interrupted, or rendered dangerous by rocks, sands, or breakers, &c.

It is expressed of cordage, cables, &c. when they are unembarrassed or disentangled so as to be ready for immediate service. It is usually opposed to *foul*, in all those senses.

CLEATS, *taquets*, pieces of wood of different shapes, used occasionally to fasten ropes upon in a ship: some of them have one, and some two arms, fig. 17, *a*, plate II. others are hollowed in the middle, and have no arms at all, fig. 17, *b*: these are nailed to the deck or sides to fasten any thing to.

CLINCH, that part of a cable, or other rope, which is fastened to the ring of the anchor.

CLINCHER-WORK, *bordée à quoin*, the disposition of the planks in the side of any boat or vessel, when the lower edge of every plank over-lays the next under it, like the slates on the top of a house.

CLOSE-HAULED, in navigation, *au plus pres*, the general arrangement or trim of a ship's sails, when she endeavours to make a progress in the nearest direction possible towards that point of the compass from which the wind bloweth.

In this manner of sailing the *keel* commonly makes an angle of six points with the line of the wind; but sloops, and some other small vessels, are said to sail almost a point nearer. All vessels, however, are supposed to make nearly a point of *lee-way*, when close-hauled, even when they have the advantage of a good sailing-breeze and smooth water. The angle of lee-way, however, enlarges in proportion to the increase of the wind and sea.

In this disposition of the sails, they are all extended sideways on the ship, so that the wind, as it crosses the ship obliquely toward the stern from forwards, may fill their cavities. But as the current of wind also enters the cavities of the sails in an oblique direction, the effort of it, to make the ship advance, is considerably diminished: she will, therefore, make the least progress when sailing in this manner.

The ship is said to be close-hauled, because at this time her *tacks*, or lower corners of the principal sails, are drawn close down to her side to windward; the sheets hauled close aft; and all the bow-lines drawn to their greatest extension, in order to keep the sails steddy.

CLOSE-QUARTERS, certain strong barriers of wood stretching across a merchant-ship in several places. They are used as a place of retreat when a ship is boarded by her adversary, and are therefore fitted

with several small loop-holes, through which to fire the small arms, whereby the ship's crew may defend themselves and annoy the enemy. They are likewise furnished with several small caissons, called powder-chests, which are fixed upon the deck, and filled with powder, old nails, &c. and may be fired at any time from the close-quarters upon the boarders.

We have known an English merchant-ship, of sixteen guns, and properly fitted with close-quarters, defeat the united efforts of three French privateers who boarded her in the late war, after having engaged at some distance nearly a day and a half with very few intervals of rest. Two of the cruisers were equipped with twelve guns each, and the other with eight. The French sailors were, after boarding, so much exposed to the continued fire of musquetry, and coehorns charged with granadoes, that a dreadful scene of carnage ensued, in which the decks were soon covered with the dead bodies of the enemy, several of which the boarders, in their hurry to escape, had left behind.

CLUE *of a sail*, *point*, the lower corner, and hence

CLUE-GARNETS, *cargues point*, are a sort of tackles fastened to the *clues*, or lower corners of the mainsail and foresail, to truss them up to the yard as occasion requires, which is usually termed *clueing-up* the sails.

CLUE-LINES are for the same purpose as clue-garnets, only that the latter are confined to the courses, whereas the clue-lines are common to all the square sails. See these ropes, as represented in the article SAIL.

COACH, or COUCH, a sort of chamber or apartment in a large ship of war near the *stern*. The floor of it is formed by the aftmost part of the quarter-deck, and the roof of it by the poop: it is generally the habitation of the captain.

COAMINGS *of the hatches*, certain raised borders about the edge of the hatches of a ship, to prevent the water which may flow in upon the deck at sea, from running down into the lower apartments. They are represented in the DECK, plate III. as enclosing their respective hatchways.

COASTING, in navigation, *aller terre à terre*, the act of making a progress along the sea-coast of any country. The principal articles relating to this part of navigation are, the observing the time and direction of the tide; knowledge of the reigning winds; of the roads and havens; of the different depths of the water, and qualities of the ground.

COASTING-PILOT, *cotier*, a pilot, who by long experience has become sufficiently acquainted with the nature of any particular coast, and of the requisites mentioned in the preceding article, to conduct a ship or fleet from one part of it to another.

COAT, *braye*, a piece of tarred canvas nailed round that part of the masts and bowsprit which joins to the deck, or lies over the stem of a ship. It is used to prevent the water from running down into the hold, or between the decks.

Besides those above mentioned, there is a coat for the rudder nailed round the hole where the rudder traverses in the ship's counter. This hole is represented at the upper part of the stern-post, exhibited in plate X.

COAT, *suage*, also implies the materials or *stuff* with which the ship's sides or masts are varnished, to preserve them from the sun and weather, as turpentine, tar, &c. In this sense we say, "Give her a good coat of tar."

COBBING, a punishment sometimes inflicted at sea. It is performed by striking the offender a certain number of times on the breech with a flat piece of

wood called the cobbing-board. It is chiefly used as a punishment to those who quit their station during the period of the night-watch.

COBOOSE, *fogone* (*kambuis*, Dutch), a sort of box or house to cover the chimney of some merchant-ships. It is somewhat resembling a centry-box, and generally stands against the barricade on the fore part of the quarter-deck.

COCK-PIT *of a ship of war*, the apartments of the surgeon and his mates, being the place where the wounded men are dressed in the time of battle, or otherwise. It is situated under the lower-deck.

COCKSWAIN, or COXEN, the officer who manages and steers a boat, and has the command of the boat's crew. It is evidently compounded of the words *cock* and *swain*, the former of which was anciently used for a yawl or small boat, as appears by several authors[5]; but it has now become obsolete, and is never used by our mariners.

COIL, (*cueillir*, Fr.) the manner in which all ropes are disposed aboard ships for the conveniency of stowage, because

COILING, *rouer*, implies a sort of serpentine winding of a cable or other rope, that it may occupy a small space in the ship. Each of the windings of this sort is called a *fake*, and one range of fakes upon the same line is called a *tier*; there are generally from five to seven fakes in a tier; and three or four tiers in the whole length of the cable. This, however, depends on the extent of the fakes. The smaller ropes employed about the sails are coiled upon *cleats* at sea, to prevent their being entangled amongst one another in traversing, contracting, or extending the sails.

COLLAR, *collier d' etai*, a name given to the lower part of any of the principal stays of the masts, or the

part by which the stay is confined at its lower end. Thus the collar of the main-stay connects the lower end of the stay to the ship's stem. See the article STAY.

COLOURS, the flags or banners which distinguish the ships of different nations. See the articles ENSIGN, JACK, and PENDANT.

COLLIERS, certain vessels employed to carry coals from one port to another, chiefly from the northern parts of England to the capital, and more southerly parts, as well as to foreign markets. This trade is known to be an excellent nursery for seamen, although they are often found, from the constitution of their climate, to be not so well calculated for southern navigation.

COMMAND, in the royal navy, implies the rank and power of an officer who has the management of a ship of war, of whatever kind, under twenty guns, as sloops of war, armed ships, or bomb-vessels. He is intitled *master* and *commander*, *capitaine du petit état*, and ranks with a major in the king's army.

COMMANDER is also expressed of a large wooden mallet used on sundry occasions in a ship.

COMMISSIONERS *of the navy*, certain officers appointed to superintend the affairs of the marine, under the direction of the lord-high-admiral, or lords commissioners of the admiralty.

The duty of these officers does not extend to the internal government of ships invested with a military command, either at sea or in the port. It is more immediately concerned in the building, docking, repairing, and cleaning of ships in the dock-yards. In consideration of this, all ships of war are commissioned from a report of their qualities presented to the Admiralty by the Navy-board.

They have also the appointment of some of the

inferior sea-officers, as surgeons, and masters of ships.

The principal officers and commissioners residing at the board are, 1, The comptroller. 2, Two surveyors, who are shipwrights. 3, Clerk of the acts. 4. Comptroller of the treasurer's accounts. 5. Comptroller of the victualling accounts. 6. Comptroller of the store-keeper's accounts. 7. An extraordinary commissioner. Besides these, there are three resident commissioners, who manage the affairs of the *dock-yards* at Chatham, Portsmouth, and Plymouth, under the direction of the board at the Navy-office.

COMMODORE, *chef d' escadre*, a general officer in the British marine, invested with the command of a detachment of ships of war destined on any particular enterprise; during which time he bears the rank of brigadier-general in the army, and is distinguished from the inferior ships of his squadron by a broad red pendant tapering towards the outer-end, and sometimes forked. The word is corrupted from the Spanish *comendador*.

Commodore is also a name given to some select ship in a fleet of merchantmen, who leads the van in time of war, and carries a light in his top, to conduct the rest and keep them together.

COMPANION, a sort of wooden porch placed over the entrance or stair case of the master's cabin in a merchant-ship.

COMPANY, the whole crew of any ship, including her officers.

COMPASS, an instrument employed to determine the ship's course at sea, and consisting of a card and two boxes. The card, which is calculated to represent the horizon, is a circle divided into thirty-two equal parts, by lines drawn from the center to the

circumference, called points or rumbs. The intervals between the points are also subdivided into equal parts called degrees, 360 of which complete the circle; and consequently the distance or angle comprehended between any two rumbs is equal to 11°, 15´ The four principal rumbs are called the *cardinal points*, deriving their names from the places to which they tend; viz. the two which extend themselves under the meridian, opposite to each other, pointing to the north and south, are called the *north* and *south* points. That which is towards the right hand as we look north is termed *east*, and its opposite the *west* point. The names of all the inferior ones are compounded of these, according to their situation. Along the north and south-line is fixed a steel needle, which being touched by the load-stone acquires a certain virtue that makes it hang nearly in the plane of the meridian, and consequently determine the direction of the other points toward the horizon.

The compass being of the utmost importance to the purposes of navigation, it is reasonable to expect that the greatest attention should be used in its construction, and every attempt to improve it carefully examined, and adopted, if proper. Great errors and irregularities, however, have been found incident to the construction of common compasses, arising from the shape of their needles, by which they have not only turned from the true direction, but from that of each other[6]. To remedy these inconveniencies, the learned Dr. Knight was induced to contrive a new sea-compass, which is now used aboard all our vessels of war[7]. The needles of the other instruments were generally composed of two pieces of steel wire, bent in the middle, and approaching each other towards the ends, where

they met. Others were made of one piece of steel of a spring temper, and broad towards the ends, but tapering towards the middle; but the needle in Dr. Knight's compass is quite straight, and square at the ends, and consequently has only two poles, although the curves are a little confused about the hole in the middle. Needles of this construction, after vibrating a long time, will always point exactly in the same direction; and if drawn ever so little on one side, will return to it again, without any sensible difference.

In order to illustrate the above description, we have exhibited a view of the several parts of the compass, plate II. where fig. 19, is the card, with the needle N S, and its cap fixed upon it.

Fig. 21, is the pedestal that supports the card, containing a sewing needle fixed in two small grooves to receive it, by means of a collet C, in the manner of a port crayon. D, the stem, is filed into an octogon, that it may the more easily be unscrewed.

A B, fig. 20, is the box in which the compass hangs in the binacle.

C D, is the ring that supports the inner box.

E F, is the inner box, which contains the card and needle.

G H, one of its axes, by which it is suspended on the ring C D.

I, is a place cut out in the wood, serving as an handle.

The magnet or needle appears passing though the center, together with a small brace of ivory that confines the cap to its place.

The card is a single varnished paper, reaching as far as the outer circle of figures, which is a circle of thin brass; the edge whereof is turned down at right angles to the plane of the card, in order to stiffen it.

The compass is retained in the binacle at sea, as

exhibited in plate I. fig. 6. For the other parts of the compass represented in the figure, see the article AZIMUTH.

COMPASSING, *devers*, a name given by shipwrights to such pieces of timber as are incurvated into the figure of an arch, whether circular, elliptical, or otherwise.

COMPTROLLER *of the navy*, one of the principal officers of the Navy-board, at which he presides, to direct the inferior and civil department of the marine, as the admiralty superintends the superior and military operations of it.

CONVOY, *conserve*, (*convoyer*, Fr.) a fleet or navy of merchant-ships bound on a voyage to some particular part or general rendezvous.

CONVOY also implies the ship or ships appointed to conduct and defend them on their passage thither.

CORDAGE, (*cordage*, Fr.) a general term for the running *rigging* of a ship, or all that part of her rigging which is employed to extend, contract, or traverse the sails; or which lies in reserve to supply the place of such as may be rendered unserviceable. See the article RIGGING.

CORPORAL *of a ship of war*, an officer under the master at arms, employed to teach the sailors the exercise of small arms, or musketry; to attend at the gangway, or entering-ports, and observe that no spirituous liquors are brought into the ship, unless by particular leave from the officers. He is also to extinguish the fire and candles at eight o'clock in winter, and nine in summer, when the evening gun is fired; and to walk frequently down in the lower decks in his watch, to see that there are no lights but such as are under the charge of proper centinels.

CORPOSANT, *feu St. Elme* (*corpo santo*, Ital.), a sort of volatile meteor, or *ignis fatuus*, often beheld in a

dark and tempestuous night about the decks or rigging of a ship, but particularly at the extremities, as the mast-heads, and yard arms: it is most frequent in heavy rain, accompanied with lightning. “They usually wander with uncertain motion from place to place, sometimes appearing to cleave close to the sails and masts; but they frequently leap up and down with intermission, affording an obscure flame, like that of a candle burning faintly. They are produced by some sulphureous and bituminous matter, which being beat down by the motion of the air above, and gathering together, is kindled by the agitation of the air, as butter is gathered together by the agitation of the cream. And from this appearance we infer that storms come from sulphureous spirits that rarify the air, and put it into a motion.” *Varenius*.

CORSAIR, (*corsair*, Fr.) a name commonly given to the piratical cruisers of Barbary, who frequently plunder the merchant-ships of European nations with whom they are at peace.

COTT, a particular sort of bed-frame, suspended from the beams of a ship, for the officers to sleep in between the decks. This contrivance is much more convenient at sea than either the hammocks or fixed cabins, being a large piece of canvas sewed into the form of a chest, about six feet long, one foot deep, and from two to three feet wide: it is extended by a square wooden frame with a canvas bottom, equal to its length and breadth, to retain it in an horizontal position.

COVE, *anse*, a small creek or bay, where boats or little vessels may ride at anchor sheltered from the wind and sea.

COUNTER, *contre-arcasse*, an arch or vault whose upper-part is terminated by the bottom of the *stern*,

and the lower part by the wing-transom and buttock, being expressed by the letters KG, in the elevation, plate I. as likewise by the same letters in fig. 1, plate X. and the figure referred to from the article QUARTER.

There is also another counter above, parallel to this, but not vaulted; it extends from the upper-part of the lower, or vaulted counter, to the moulding which terminates the windows of the cabin or ward-room below. This latter is usually called the upper or second counter.

COUNTER-BRACING. See this operation fully explained in the article TACKING.

COURSE, *route*, in navigation, the angle contained between the nearest meridian and that point of the compass upon which a ship sails in any particular direction.

COURSES, *pacfis*, a name by which the principal sails of a ship are usually distinguished, viz. the main-sail, fore-sail, and mizen: the mizen-stay-sail and fore-sail are also sometimes comprehended in this denomination, as are the main-stay-sails of all brigs and schooners. See the article SAIL.

CRAB, a sort of wooden pillar, whose lower end, being let down through a ship's decks, rests upon a socket like the capstern; and having in its upper-end three or four holes, at different heights, thro' the middle of it, above one another, into which long bars are thrust, whose length is nearly equal to the breadth of the deck. It is employed to wind in the cable, or to purchase any other weighty matter which requires a great mechanical power. This differs from a capstern, as not being furnished with a *drum-head*, and by having the bars to go intirely through it, reaching from one side of the deck to the other; whereas those of the capstern, which are

superior in number, reach only about eight inches or a foot into the drum-head, according to the size thereof. This machine is represented in plate II. by fig. 10, and 13. See also CAPSTERN.

CRADLE, *slee*, a frame placed under the bottom of a ship, in order to conduct her smoothly and steddily into the water when she is to be lanched; at which time it supports her weight whilst she slides down the descent, or sloping passage called the *ways*, which are for this purpose daubed with soap and tallow. This frame is exhibited by fig. 23, plate II.

CRAFT, a general name for all sorts of vessels employed to load or discharge merchant-ships, or to carry along-side, or return the stores of men of war: such are lighters, hoys, barges, prames, &c. See those articles.

CRANK, *coté-foible*, the quality of a ship, which for want of a sufficient quantity of *ballast* or cargo, is rendered incapable of carrying sail without being exposed to the danger of overturning. See the articles BALLAST and TRIM.

CRANK, is also an iron brace which supports the lanthorns on the poop-quarters, &c.

CRAWL, *bouchot*, a sort of pen, or place of confinement, formed by a barrier of stakes and hurdles on the sea-coast, to contain any sort of fish within it.

CREEPER, an instrument of iron resembling a grappling, having a *shank* and four hooks or claws, fig. 24, plate II. It is used to throw into the bottom of any river or harbour, with a rope fastened to it, to hook and draw up any thing from the bottom which may have been lost.

CRINGLE, *ancet*, a small hole made in the *bolt-rope* of a sail, by inter-twisting one of the divisions of a rope, called a *strand*, alternately round itself and

through the *strands* of the bolt-rope, till it becomes three-fold, and assumes the shape of a wreath or ring. See plate II. fig. 25, where a, b, represents part of the bolt-rope of a sail; and c, the cringle.

The use of the cringle is generally to contain the end of some rope, which is fastened thereto, for the purpose of drawing up the sail to its yard, or of extending the skirts by the means of *bridles* to stand upon a side-wind. The word seems to be derived from *krinckelen*, (Belg.) to run into twists.

CROSS-JACK, pronounced *crojeck*, a sail extended on the lower yard of the *mizen*-mast, which is hence called the *cross-jack yard*, *vergue seche*. This sail, however, has generally been found of little service, and is therefore very seldom used.

CROSS PIECE, *rasteau*, a rail of timber extended over the *windlass* of a merchant-ship from the knight-heads to the belfry. It is stuck full of wooden pins, which are used to fasten the running-rigging as occasion requires. See the article WINDLASS.

CROSS-TREES, *barres de hune*, certain pieces of timber supported by the *cheeks* and tressel-trees, at the upper-ends of the lower-masts, athwart which they are laid, to sustain the frame of the *top*.

CROTCHES, *fourcats*, (*croccia*, Ital.) a name given to those crooked timbers that are placed upon the keel in the fore and hind-parts of a ship, upon which the frame of her hull grows narrower below, as it approaches the stern afore, and the stern-post abaft.

CROTCHES, *cornes*, are also certain pieces of wood or iron, whose upper part opens into two horns or arms, like a half-moon. They are fixed in different places of the ship, according to the uses for which they may be designed, which is usually to support the spare-masts, yards, &c. The iron crotches are exhibited in plate II. fig. 26.

CROW, an iron lever well known in mechanics, and furnished with a sharp point at one end, and two claws at the other, as appears in fig. 27, plate II.

This instrument is used for various purposes, by shipwrights and mariners; as to remove pieces of timber, and other weighty bodies; and to draw spike-nails, &c. as well as to manage the great guns, by moving them into their ports, levelling or pointing them to a particular object.

To CROWD, *forcer de voiles*, (*cruth*, Sax.) to carry an extraordinary force of sail upon a ship, in order to accelerate her course on some important occasion, as in pursuit of, or flight from, an enemy; to escape any immediate danger, &c.

CROW-FOOT, *trelingage*, a complication of small cords spreading out from a long block, like the smaller parts which extend from the back-bone of a herring. See plate II. fig. 27. It is used to suspend the *awnings*; or to keep the *top-sails* from striking violently and fretting against the edges of the tops.

CROWNING, the finishing part of a knot made on the end of a rope. It is performed by interweaving the ends of the different brands artfully amongst each other, so as that they may not become loosened or untwisted. The design of these knots is to keep the end of the rope fast in some place assigned for it: they are more particularly useful in all kinds of stoppers.

CRUISE, *campaigne* (*croiser*, Fr.), a voyage or expedition in quest of vessels or fleets of the enemy, which may be expected to sail through any particular tract of the sea at a certain season of the year. The region in which these cruises are performed, is usually termed the rendezvous or cruising-latitude. When the ships employed for this purpose, which are accordingly called cruisers, have arrived at their

destined station, they traverse the sea backward and forward, under an easy sail, and within a limited space, conjectured to be nearly in the tract of their expected adversaries.

CUDDY, *coqueron*, a sort of cabin, or cook-room, in the fore-part, or near the stern, of a lighter or barge of burden.

CUNNING, *faire gouverner*, the art of directing the steersman to guide the ship in her proper course: the officer who performs this duty is either the pilot or quarter-master.

CURRENT, in navigation, *courans*, (*currens*, Lat.) a certain progressive movement of the water of the sea, by which all bodies floating therein are compelled to alter their course, or velocity, or both, and submit to the laws imposed on them by the current.

In the sea, currents are either natural and general, as arising from the diurnal rotation of the earth about its axis; or accidental and particular, caused by the waters being driven against promontories, or into gulfs and streights; where, wanting room to spread, they are driven back, and thus disturb the ordinary flux of the sea.

“Currents are various, and directed towards different parts of the ocean, of which some are constant, and others periodical. The most extraordinary current of the sea is that by which part of the Atlantic or African ocean moves about Guinea from Cape Verd towards the curvature or bay of Africa, which they call Fernando Poo, viz. from west to east, contrary to the general motion. And such is the force of this current, that when ships approach too near the shore, it carries them violently towards that bay, and deceives the mariners in their reckoning.

"There is a great variety of shifting currents, which do not last, but return at certain periods; and these do, most of them, depend upon, and follow the anniversary winds or monsoons, which by blowing in one place may cause a current in another[8]." *Varenius.*

In the streights of Gibraltar the currents almost constantly drive to the eastward, and carry ships into the Mediterranean: they are also found to drive the same way into St. George's-channel.

The setting, or progressive motion of the current, may be either quite down to the bottom, or to a certain determinate depth.

As the knowledge of the direction and velocity of currents is a very material article in navigation, it is highly necessary to discover both, in order to ascertain the ship's situation and course with as much accuracy as possible. The most successful method which has been hitherto attempted by mariners for this purpose, is as follows. A common iron pot, which may contain four or five gallons, is suspended by a small rope fastened to its ears or handles, so as to hang directly upright, as when placed upon the fire. This rope, which may be from 70 to 100 fathoms in length, being prepared for the experiment, is coiled in the boat, which is hoisted out of the ship at a proper opportunity, when there is little or no wind to ruffle the surface of the sea. The pot being then thrown overboard into the water, and immediately sinking, the line is slackened till about seventy or eighty fathoms run out, after which the line is fastened to the boat's stem, by which she is accordingly restrained, and rides as at anchor. The velocity of the current is then easily tried by the *log* and half-minute glass, the usual method of discovering the rate of a ship's sailing at sea. The

course of the stream is next obtained by means of the compass provided for this operation.

Having thus found the setting and drift of the current, it remains to apply this experiment to the purposes of navigation. If the ship sails along the direction of the current, then the motion of the ship is increased by as much as is the drift or velocity of the current.

If a current sets directly against the ship's course, then her motion is retarded in proportion to the strength of the current. Hence it is plain,

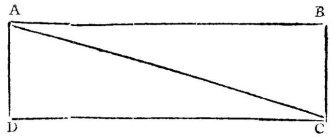
1. If the velocity of the current be less than that of the ship, then the ship will advance so much as is the difference of these velocities.

2. If the velocity of the current be more than that of the ship, then will the ship fall as much *astern* as is the difference of these velocities.

3. If the velocity of the current be equal to that of the ship, then will the ship stand still, the one velocity destroying the other.

If the current thwarts the course of a ship, it not only diminishes or increases her velocity, but gives her a new direction, compounded of the course she steers, and the setting of the current, as appears by the following

LEMMA.



If a body at A be impelled by two forces at the same time, the one in the direction A B, carrying it

from A to B in a certain space of time, and the other in the direction A D, pushing it from A to D in the same time; complete the parallelogram ABCD, and draw the diagonal A C: then the body at A, (which let us suppose a ship agitated by the wind and current; A B, being the line along which she advances as impressed by the wind, and A D the line upon which she is driven by the current) will move along the diagonal A C, and will be in the point C, at the end of the time in which it would have moved along A D or AB, as impelled by either of those forces (the wind or current) separately.

CUTTER, *bateau*, a small vessel commonly navigated in the channel of England; it is furnished with one mast, and rigged as a *sloop*.

Many of these vessels are used on an illicit trade, and others employed by the government to seize them; the latter of which are either under the direction of the Admiralty or Custom-house. See a representation of a cutter of this sort in the plate referred to from the article VESSEL.

CUTTER is also a small boat used by ships of war. See BOAT.

CUTTING-DOWN LINE, a curved line used by shipwrights in the delineation of ships: it determines the thickness of all the floor timbers, and likewise the height of the *dead-wood*, *afore* and *abaft*. It is limited in the middle of the ship by the thickness of the floor-timber, and abaft by the breadth of the *kelson*; and must be carried up so high upon the stem, as to leave sufficient substance for the breeches of the rising timbers. *Murray's Ship-building.*

CUT-WATER, the foremost part of a ship's prow, formed of an assemblage of several pieces of timber, to render it broad at the upper-part, where it projects forward from the stem to open the column of water

as the ship sails along, and also to make her keep to windward better, when she is close-hauled. It is otherwise called the knee of the head. See the article STEM; as also the several parts of it represented in plate I. PIECES *of the* HULL.

D.

Davit, *minot*, a long beam of timber, represented by a, a, plate II. fig. 28, and used as a crane, whereby to hoist the flukes of the anchor to the top of the *bow*, without injuring the planks of the ship's side as it ascends; an operation which by mariners is called fishing the anchor. The anchors being situated on both the bows, the davit may be occasionally shifted so as to project over either side of the ship, according to the position of that anchor on which it is to be employed. The inner-end of the davit is secured by being thrust into a square ring of iron b, which is bolted to the deck, and fore-locked under the beams. This ring, which is called the span-shackle, exhibited at large by fig. 34, is fixed exactly in the middle of the deck, and close behind the fore-mast. Upon the outer-end of the davit is hung a large block c, through which a strong rope traverses, called the fish-pendant d, to whose foremost end is fitted a large iron hook e, and to its after end a tackle or complication of pullies f, the former of which is called the fish-hook, and the latter the fish-tackle.

The davit therefore, according to the sea-phrase, is employed to *fish the anchor*, which being previously

catted, the fish-hook is fastened upon its flukes; and the effort of the tackle, being transmitted to the hook by means of the fish-pendant, draws up that part of the anchor sufficiently high upon the bow to fasten it, which is done by the *Shank-painter*. See that article.

There is also a davit of a smaller kind, occasionally fixed in the longboat, and employed to weigh the anchor therein.

DAY'S-WORK, *cinglage*, the reckoning or account of the ship's course, during twenty-four hours, or between noon and noon, according to the rules of trigonometry. See DEAD-RECKONING.

DEAD-EYE, *cap de mouton*, a sort of round, flattish, wooden block, see fig. 30, plate II. It is usually encircled with the end of a rope, or with an iron band, fig. 31, *b*, and pierced with three holes through the flat, in order to receive the rope called a *laniard c*, which corresponding with three holes in another dead-eye *a*, creates a purchase employed for various uses, but chiefly to extend the *shrouds* and *stays*, otherwise called the standing-rigging.

In order to form this purchase, one of the dead-eyes is fastened in the lower-end of each shroud, and the opposite one in the upper-link of each *chain* on the ship's side, which is made round to receive and encompass the hollowed outer-edge of the dead-eye. After this the laniard is passed alternately through the holes in the upper and lower dead-eyes till it becomes six-fold; and is then drawn tight by the application of mechanical powers. The general disposition of the dead eyes in their channels is represented in the Elevation, plate I. In merchant-ships they are generally fitted with iron plates in the room of chains. These last are exhibited in fig. 16, plate II.

The dead-eyes used for the stays, *moques*, have only one hole, which, however, is large enough to receive ten or twelve turns of the laniard: these are generally termed *hearts*, and are expressed by fig. 32.

There are also dead-eyes of another form, employed for the *crow-feet*, *moques de trelingage*. These are long cylindrical blocks, fig. 33, with a number of small holes in them, to receive the legs or lines of which the crow-foot, fig. 28, is composed.

DEAD-LIGHTS, certain wooden ports which are made to fasten into the cabin-windows, to prevent the waves from gushing into the ship in a high sea. As they are made exactly to fit the windows, and are strong enough to resist the waves, they are always fixed in, on the approach of a storm, and the glass frames taken out, which might other wise be shattered to pieces by the surges, and suffer great quantities of water to enter the vessel.

DEAD-RECKONING, in navigation, *estime*, the judgment or estimation which is made of the place where a ship is situated, without any observation of the heavenly bodies. It is discovered by keeping an account of the distance she has run by the *log*, and of her course steered by the *compass*; and by rectifying these data by the usual allowances for *drift*, *lee-way*, &c. according to the ship's known trim. This reckoning, however, is always to be corrected, as often as any good observation of the sun can be obtained.

DEAD-RISING, or RISING-LINE *of the floor*, *fleurs*, those parts of a ship's floor, or bottom, throughout her whole length, where the floor-timber is terminated upon the lower futtock. See the article NAVAL ARCHITECTURE.

DEAD-WATER, *remoux* the eddy of water which appears like little whirl-pools, closing in with the

ship's stern as she sails through it.

DEAD-WOOD, *contre-quille*, a name given by shipwrights to certain blocks of timber laid upon the keel, particularly at the extremities afore and abaft, where these pieces are placed one upon another to a considerable height, because the ship is there so narrow as not to admit of the two half timbers, which are therefore scored into this dead wood, where the angle of the floor-timbers gradually diminishes, as approaching the stem and stern-post. See the article NAVAL ARCHITECTURE.

In the fore-part of the ship, the dead-wood generally extends from the stemson, upon which it is scarfed to the loof-frame; and in the after-end from the stern-post, where it is confined by the knee, to the after-ballance-frame. It is connected to the keel by strong spike-nails. Those pieces are represented by e e, PIECES *of the* HULL, plate I.

The dead-wood afore and abaft is equal in depth to two-thirds of the depth of the keel, and as broad as can be procured, so as not to exceed the breadth of the keel.

DEAD-WORK, all that part of a ship which is above water when she is laden. See the article UPPER-WORK.

DECKS, *ponts*, (*decken*, Dan. to cover) the planked floors of a ship, which connect the sides together, and serve as different platforms to support the artillery, and lodge the men, as also to preserve the cargo from the sea in merchant-vessels.

As all ships are broader at the lower-deck than on the next above it, and as the cannon thereof are always heaviest, it is necessary that the frame of it should be much stronger than that of the others; and, for the same reason, the second or middle deck ought to be stronger than the upper deck, or forecastle.

Ships of the first and second rates are furnished with three whole decks, reaching from the stem to the stern, besides a forecastle and a quarterdeck, which extends from the stern to the main-mast, between which and the fore-castle, a vacancy is left in the middle, opening to the upper-deck, and forming what is called the *waist*. There is yet another deck above the hinder or aftmost part of the quarter-deck, called the poop, which also serves as a roof for the captain's cabin or couch.

The inferior ships of the line of battle are equipped with two decks and a half, and frigates, sloops, &c. with one gun-deck and a half, with a spar deck below to lodge the crew.

The decks are formed and sustained by the beams, the clamps, the water-ways, the carlings, the ledges, the knees, and two rows of small pillars, called stanchions, &c. See those articles.

That the figure of a deck, together with its corresponding parts, may be more clearly understood, we have exhibited a plan of the lower-deck of a 74 gun-ship in plate III. And as both sides of the deck are exactly similar, the pieces by which it is supported appear on one side, and on the other side the planks or floor of which it is composed, as laid up on those pieces.

Explanation of the figures represented in the Deck, plate III.

A, the principal, or main hatch-way.
B, the stern-post.
C, the stem.
D, the beams, composed of three pieces, as

exhibited by D, in one of which the dotted lines shew the arrangement of one of the beams under the other side of the deck.

E, part of the vertical or hanging knees. See also *e*, fig. 16, in the same plate.

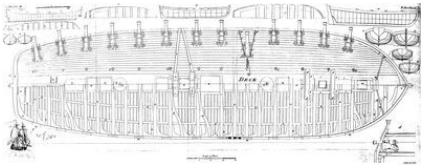


PLATE III. *To Face Deck.*

F, the horizontal or lodging knees, which fasten the beams to the sides.

G, the carlings, ranging fore and aft, from one beam to another.

H, the gun-ports.

I, the pump-dales, being large wooden tubes which return the water from the pumps into the sea.

K, the spurs of the beams; being curved pieces of timber serving as half-beams to support the decks, where a whole beam cannot be placed on account of the hatch-ways.

L, the deck-transom, which is bolted by the middle to the stern-post, and whose ends rest upon the fashion-pieces.

M, the bulk-head or partition, which encloses the manger, and prevents the water which enters at the hause-holes from running aft between decks.

N N, the fore hatch-way.

O O, the after hatch-way.

P, the drum-head of the gear cap-stern.

P p, the drum-head of the main capstern.

Q, one of the lower transom-knees.

R, one of the breast-hooks under the gun-deck.

S, the breast-hook of the gun-deck.

T T, the station of the chain-pumps.

V, the breadth and thickness of the timbers at the height of the gun-deck.

U U, scuttles leading to the gunner's store-room, and bread-room.

W, the station of the fore-mast.

X, the station of the main-mast.

Y, the station of the mizen-mast.

Z, the ring-bolts of the decks, used to retain the cannon whilst charging.

a, a, the ring-bolts of the sides, whereon the tackles are hooked that secure the cannon at sea.

c a a d, the water-ways, through which the scupper-holes are pierced, to carry the water off from the deck into the sea.

b, b, plan of the foremost and aftmost cable-bits, with their crosspieces g, g, and their standards e, e.

Thus we have represented on one side, all the pieces which sustain the deck with its cannon; and on the other side, the deck itself, with a tier of 32 pounders planted in battery thereon. In order also to shew the use of the breeching and train-tackle, one of the guns is drawn in as ready for charging. See the articles BREECHING and CANNON.

The number of beams, by which the decks of ships are supported, is often very different, according to the practice of different countries; the strength of the timber of which the beams are framed; and the services for which the ship is calculated.

As the deck which contains the train of a fire-ship is furnished with an equipage peculiar to itself, the whole apparatus is particularly described in the article FIRE-SHIP.

Flush-DECK, or DECK-*Flush fore and aft*, implies a continued floor laid from stem to stern, upon one line, without any steps or intervals.

Half-DECK, *corps de garde*, a space under the quarter-deck of a ship of war, contained between the foremost bulk-head of the *steerage*, and the fore-part

of the quarter-deck.

In the colliers of Northumberland the steerage itself is called the half-deck, and is usually the habitation of the ship's crew.

DECOY, a stratagem employed by a small ship of war to betray a vessel of inferior force into an incautious pursuit, till she has drawn her within the range of her cannon, or what is called within gun-shot.

It is usually performed by painting the stern and sides in such a manner as to disguise the ship, and represent her either much smaller, and of inferior force, or as a friend to the hostile vessel, which she endeavours to ensnare, by assuming the emblems and ornaments of the nation to which the stranger is supposed to belong. When she has thus provoked the adversary to chase, in hope of acquiring a prize, she continues the decoy by spreading a great sail, as endeavouring to escape, at the same time that her course is considerably retarded by an artful alteration, of her *trim* till the enemy approaches.

Decoying is also performed to elude the chace of a ship of superior force in a dark night, by throwing out a lighted cask of pitch into the sea, which will burn for a considerable time, and misguide the enemy. Immediately after the cask is thrown out, the ship changes her course, and may easily escape if at any tolerable distance from the foe.

DEEP-WAISTED, *encastillé*, the distinguishing fabric of a ship's decks, when the quarter-deck and fore-castle are elevated from four to six feet above the level of the upper-deck, so as to leave a vacant space, called the waiste, on the middle of the upper-deck. See the article WAISTE.

DEMURRAGE, an allowance given to the commander of a trading ship by the merchants, for

having detained him longer in port than the time previously appointed for his departure.

DEPARTURE, in navigation, the distance between any two places lying on the same parallel, counted in miles of the equator; or the distance of one place from the meridian of another, counted on the parallel passing over that place. See NAVIGATION.

DEPTH *of a sail*, *chute*, the extent of any square or oblong sail from the head-rope to the foot-rope; or the length of the after-leech of any boom-sail or stay-sail. See the article SAIL.

DETACHMENT *of a fleet or squadron*, a certain number of ships chosen by an admiral or commodore from the rest of the fleet, charged to execute some particular service.

DIFFERENCE *of latitude*, in navigation, the difference between any two places lying on the same meridian; or the distance between the parallels of latitude of any two places, expressed in miles of the equator.

DINNAGE, see the article DUNNAGE.

DISABLED, *desemparé*, the state of a ship when, by the loss of her masts, sails, yards, or rigging; by springing a leak, or receiving some fracture in her hull, or other disaster; she is rendered incapable of prosecuting her voyage without great difficulty and danger.

To DISCHARGE, (*decharger*, Fr.) when applied to a ship, signifies to unlade her, or take out her stores, ammunition, artillery, &c. When expressed of the officers or crew, it implies to disband them from immediate service.

DISMASTED, *dematé*, the state of a ship which has lost her masts by boisterous weather, engagement, or other misfortune.

DIVISION, a select number of ships in a fleet or

squadron of men of war, distinguished by a particular flag or pendant, and usually commanded by a general officer. A squadron is commonly ranged into three divisions, the commanding officer of which is always stationed in the center.

When a fleet consists of sixty sail of the *line*, that is, of ships having at least sixty cannon, the admiral divides it into three squadrons, each of which has its divisions and commanding officers. Each squadron has its proper colours, according to the rank of the admiral who commands it, and every division its proper mast. Thus, the white flag denotes the first squadron of France; the white and blue the second, and the third is characterised by the blue. In England, the first admiral, or the admiral of the fleet, displays the union flag at the main-top-mast-head; next follows the white flag with St. George's cross; and afterwards the blue. The private ships carry pendants of the same colour with their respective squadron, at the masts of their particular divisions; so that the last ship in the division of the blue squadron carries a blue pendant at her mizen-top-mast-head.

DOCK, *forme*, (imagined of δοχεῖον) a sort of broad and deep trench, formed on the side of a harbour, or on the banks of a river; and commodiously fitted either to build ships, or receive them to be repaired and *breamed* therein. These sorts of docks have generally strong flood-gates, to prevent the flux of the tide from entering the dock while the ship is under repair.

There are likewise docks of another kind, called wet-docks, where a ship can only be cleaned during the recess of the tide, or in the interval between the time when the tide left her dry a-ground, and the period when it again reaches her by the return of the

flood. Docks of the latter kind are not furnished with the usual flood-gates.

DOCKING *a ship*, the act of drawing her into the dock, in order to give her a proper repair, and cleanse the bottom, and cover it anew with a preparation of stuff, as explained in the article BREAMING.

DOCK-YARDS, *arcenaux*, certain magazines containing all sorts of naval stores, and timber for ship-building. In England, the royal dock-yards are at Chatham, Portsmouth, Plymouth, Deptford, Woolwich, and Sheerness. His majesty's ships and vessels of war are generally moored at these ports, during the time of peace; and such as want repairing are taken into the docks, examined, and refitted for service. See the article REPAIR.

The principal dock-yards are governed by a commissioner, resident at the port, who superintends all the musters of the officers, artificers, and labourers, employed in the dock-yard, and ordinary. He also controls their payment therein; examines the accounts; contracts, and draws bills on the Navy-office to supply the deficiency of stores; and, finally, regulates whatever belongs to the dock-yard, maintaining due order in the respective offices.

These yards are generally supplied from the northern crowns with hemp, pitch, tar, rosin, canvas, oak plank, and several other species. With regard to the masts, particularly those of the largest size, they are usually imported from New-England.

DOG, a sort of iron hook, or bar, with a sharp fang at one end, so formed as to be easily driven into a plank: it is used to drag along the planks of oak when they are let into a hole under the stern of a ship, to be stowed in the *hold*. For this purpose there is a rope fastened to the end of the dog, upon which

several men pull, to draw the plank towards the place where it is to be stowed. It is also used for the same purpose in unlading the ship.

DOGGER, *dogre-bot*, a Dutch fishing-vessel navigated in the German ocean. It is generally employed in the herring fishery, being equipped with two masts, viz. a main-mast and a mizen-mast, and somewhat resembling *a ketch*.

DOLPHIN *of the mast* a peculiar kind of wreath, formed of platted cordage, to be fastened occasionally round the masts, as a support to the *puddening*, whose use is to sustain the weight of the fore and main-yards, in case the rigging, or chains, by which those yards are suspended, should be shot away in the time of battle; a circumstance which might render their sails useless at a season when their assistance is extremely necessary. See the article PUDDENING.

DOUBLING, in navigation, (*doubler*, Fr.) the act of sailing round, or passing beyond a cape or promontory, so as that the cape or point of land separates the ship from her former situation, or lies between her and any distant observer.

DOUBLING-NAILS, amongst shipwrights, the nails commonly used to fasten the lining of the gun-ports, &c.

DOUBLING-UPON, in a naval engagement, the act of enclosing any part of a hostile fleet between two fires, or of cannonading it on both sides.

It is usually performed by the van or rear of that fleet which is superior in number, taking the advantage of the wind, or of its situation and circumstances, and tacking or veering round the van or rear of the enemy, who will thereby be exposed to great danger, and can scarcely avoid being thrown into a general confusion.

To DOUSE, *molir*, to lower suddenly or slacken: expressed of a sail in a squall of wind, an extended hawser, &c.

DOWN-HAWL, *calebas*, a rope passing up along a stay through the rings of the stay-sail, and tied to the upper-corner of the sail, to pull it down, when they are *shortening* sail.

DOWN-HAUL-TACKLE, a complication of pullies, employed to pull down the main or fore-yard in a tempest, in order to reef the sail. It is used at this time, because the violence of the wind prevents the weight of the yard from having its natural effect, of descending, when the ropes by which it is suspended are slackened.

DRABLER, an additional part of a sail, sometimes laced to the bottom of the *bonnet* of a *square-sail*, in sloops and schooners.

DRAG, a machine consisting of a sharp square iron ring encircled with a net, and commonly used to rake the mud off from the platform or bottom of the docks. See plate II. fig. 35.

DRAGGING *the anchor*, the act of trailing it along the bottom, after it is loosened from the ground, by the effort of the wind or current upon the ship, communicated to the cable. See the article ANCHOR.

DRAUGHT, the depth of a body of water necessary to float a ship; hence a ship is said to draw so many feet of water, when she is borne up by a column of water of that particular depth. Thus, if it requires a body of water whose depth is equal to twelve feet, to float or buoy up a ship on its surface, she is said to draw twelve feet water; and that this draught may be more readily known, the feet are marked on the stem and stern-post, regularly from the keel upwards.

DRESSING, (*faire la parade*), the act of ornamenting a ship with a variety of colours; as

ensigns, flags, pendants, &c. displayed from different parts of her masts and rigging on a day of festivity.

DRIFT, in navigation, *derive* (from *drive*), the angle which the line of a ship's motion makes with the nearest meridian, when she drives with her side to the wind and waves, and is not governed by the power of the helm: it also implies the distance which the ship drives on that line.

A ship's way is only called drift in a storm; and then, when it blows so vehemently, as to prevent her from carrying any sail, or at least restrains her to such a portion of sail as may be necessary to keep her sufficiently inclined to one side, that she may not be dismasted by her violent labouring produced by the turbulence of the sea.

DRIVER, an oblong sail, occasionally hoisted to the mizen-peak, when the wind is very fair. The lower corners of it are extended by a *boom* or pole, which is thrust out across the ship, and projects over the lee-quarter.

DRIVING, *abattre* (*drifan*, Sax.) the state of being carried at random along the surface of the water, as impelled by a storm, or impetuous current: it is generally expressed of a ship when, accidentally, broke loose from her anchors or moorings.

DROP, *etarcure*, a name sometimes given to the depth of the principal sails; as, her main-top-sail *drops* seventeen yards.

DUCKING, a sort of marine punishment inflicted by the French on those who have been convicted of desertion, blasphemy, or exciting sedition. It is performed as follows: the criminal is placed astride of a short thick batten, fastened to the end of a rope, which passes thro' a block hanging at one of the yard-arms. Thus fixed, he is hoisted suddenly up to the yard, and the rope being slackened at once, he is

plunged into the sea. This chastisement is repeated several times, conformable to the purport of the sentence pronounced against the culprit, who has at that time several cannon-shot fastened to his feet during the punishment, which is rendered public by the firing of a gun, to advertise the other ships of the fleet thereof, that their crews may become spectators. *Aubin.*

DUCKING, is also a penalty which veteran sailors pretend to inflict on those, who, for the first time, pass the tropic of Cancer, the Equator, or the streights of Gibraltar, in consequence of their refusal or incapacity to pay the usual fine levied on this occasion, which would redeem them from the said penalty.

DUNNAGE, *fardage*, a quantity of faggots, boughs of trees, or other loose wood, laid in the bottom of a ship, either to raise the heavy goods which might make her too stiff, or to keep the cargo sufficiently above the bottom, that it may sustain no damage from the water, if the ship should prove leaky.

E.

EARINGS, *rabans*, certain small cords employed to fasten the upper corners of a sail to its respective yard; for which purpose one end of the earing is spliced to the *cringle*, fixed in that part of the sail; and the other end of it is passed six or seven times round the yard-arm and through the cringle, thereby fastening the latter to the former. Two of the turns

are intended to stretch the upper-edge of the sail tight along the yard; and the rest to draw it close up to it. The former are therefore called *outer*, and the latter *inner* turns, as being passed without, or within the rigging, on the yard-arms.

EASE *the ship*! the command given by the pilot to the steersman, to put the helm close to the lee-side, or, in the sea-phrase, *hard-a-lee*, when the ship is expected to *pitch* or plunge her fore-part deep in the water, while close-hauled. The reason usually given for this practice is, that the sudden movement of the helm prevents the ship's head from falling with so much weight and rapidity into the hollow of the sea, as it would do otherwise: which is presuming that the flow, and uncertain effect of the helm is sufficient to retard the certain and violent action of gravity: a position that necessarily infers a very singular theory of mechanics. We shall not endeavour to advance any argument in favour of this practice; only to remark, that it is most religiously observed, both in merchant-ships and his majesty's navy.

To EASE *off*, or EASE *away*, *molir*, *filer*, to slacken gradually any single rope, or complication of ropes, formed into a tackle.

EBB, *jussant*, the reflux of the tide, or the return of it into the sea after the highest of the flood, usually termed full-sea, or high-water.

EDDY, *remoux*, (*ed*, backward, again, and *ea*, water, Sax.) the water that, by some interruption in its course, runs contrary to the direction of any river, or current, and appears like the motion of a whirlpool.

To EDGE *away*, in navigation, *abattre*, to decline gradually from the shore, or from the line of the course which the ship formerly steered: it is

particularly applied when a ship changes her course, by sailing nearer the direction of the wind; or, in the lea-language, by sailing *larger*, or more *afore* the wind, than she had done before that operation.

ELBOW *in the hause*, a particular twist in the cables by which a ship rides at anchor. In this situation each of the cables, after crossing the other before the stem, is directed outwards on the same *bow* from which it issued: that is to say, the starboard cable *grows* out on the starboard bow, and the larboard cable on the larboard bow, as exhibited in fig. 36, plate II. where a expresses the fore-castle, b the stem, c c the larboard cable, and d d the starboard one. See the article HAWSE.

EMBARGO, in commerce, *arret* (*embargar*, Span.), an arrest laid on ships or merchandise by public authority, or a prohibition of state, commonly issued on foreign ships, to prevent their putting to sea in time of war; and sometimes to prevent their coming in, and otherwise both to prevent their entrance and departure.

EMBAYED, *encapé*, (from *bay*,) the situation of a ship when she is inclosed between two capes or promontories. It is particularly applied when the wind, by blowing strongly into any bay or gulf, makes it extremely difficult, and perhaps impracticable, for the vessel thus enclosed, to *claw* off from the shore, so as to weather the capes and arrive into the offing.

ENGAGEMENT, in a naval sense, implies a particular or general battle at sea; or an action of hostility between single ships, or *detachments*, or *squadrons* of men of war.

In order to have a clearer idea of this article, it will, therefore, be necessary that the reader who is little acquainted with the subject, should previously

refer to the explanation of those terms, as also to the articles CANNON, DIVISION, EXERCISE, FLEET, and LINE *of* BATTLE.

The sea-fights of the ancients were usually carried on in two different manners. Advanced by the force of their oars, the gallies ran violently *aboard* of each other, and by the mutual encounter of their beaks and prows, and sometimes of their sterns, endeavoured to dash in pieces, or sink their enemies.

The prow, for this purpose, was commonly armed with a brazen point or trident, nearly as low as the surface of the sea, in order to pierce the enemy's ships under the water. Some of the gallies were furnished with large turrets, and other accessions of building, either for attack or defence. The soldiers also annoyed their enemies with darts and slings, and, on their nearer approach, with swords and javelins; and, in order that their missive weapons might be directed with greater force and certainty, the ships were equipped with several platforms, or elevations above the level of the deck[9]. The sides of the ship were fortified with a thick fence of hides, which served to repel the darts of their adversaries, and to cover their own soldiers, who thereby annoyed the enemy with greater security.

As the invention of gun-powder has rendered useless many of the machines employed in the naval wars of the ancients, the great distance of time has also consigned many of them to oblivion: some few are, nevertheless, recorded in ancient authors, of which we shall endeavour to present a short description. And first,

The Δελφιν was a large and massy piece of lead or iron, cast in the form of a dolphin. This machine being suspended by blocks at their mast-heads or yard-arms, ready for a proper occasion, was let down

violently from thence into the adverse ships, and either penetrated through their bottom, and opened a passage for the entering waters, or by its weight immediately sunk the vessel.

The Δρήπαναν an engine of iron crooked like a sickle, and fixed on the top of a long pole. It was employed to cut asunder the *slings* of the sail-yards, and, thereby letting the sails fall down, to disable the vessel from escaping, and incommode her greatly during the action. Similar to this was another instrument, armed at the head with a broad two-edged blade of iron, wherewith they usually cut away the ropes that fastened the rudder to the vessel[10].

Δόρατα ναύμαχα, a sort of spears or maces of an extraordinary length, sometimes exceeding twenty cubits, as appears by the 15th Iliad of Homer[11], by whom they are also called μακρὰ.

Κιραῖαι were certain machines used to throw large stones into the enemies ships.

Vegetius mentions another engine, which was suspended to the main-mast, and resembled a battering-ram: for it consisted of a long beam, and an head of iron, and was, with great violence, pushed against the sides of the enemies gallies.

They had also a grappling-iron, which was usually thrown into the adverse ship by means of an engine: this instrument facilitated the entrance of the soldiers appointed to *board*, which was done by means of wooden bridges, that were generally kept ready for this purpose in the fore-part of the vessel[12].

The arms used by the ancients rendered the disposition of their fleets very different, according to the time, place and circumstances. They generally considered it an advantage to be to windward, and to

have the sun shining directly on the front of their enemy. The order of battle chiefly depended on their power of managing the ships, or of drawing them readily into form; and on the schemes which their officers had concerted. The fleet being composed of rowing-vessels, they lowered their sails previous to the action: they presented their prows to the enemy, and advanced against each other by the force of their oars[13]. Before they joined battle, the admirals went from ship to ship, and exhorted their soldiers to behave gallantly. All things being in readiness, the signal was displayed by hanging out of the admiral's galley a gilded shield, or a red garment or banner. During the elevation of this the action continued, and by its depression, or inclination towards the right or left, the rest of the ships were directed how to attack, or retreat from their enemies. To this was added the sound of trumpets, which began in the admiral's galley, and continued round the whole navy. The light was also begun by the admiral's galley, by grappling, boarding, and endeavouring to overset, sink, or destroy, the adversary, as we have above described[14]. Sometimes, for want of grappling irons, they fixed their oars in such a manner as to hinder the enemy from retreating.[15] If they could not manage their oars as dexterously as their antagonists, or fall along-side so as to board him, they penetrated his vessel with the brazen prow. The vessels approached each other as well as their circumstances would permit, and the soldiers were obliged to fight hand to hand, till the battle was decided: nor indeed could they fight otherwise with any certainty, since the shortest distance rendered their slings and arrows, and almost all their offensive weapons, ineffectual, if not useless. The squadrons were sometimes ranged in two or three right lines,

parallel to each other; being seldom drawn up in one line, unless when formed into an half moon. This order indeed appears to be the most convenient for rowing vessels that engage by advancing with their prows towards the enemy. At the battle of Ecnomus, between the Romans and the Carthaginians, the fleet of the former was ranged into a triangle, or a sort of wedge in front, and towards the middle of its depth, of two right parallel lines. That of the latter was formed into a rectangle, or two sides of a square, of which one branch extended behind, and, as the opening of the other prosecuted the attack, was ready to fall upon the flank of such of the Roman gallies as should attempt to break their line. Ancient history has preserved many of these orders, of which some have been followed in later times. Thus, in a battle in A. D. 1340, the English fleet was formed in two lines, the first of which contained the larger ships, the second consisted of all the smaller vessels, used as a reserve to support the former whenever necessary. In 1545 the French fleet under the command of the Mareschal d'Annebault, in an engagement with the English in the Channel, was arranged in the form of a crescent. The whole of it was divided into three bodies, the center being composed of thirty-six ships, and each of the wings of thirty. He had also many gallies; but these fell not into the line, being designed to attack the enemy occasionally. This last disposition was continued down to the reigns of James I. and Louis XIII[16].

Meanwhile the invention of gun-powder, in 1330, gradually introduced the use of fire-arms into naval war, without finally superseding the ancient method of engagement. The Spaniards were armed with cannon in a sea-fight against the English and the people of Poitou abreast of Rochelle in 1372; and

this battle is the first wherein mention is made of artillery in our navies. Many years elapsed before the marine armaments were sufficiently provided with fire-arms[17]. So great a revolution in the manner of fighting, and which necessarily introduced a total change in the construction of ships, could not be suddenly effected. In short, the squadrons of men of war are no longer formed of rowing-vessels, or composed of gallies and ships of the line, but entirely of the latter, which engage under sail, and discharge the whole force of their artillery from their sides. Accordingly they are now disposed in no other form than that of a right line parallel to the enemy; every ship keeping *close-hauled* upon a wind on the same tack. Indeed the difference between the force and manner of fighting of ships and gallies rendered their service in the same line incompatible. When we consider therefore the change introduced, both in the construction and working of ships, occasioned by the use of cannon, it necessarily follows, that squadrons of men of war must appear in the order that is now generally adopted. Finally, the ships ought to present their broad-sides to the enemy; and to sail close upon a wind in the wake of each other; as well to retain their own uniformity, as to preserve or acquire the advantage which the weather-gage gives them over their adversary[18].

The machines which owe their rise to the invention of gun powder have now totally supplanted the others; so that there is scarce any but the sword remaining, of all the weapons used by the ancients. Our naval battles are therefore almost always decided by fire-arms, of which there are several kinds, known by the general name of artillery.

In a ship of war fire-arms are distinguished into

cannon mounted on carriages, swivel-cannon, grenadoes, and musquetry. The first has been already described at large in its proper place. The second is a small piece of artillery, carrying a shot of half a pound, and fixed in a socket on the top of the ships side, stern or bow, and also in her tops. The trunnions of this piece are contained in a sort of iron crotch, whose lower-end terminates in a cylindrical pivot resting in the socket, so as to support the weight of the cannon. The socket is bored in a strong piece of oak, reinforced with iron hoops, in order to enable it to sustain the recoil. By means of this frame, which is called the swivel, and an iron handle on its cascabel, the gun may be directed by hand to any object. It is therefore very necessary in the tops, particularly when loaded with musket-balls, to fire down on the upper-decks of the adversary in action. ——The grenado is a kind of little bomb of the same diameter as a four pound bullet; it weighs about two pounds, being charged with four or five ounces of powder.——Grenadoes are thrown from the tops by the hands of the seamen. They have a touch-hole in the same manner as a bomb, and a fuse of the same composition. See MORTAR. The sailor fires the fuse with a match, and throws the grenado as he is directed: the powder being inflamed, the shell instantly bursts into splinters, that kill or maim whomsoever they reach on the decks of the enemy. As this machine cannot be thrown by hand above fifteen or sixteen fathoms, the ship must be pretty near, to render it useful in battle.——The musket or firelock is so well known, that it appears unnecessary to describe it in this place.—Besides these machines, there are several others used in merchant-ships and privateers, as coehorns, carabines, fire-arrows, organs, powder-flasks, stink-pots, &c[19].

Since a general engagement of fleets or squadrons of men of war is nothing else than a variety of particular actions of single ships with each other, in a line of battle; it appears necessary, according to the plan of this work, to begin by describing the latter, and then proceed to represent the usual manner of conducting the former.

The whole oeconomy of a naval engagement may be arranged under the following heads, viz. the preparation; the action; and the repair, or refitting, for the purposes of navigation.

The preparation is began by issuing the order to clear the ship for action, which is repeated by the boatswain and his mates at all the

hatchways or stair-cases, leading to the different batteries. As the management of the artillery in a vessel of war requires a considerable number of men, it is evident that the officers and sailors must be restrained to a narrow space in their usual habitations, in order to preserve the internal regularity of the ship. Hence the *hammocs*, or hanging-beds, of the latter are crowded together as close as possible between the decks, each of them being limited to the breadth of fourteen inches. They are hung parallel to each other, in rows stretching from one side of the ship to the other, nearly throughout her whole length, so as to admit of no passage but by stooping under them. As the cannon therefore cannot be worked while the hammocs are suspended in this situation, it becomes necessary to remove them as quick as possible. By this circumstance a double advantage is obtained: the batteries of cannon are immediately cleared of an incumbrance, and the hammocs are converted into a sort of parapet, to prevent the execution of small-shot on the *quarter-deck*, *tops*, and *fore-castle*. At the

summons of the boatswain, *Up all hammocs!* every sailor repairs to his own, and, having stowed his bedding properly, he cords it up firmly with a *lashing*, or line provided for that purpose. He then carries it to the quarter-deck, poop, or forecastle, or wherever it may be necessary. As each side of the quarter-deck and poop is furnished with a double net-work, supported by iron cranes fixed immediately above the *gunnel* or top of the ship's-side; the hammocs thus corded are firmly stowed by the quarter-master between the two parts of the netting, so as to form an excellent barrier. The tops, waiste, and fore-castle, are then fenced in the same manner.

Whilst these offices are performed below, the boatswain and his mates are employed in securing the sail-yards, to prevent them from tumbling down when the ship is cannonaded, as she might thereby be disabled, and rendered incapable of attack, retreat, or pursuit. The yards are now likewise secured by strong chains, or ropes, additional to those by which they are usually suspended. The boatswain also provides the necessary materials to repair the rigging, wherever it may be damaged by the shot of the enemy; and to supply whatever parts of it may be entirely destroyed. The carpenter and his crew in the meanwhile prepare his shot-plugs and mauls, to close up any dangerous breaches that may be made near the surface of the water; and provide the iron-work necessary to refit the chain-pumps, in case their machinery should be wounded in the engagement. The gunner with his mates and quarter-gunners is busied in examining the cannon of the different batteries, to see that their charges are thoroughly dry and fit for execution: to have every thing ready for furnishing the great guns and small

arms with powder, as soon as the action begins: and to keep a sufficient number of cartridges continually filled, to supply the place of those expended in battle. The master and his mates are attentive to have the sails properly trimmed, according to the situation of the ship; and to reduce or multiply them, as occasion requires, with all possible expedition. The lieutenants visit the different decks, to see that they are effectually cleared of all incumbrance, so that nothing may retard the execution of the artillery: and to enjoin the other officers to diligence and alertness, in making the necessary dispositions for the expected engagement, so that every thing may be in readiness at a moment's warning.

When the hostile ships have approached each other to a competent distance, the drums beat to arms. The boatswain and his mates pipe, *all hands to quarters!* at every hatchway. All the persons appointed to manage the great guns, immediately repair to their respective stations. The crows, handspikes, rammers, spunges, powder-horns, matches, and train tackles, are placed in order by the side of every cannon. The hatches are immediately laid, to prevent any one from deserting his post by escaping into the lower apartments. The marines are drawn up in rank and file, on the quarter-deck, poop, and fore-castle. The lashings of the great guns are cast loose, and the tompions withdrawn. The whole artillery, above and below, is run out at the ports, and levelled to the point-blank range ready for firing.

The necessary preparations being completed, and the officers and crew ready at their respective stations, to obey the order, the commencement of the action is determined by the mutual distance and situation of the adverse ships, or by the signal from the commander in chief of the fleet or squadron. The

cannon being levelled in parallel rows, projecting from the ship's side, the most natural order of battle is evidently to range the ships abreast of each other, especially if the engagement is general. The most convenient distance is probably within the point-blank range of a musket, so that all the artillery may do effectual execution.

The combat usually begins by a vigorous cannonade, accompanied with the whole efforts of the swivel-guns and the small arms. The method of firing in platoons, or vollies of cannon at once, appears inconvenient in the sea-service, and perhaps should never be attempted, unless in the battering of a fortification. The sides and decks of the ship, although sufficiently strong for all the purposes of war, would be too much shaken by so violent an explosion and recoil. The general rule observed on this occasion throughout the ship, is to load, fire, and spunge, the guns with all possible expedition, yet without confusion or precipitation. The captain of each gun is particularly enjoined to fire only when the piece is properly directed to its object, that the shot may not be fruitlessly expended. The lieutenants who command the different batteries, traverse the deck to see that the battle is prosecuted with vivacity; and to exhort and animate the men to their duty. The midshipmen second these injunctions, and give the necessary assistance wherever it may be required, at the guns committed to their charge.

The gunner should be particularly attentive that all the artillery is sufficiently supplied with powder, and that the cartridges are carefully conveyed along the decks in covered boxes. The havoc produced by a continuation of this mutual assault may be readily conjectured by the reader's imagination: battering, penetrating, and splintering the sides and decks;

shattering or dismounting the cannon; mangling and destroying the rigging; cutting asunder, or carrying away the masts and yards; piercing and tearing the sails so as to render them useless; and wounding, disabling, or killing the ship's company! The comparative vigour and resolution of the assailants to effect these pernicious consequences in each other, generally determine their success or defeat: I say generally, because the fate of the combat may sometimes be decided by an unforeseen incident, equally fortunate for the one and fatal to the other. The defeated ship having acknowledged the victory, by striking her colours, is immediately taken possession of by the conqueror, who secures her officers and crew as prisoners in his own ship; and invests his principal officer with the command of the prize until a captain is appointed by the commander in chief.

The engagement being concluded, they begin the repair: the cannon are secured by their breechings and tackles, with all convenient expedition. Whatever sails have been rendered unserviceable are unbent; and the wounded masts and yards struck upon the deck, and *fished*, or replaced by others. The standing rigging is *knotted*, and the running rigging spliced wherever necessary. Proper sails are bent in the room of those which have been displaced as useless. The carpenter and his crew are employed in repairing the breaches made in the ship's hull, by shot-plugs, pieces of plank, and sheet-lead. The gunner and his assistants are busied in replenishing the allotted number of charged cartridges, to supply the place of those which have been expended, and in refitting whatever furniture of the cannon may have been damaged by the late action.

Such is the usual process and consequences of an

engagement between two ships of war, which may be considered as an epitome of a general battle between fleets or squadrons, The latter, however, involves a greater variety of incidents, and necessarily requires more comprehensive skill and judgment in the commanding officer.

When the admiral, or commander in chief, of a naval armament has discovered an enemy's fleet, his principal concern is usually to approach it, and endeavour to come to action as soon as possible. Every inferior consideration must be sacrificed to this important object; and every rule of action should tend to hasten and prepare for so material an event. The state of the wind, and the situation of his adversary, will, in some measure, dictate the conduct necessary to be pursued with regard to the disposition of his ships on this occasion. To facilitate the execution of the admiral's orders, the whole fleet is ranged into three squadrons, each of which is classed into three divisions, under the command of different officers. Before the action begins, the adverse fleets are commonly drawn up in two lines parallel to each other, and close-hauled. We have endeavoured to explain the propriety and necessity of this disposition in the article *Line*. As soon as the admiral displays the signal for the line of battle, the several divisions separate from the columns, in which they were disposed in the usual order of sailing, and every ship crouds into its station in the *wake*, of the next a-head: and a proper distance from each other, which is generally about fifty fathom, is regularly observed from the van to the rear. The admiral, however, will, occasionally, contract or extend his line, so as to conform to the length of that of his adversary, whose neglect, or inferior skill, on this occasion, he will naturally convert to his own

advantage; as well as to prevent his own line from being *doubled*, a circumstance which might throw his van and rear into confusion.

When the adverse fleets approach each other, the *courses* are commonly hauled up in the brails, and the top-gallant sails and stay sails furled. The movement of each ship is chiefly regulated by the main and fore-top sails, and the jib; the mizen-top sail being reserved to hasten or retard the course of the ship, and, in fine, by *filling* or *backing*, *hoisting* or *lowering* it, to determine her velocity.

The frigates, tenders, and fire-ships, being also hauled upon a wind, lie at some distance, ready to execute the admiral's orders, or those of his seconds, leaving the line of battle between them and the enemy. If there are any transports and store-ships attendant on the fleet, these are disposed still further distant from the action. If the fleet is superior in number to that of the enemy, the admiral usually selects a body of reserve from the different squadrons, which will always be of use to cover the fire-ships, bomb-vessels, &c. and may fall into the line in any case of necessity: these also are stationed at a convenient distance from the line, and should evidently be opposite to the weakest parts thereof.

And here it may not be improper to observe, with an ingenious French author[20], that order and discipline give additional strength and activity to a fleet. If thus a double advantage is acquired by every fleet, it is certainly more favourable to the inferior, which may thereby change its disposition with greater facility and dispatch than one more numerous, yet without being separated. When courage is equal to both, good order is then the only resource of the smaller number. Hence we may infer that a smaller squadron of men of war, whose

officers are perfectly disciplined in working their ships, may, by its superior dexterity, vanquish a more powerful one, even at the commencement of the fight; because the latter being less expert in the order of battle, will, by its separation, suffer many of the ships to remain useless, or not sufficiently near, to protect each other[21].

The signal for a general engagement is usually displayed when the opposite fleets are sufficiently within the *range* of point-blank shot, so that they may level the artillery with certainty of execution, which is near enough for a line of battle. The action is begun and carried on throughout the fleet, in the manner we have already described between single ships, at which time the admiral carries little sail, observing, however, to regulate his own motions by those of the enemy. The ships of the line mean while keep close in their stations, none of which should hesitate to advance in their order, although interrupted by the situation of some ship a-head, which has negligently fallen astern of her station.

Such is now the practice of naval war, that the necessary order of battle, and the fabric of our ships, very seldom permit the assault of *boarding*, unless in single actions. No captain ought therefore to abandon his station in the line, under any pretence whatsoever, unless his ship is too much disabled to continue the combat. The small quantity of sail carried on this occasion will permit the bulk of the fleet, altho' somewhat impaired, to continue their cannonade a long time without quitting the line.

An ambition to distinguish himself should never seduce any captain to break the line, in order to atchieve any distant enterprize, however the prospect may flatter him with success. He ought to wait the signal of the admiral or his commanding

officer; because it is more essential to preserve the regularity of a close line, which constitutes the principal force of the fleet, than to prosecute a particular action, which, although brilliant in itself, has seldom any material consequences, unless its object is to seize a flag-ship, and even this can only be justified by success[22].

The various exigencies of the combat call forth the skill and resources of the admiral, to keep his line as complete as possible, when it has been unequally attacked; by ordering ships from those in reserve, to supply the place of others which have suffered greatly by the action; by directing his fire-ships at a convenient time to fall aboard the enemy; by detaching ships from one part of the line or wing which is stronger, to another which is greatly pressed by superior force, and requires assistance. His vigilance is ever necessary to review the situation of the enemy from van to rear, every motion of whom he should, if possible, anticipate and frustrate. He should seize the favourable moments of occasion, which are rapid in their progress, and never return. Far from being disconcerted by any unforeseen incident, he should endeavour, if possible, to make it subservient to his design. His experience and reflection will naturally furnish him with every method of intelligence to discover the state of his different squadrons and divisions. Signals of enquiry and answers; of request and assent; of command and obedience; will be displayed and repeated on this occasion. Tenders and boats will also continually be detached between the admiral and the commanders of the several squadrons or divisions.

As the danger presses on him, he ought to be fortified by resolution and presence of mind, because the whole fleet is committed to his charge, and the

conduct of his officers may, in a great degree, be influenced by his intrepidity and perseverance. In short, his renown or infamy may depend on the fate of the day.

If he conquers in battle, he ought to prosecute his victory as much as possible, by seizing, burning, or destroying the enemies ships. If he is defeated, he should endeavour by every resource his experience can suggest, to have as many of his fleet as possible; by employing his tenders, &c. to take out the wounded and put fresh men in their places; by towing the disabled ships to a competent distance, and by preventing the execution of the enemies fire-ships. In order to retreat with more security, he may judge it expedient to range his fleet into the form of an half-moon, placing himself in the center. By this disposition the enemy's ships which attempt to fall upon his rear, will at once expose themselves to the fire of the admiral, and his seconds, in a disadvantageous situation; a circumstance which will serve to facilitate the escape of his own ships, and retard the pursuit of those of his adversary.

If his fleet is too much extended by this arrangement, the wings or quarters are easily closed, and the half-moon rendered more complete; in the midst of which may be placed his store-ships, tenders, &c. In flying, or retreating, the uncertainty of the weather is to be considered: it may become calm, or the wind may shift in his favour. His schemes may be assisted by the approach of night, or the proximity of the land; since he ought rather to run the ships ashore, if practicable, than suffer them to be taken afloat, and thereby transfer additional strength to the enemy. In short, nothing should be neglected that may contribute to the preservation of his fleet, or prevent any part of it from falling into

the hands of the conqueror.

By what we have observed, the real force, or superiority, of a fleet consists less in the number of vessels, and the vivacity of the action, than in good order, dexterity in working the ships, presence of mind, and skilful conduct in the captains.

ENSIGN, *pavillon de pouppe*, (*enseigne*, Fr.) a large standard, or banner, hoisted on a long pole erected over the poop, and called the ensign-staff.

The ensign is used to distinguish the ships of different nations from each other, as also to characterise the different squadrons of the navy.

The British ensign in ships of war is known by a double cross, viz. that of St. George and St. Andrew, formed into an union, upon a field which is either red, white, or blue.

ENTERING ROPES, *tire-veilles*, two ropes hanging from the upper-part of a ship's-side, on the right and left of the accommodation-ladder, or steps of the gangway. See GANGWAY.

ENTRANCE, a name frequently given to the foremost part of a ship under the surface of the sea.

To EQUIP, a term borrowed from the French marine, and frequently applied to the business of fitting a ship for sea, or arming her for war. See the article FITTING.

ESCUTCHEON, (*ecusson*, Fr.) a name sometimes given to the compartment for the name, or arms, of the owner, or of the person whose title the vessel assumes: it is usually fixed on the middle of the ship's stern, and is more peculiar to the French and other foreigners, than to English built vessels. See fig. 3, plate 10.

EXERCISE is the preparatory practice of managing the artillery and small-arms, in order to make the ship's crew perfectly skilled therein, so as to direct

its execution successfully in the time of battle.

The exercise of the great guns has, till the late war, been very complicated, and abounding with superfluities, in our navy, as well as all others. The following method was then successfully introduced by an officer of distinguished abilities.

Exercise *of the great guns*.

1st. Silence.
2d. Cast loose your guns.
3d. Level your guns.
4th. Take out your tompions.
5th. Run out your guns.
6th. Prime.
7th. Point your guns.
8th. Fire.
9th. Spunge your guns.
10th. Load with cartridge.
11th. Shot your guns.
12th. Put in your tompions.
13th. House your guns.
14th. Secure your guns.

"Upon beat to arms[23] (every body having immediately repaired to their quarters) the midshipman commanding a number of guns, is to see that they are not without every necessary article, as (at every gun) a spunge, powder-horn, with its priming wires, and a sufficient quantity of powder, crow, hand-spike, bed, quoin, train-tackle, &c. sending, without delay, for a supply of any thing that may be missing; and, for the greater certainty of not

overlooking any deficiency, he is to give strict orders to each captain under him, to make the like examination at his respective gun, and to take care that every requisite is in a serviceable condition, which he is to report accordingly. And (besides the other advantages of this regulation) for the still more certain and speedy account being taken upon these occasions, the midshipman is to give each man his charge at quarters (as expressed in the form of the monthly report) who is to search for his particular implements, and, not finding it, is immediately to acquaint his captain, that, upon his report to the midshipman, it may be replaced.

"The man who takes care of the powder is to place himself on the opposite side of the deck from that where we engage, except when fighting both sides at once, when he is to be amidships. He is not to suffer any other man to take a cartridge from him, but he who is appointed to serve the gun with that article, either in time of a real engagement, or at exercise.

"Lanthorns are not to be brought to quarters in the night, until the midshipman gives his orders for so doing to the person he charges with that article. Every thing being in its place, and not the least lumber in the way of the guns, the exercise begins with,

1st, Silence.

"At this word every one is to observe a silent attention to the officers.

2d. Cast loose your guns.

"The muzzle lashing is to be taken off from the guns, and (being coiled up in a small compass) is to be made fast to the eye-bolt above the port. The lashing-tackles at the same time to be cast loose, and the middle of the breeching seized to the thimble of the pomillion. The spunge to be taken down, and, with the crow, hand-spike, &c. laid upon the deck by the gun.

"N. B. When prepared for engaging an enemy, the seizing within the clinch of the breeching is to be cut, that the gun may come sufficiently within-board for loading, and that the force of the recoil may be more spent before it acts upon the breeching.

3d. Level your guns.

"The breech of your metal is to be raised so as to admit the foot of the bed's being placed upon the axle-tree of the carriage, with the quoin upon the bed, both their ends being even one with the other.

"N. B. When levelled for firing, the bed is to be lashed to the bolt which supports the inner end of it, that it may not be thrown out of its place by the violence of the gun's motion, when hot with frequent discharges. See fig. 17, plate VII.

4th. Take out your tompions.

"The tompion is to be taken out of the gun's mouth, and left hanging by its laniard.

5th. Run out your guns.

"With the tackles hooked to the upper-bolts of the carriage, the gun is to be bowsed out as close as possible, without the assistance of crows or hand-spikes; taking care at the same time to keep the breeching clear of the trucks, by hauling it through the rings; it is then to be bent so as to run clear when the gun is fired. When the gun is out, the tackle-falls are to be laid along-side the carriages in neat fakes, that when the gun by recoiling overhauls them, they may not be subject to get foul, as they would if in a common coil.

6th. Prime.

"If the cartridge is to be pierced with the priming wire, and the vent filled with powder, the pan also is to be filled; and the flat space having a score through it at the end of the pan, is to be covered, and this part of the priming is to be bruised with the round part of the horn."

The apron is to be laid over, and the horn hung up out of danger from the flash of the priming.

7th. Point your guns.

"At this command the gun is, in the first place, to be elevated to the height of the object, by means of the side-sights; and then the person pointing is to direct his fire by the upper-sight, having a crow on one side and a hand-spike on the other, to heave the gun by his direction till he catches the object.

"N. B. The men who heave the gun for pointing, are to stand between the ship's side and their crows

or hand-spikes, to escape the injury they might otherwise receive from their being struck against them, or splintered by a shot; and the man who attends the captain with a match is to bring it at the word, “Point your guns,” and kneeling upon one knee opposite the train-truck of the carriage, and at such a distance as to be able to touch the priming, is to turn his head from the gun, and keep blowing gently upon the lighted match to keep it clear from ashes. And as the missing of an enemy in action, by neglect or want of coolness, is most inexcusable, it is particularly recommended to have the people thoroughly instructed in pointing well, and taught to know the ill consequences of not taking proper means to hit their mark; wherefore they should be made to elevate their guns to the utmost nicety, and then to point with the same exactness, having caught the object through the upper-sight at the word,

8th. fire.

“The match is instantly to be put to the bruised part of the priming; and when the gun is discharged the vent is to be closed, in order to smother any spark of fire that may remain in the chamber of the gun; and the man who spunges is immediately to place himself by the muzzle of the gun in readiness, when, at the next word,

9th. Spunge your gun.

“The spunge is to be rammed down to the bottom of the chamber, and then twisted round, to

extinguish effectually any remains of fire; and when drawn out, to be struck against the out-side of the muzzle, to shake off any sparks or scraps of the cartridge that may have come out with it; and next its end is to be shifted ready for loading; and while this is doing, the man appointed to provide a cartridge is to go to the box, and by the time the spunge is out of the gun, he is to have it ready; and, at the word,

10th. Load with cartridge.

"The cartridge (with the bottom-end first, seam-downwards, and a wad after it) is to be put into the gun, and thrust a little way within the mouth, when the rammer is to be entered; the cartridge is then to be forcibly rammed down, and the captain at the same time is to keep his priming-wire in the vent, and, feeling the cartridge, is to give the word *home*, when the rammer is to be drawn, and not before. While this is doing, the man appointed to provide a shot is to provide one (or two, according to the order at that time) ready at the muzzle, with a wad likewise, and when the rammer is drawn, at the word,

11th. Shot your guns.

"The shot and wad upon it are to be put into the gun, and thrust a little way down, when the rammer is to be entered as before. The shot and wad are to be rammed down to the cartridge, and there have a couple of forcible strokes, when the rammer is to be

drawn, and laid out of the way of the guns and tackles, if the exercise or action is continued; but if it is over, the spunge is to be secured in the place it is at all times kept in.

12th. Put in your tompions.

"The tompions to be put into the muzzle of the cannon.

13th. House your guns.

"The seizing is to be put on again upon the clinched end of the breeching, leaving it no slacker than to admit of the guns being housed with ease. The quoin is to be taken from under the breech of the gun, and the bed, still resting upon the bolt, within the carriage, thrust under, till the foot of it falls off the axle-tree, leaving it to rest upon the end which projects out from the foot. The metal is to be let down upon this. The gun is to be placed exactly square, and the muzzle is to be close to the wood, in its proper place for passing the muzzle lashings. See CANNON, and fig. 19, plate VII.

14th. Secure your guns.

"The muzzle lashings must first be made secure, and then with one tackle (having all its parts equally taught with the breeching) the gun is to be lashed. The other tackle is to be bowsed taught, and by itself made fast, that it may be ready to cast off for lashing

a second breeching.

"N. B. Care must be taken to hook the first tackle to the upper bolt of the carriage, that it may not otherwise obstruct the reeving of the second breeching, and to give the greater length to the end part of the fall.

"No pains must be spared in bowsing the lashing very taught, that the gun may have the least play that is possible, as their being loose may be productive of very dangerous consequences.

"The quoin, crow, and handspike, are to be put under the gun, the powder-horn hung up in its place, &c.

"Being engaged at any time when there is a large swell, a rough sea, or in squally weather, &c. as the ship may be liable to be suddenly much heeled, the port-tackle falls is to be kept clear, and (whenever the working of the gun will admit of it) the man charged with that office is to keep it in his hand; at the same time the muzzle lashing is to be kept fast to the ring of the port, and being hauled taught, is to be fastened to the eye-bolt over the port-hole, so as to be out of the gun's way in firing, in order to haul it in at any time of danger.

"This precaution is not to be omitted, when engaging to the windward, any more than when to the leeward, those situations being very subject to alter at too short a warning.

"A train tackle is always to be made use of with the lee-guns, and the man stationed to attend it is to be very careful in preventing the gun's running out at an improper time."

EXERCISE may also be applied with propriety to the forming our fleets into orders of sailing, lines of battle, &c. an art which the French have termed *evolutions*, or *tactiques*. In this sense exercise may be

defined, the execution of the movements which the different orders and disposition of fleets occasionally require, and which the several ships are directed to perform by means of signals.

EYE *of a block-strop*. In the article BLOCK it has been mentioned, that a block is commonly bound with a ring, or wreath, formed of a piece of rope, called the *strop*; the eye of the strop, therefore, is that part by which it is fastened, or suspended, to any particular place upon the sails, yards, or rigging, the eye whereof is represented by fig. 37, plate II. The eye is sometimes formed by fastening the two ends of the strop together with a short line, so as to bind round a mast, yard, or boom, as occasion requires. See fig. 38, of the same plate.

EYE *of a stay*, *oeillet*, that part of a stay which is formed into a sort of collar to go round a mast-head.

EYE-BOLT, a long bar of iron with an eye in one end of it, represented by fig. 39, plate II. It is formed to be driven into the decks or sides of a ship for divers purposes, as to hook *tackles*, or fasten ropes to, as occasion requires.

EYE-LET-HOLE. See the article *Sails*.

EYES *of a ship*, *oeils*, a name frequently given to those parts which lie near the hause-holes, particularly in the lower apartments within the vessel.

F.

FACTOR, in commerce, an agent, or correspondent,

residing beyond the seas, or in some remote part, and commissioned by merchants to buy or sell goods on their account, or assist them to carry on their trade. Hence any place where a considerable number of factors reside, to negociate for their masters, or employers, is called a factory; as the factories of Lisbon, of Leghorn, of Calcutta, &c.

FAG-END, the end of any rope, or cord, which is become untwisted and loosened by frequent use. To prevent this effect, the ends of ropes are generally well fastened by winding a piece of small line, or pack-thread, around them, which operation is called *whipping*.

FAIR, a general term for the disposition of the wind, when it is favourable to a ship's course, in opposition to that which is contrary or *foul*.

This term, when applied to the wind, is much more comprehensive than *large*, since the former seems to include about eighteen points of the compass, or at least sixteen; whereas *large* is confined to the beam or quarter, that is, to a wind which crosses the keel at right angles, or obliquely from the stern, but never to one right a-stern. See the articles LARGE and SCANT.

FAIR-CURVE, a winding line, used in delineating ships, whose shape is varied according to the part of the ship it is intended to describe: this curve is not answerable to any of the figures of conic sections, although it occasionally partakes of them all.

FAIR WAY, the path or channel of a narrow bay, river, or haven, in which ships usually advance in their passage up and down; so that if any vessels are anchored therein, they are said to lye in the fair-way.

FAKE, one of the circles, or windings, of a cable, or hauser, as it lies disposed in the coil. See the article COILING. The fakes are greater or smaller in

proportion to the extent of space which a cable is allowed to occupy where it lies.

FALL, *garant*, the loose end of a tackle; or that part upon which the people pull, or hoist, to produce the required effect. See the article TACKLE.

To FALL *aboard*. See the article ABOARD.

To FALL *a-stern*, (*tomber en arriere*,) to be driven backwards; to retreat with the stern foremost: expressed of the motion of a ship either under sail or at anchor.

To FALL *calm*, *pacifier*, a phrase expressed of the weather, implying to fall into a state of rest by a total cessation of the wind.

To FALL *down*, in navigation, to sail, or be conducted from any part of a river, towards some other nearer to its mouth or opening.

FALLING-OFF, *abatíe*, the movement or direction of the ship's head to leeward of the point whither it was lately directed, particularly when she sails near the wind, or lies by.

Cat FALL. See the article CAT.

FALLING-OFF, is also the angle contained between her nearest approach towards the source of the wind, and her farthest declination from it, when TRYING. See that article.

FASHION-PIECES, *estains*, the aft-most or hind-most timbers of a ship, which terminate the breadth, and form the shape of the stern. They are united to the stern-post, and to the extremity of the wing-transom by a rabbit, and a number of strong nails, or spikes, driven from without. See their connection with the stern post and transom, in plate X. fig. I. as explained in the article STERN.

FATHOM, *bras*, a measure of six feet, used for a variety of purposes at sea; as to regulate the length of the rigging, cables, &c. and to divide the log lines,

and sounding-lines.

To FAY, to fit any two pieces of wood so as to join close together. The plank is said to fay to the timbers, when it bears, or lies, close to all the timbers. *Murray's Ship-building.*

FENDERS, (from *fend*,) certain pieces of old cable, timber, faggots, or other materials, hung over the side of a ship or vessel, to prevent it from striking or rubbing against a wharf, or key: as also to preserve the smaller vessel from being damaged by the larger ones.

To FETCH WAY, to be shaken or agitated from one side to another. It is usually applied to a mast, bowsprit, &c. when it is not sufficiently wedged, being loose in the partners: it is also said of a cask, box, or such body which moves by the rocking of the ship at sea, as not being well secured and enclosed.

FETCHING *the pump*, the act of pouring a can of water into the upper-part of it, to expel the air which is contained between the lower box, or piston, and the lower-end of the pump that rests upon the ship's floor; and accordingly to make the water, poured into the chamber, communicate with that in the bottom of the pump-well, so as to be thrown out above by *striking* with the brake, or handle. See PUMP.

FID, *clef de ton*, a square bar of wood, or iron, with a shoulder at one end, as represented in plate IV. fig. I. It is used to support the weight of the top-mast, when erected at the head of the lower-mast, by passing through a mortise in the lower end of the former, and resting its ends on the tressel-trees, which are sustained by the head of the latter. The fid, therefore, must be withdrawn every time the top-mast is lowered. The top-gallant-mast is retained at the head of the top-mast in the same manner. See the

article MAST.

FID, (*fitta*, Ital.) is also a large pin of hard wood, tapering to a point, and used for splicing of cables or large cordage.

Sea-FIGHT. See the article ENGAGEMENT.

To FILL, in navigation, *faire servir*, to brace the sails in such a manner, as that the wind, entering their cavities from behind, dilates them so as to advance the ship in her course, after the sails had for some time been shivering, or braced aback. See those articles.

FIRE-ARROW, a steel dart used by privateers and pirates to fire the sails of the enemy in battle: these machines are particularly described in the article ENGAGEMENT.

FIRE-SHIP, *brulot*, an old vessel filled with combustible materials, and fitted with grappling-irons to hook, and set fire to, the enemies ships in battle, &c.

As there is nothing particular in the construction of this ship, except the apparatus by which the fire is instantly conveyed from one part to another, and from thence to the enemy, it will be sufficient to describe the fire-room, where these combustibles are enclosed, together with the instruments necessary to grapple the ship intended to be destroyed.

The fire-room is built between-decks, and limited on the after-part by a *bulk-head*, I, behind the main-mast, from which it extends quite forwards, as represented in fig. 2, plate IV. The train enclosed in this apartment is contained in a variety of wooden troughs, D, G, which intersect each other in different parts of the ship's length; being supported at proper distances by cross-pieces and stanchions. On each side of the ship are six or seven ports, H, about eighteen inches broad, and fifteen inches high, and

having their lids to open downward, contrary to the usual method.

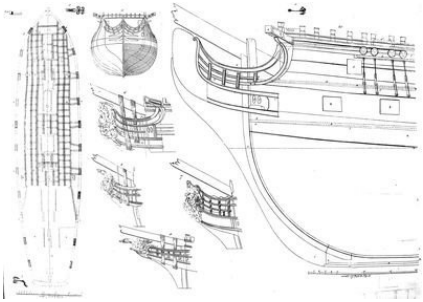


Plate. iv.

Against every port is placed an iron chamber[24], which, at the time of firing the ship, blows out the port-lid, and opens a passage for the flame. Immediately under the main and fore shrouds is fixed a wooden funnel, M; whose lower-end communicates with a fire-barrel[25], by which the flame passing through the funnel is conducted to the shrouds. Between the funnels, which are likewise called fire-trunks, are two *scuttles*, or small-holes in the upper-deck, serving also to let out the flames. Both funnels must be stopped with plugs, and have sail-cloth, or canvas, nailed close over them, to prevent any accident happening from above to the combustibles laid below.

The ports, funnels, and scuttles, not only communicate the flames to the out-side and upper-works of the ship, and her rigging, but likewise open a passage for the inward air, confined in the fire-room, which is thereby expanded so as to force impetuously through those out-lets, and prevent the blowing up of the decks, which must of necessity

happen, from such a sudden and violent rarefaction of the air as will then be produced.

On each side of the bulk-head behind is cut a hole L, of sufficient size to admit a trough of the same dimensions as the others. A leading trough, L I, whose foremost-end communicates with another trough within the fire-room, is laid close to this opening, from whence it extends obliquely to a sally-port, I, cut through the ship's side. The decks and troughs are well covered with melted rosin. At the time of firing either of the leading troughs, the flame is immediately conveyed to the opposite side of the ship, whereby both sides burn together.

The spaces N, O, behind the fire-room, represent the cabins of the lieutenant and master, one of which is on the *starboard*, and the other on the *larboard* side. The captain's cabin, which is separated from these by a bulk-head, is exhibited also by P.

	Number of stores of each nature.	**Interior diameter of each end.**		**Interio diameter the bulg**	
		Feet.	**Inches.**	**Feet.**	**Inc**
Fire barrels,	8	1	8½	2	9
Curtains,	30				
Bavins,	200				

Port fires,		24
Reeds	long,	150
	short,	75
	short double dipped	75
Composition in barrels, for firing,		3½
Quick match in barrels,		1
Hand grenadoes,		60
Chambers for ports,		12

Four of the eight fire-barrels are placed under the four fire-trunks; and the other four between them, two on each side the fire-skuttles, where they are securely *cleated* to the deck. The longest reeds[26] are put into the fore and aft troughs, and tied down: the shortest reeds are laid in the troughs athwart, and tied down also. The bavins[27], dipped at one end, are tied fast to the troughs over the reeds and the curtains are nailed up to the beams, in equal quantities, on each side of the fire-room.

The remainder of the reeds are placed in a position nearly upright, at all the angles of every square in the fire-room, and there tied down. If any reeds are

left, they are to be put round the fire-barrels, and other vacant places, and there tied fast.

Instructions to prime.

Take up all your reeds, one after another, and strow a little composition at the bottom of all the troughs under the reeds, and then tye them gently down again: next strow composition upon the upper part of the reeds throughout the fire-room, and upon the said composition lay double quick-match[28] upon all the reeds, in all the troughs: the remainder of the composition strow over all the fire-room, and then lay your bavins loose.

Cast off all the covers of the fire-barrels, and hang the quick-match loose over their sides, and place leaders of quick-match from the reeds into the barrels, and from thence into the vent of the chambers, in such a manner as to be certain of their blowing open the ports, and setting fire to the barrels. Two troughs of communication from each door of the fire-room to the sally-ports, must be laid with a strong leader of quick-match, four or five times double: also a cross-piece to go from the sally-port, when the ship is fired, to the communication trough, laid with leaders of quick-match, that the fire may be communicated to both sides at once.

What quick-match is left, place so that the fire may be communicated to all parts of the room at once, especially about the ports and fire-barrels, and see that the chambers are well and fresh primed.

N. B. The port-fires[29] used for firing the ship, burns about twelve minutes. Great care must be taken to have no powder on board when the ship is fired.

The sheer-hooks represented by fig. 3, plate IV. are fitted so as to fasten on the yard-arms of the fire-ship, where they hook the enemies rigging. The fire-grapplings, fig. 4, are either fixed on the yard-arms, or thrown by hand, having a chain to confine the ships together, or fasten those instruments wherever necessary.

When the commanding officer of a fleet displays the signal to prepare for action, the fire-ships fix their sheer-hooks, and dispose their grapplings in readiness. The battle being begun, they proceed immediately to prime, and prepare their fire-works. When they are ready for grappling, they inform the admiral thereof by a particular signal.

To avoid being disabled by the enemy's cannon during a general engagement, the fire-ships continue sufficiently distant from their line of battle, either to windward or to leeward.

They cautiously shun the openings, or intervals, of the line, where they would be directly exposed to the enemy's fire, from which they are covered by lying on the opposite side of their own ships. They are attentively to observe the signals of the admiral, or his seconds, in order to put their designs immediately in execution.

Although no ship of the line should be previously appointed to protect any fire-ship, except a few of the smallest particularly destined to this service, yet the ship before whom she passes in order to approach the enemy, should escort her thither, and assist her with an armed boat, or whatever succour may be necessary in her situation[30].

The captain of the fire-ship should himself be particularly attentive that the above instructions are punctually executed, and that the yards may be so braced, when he falls along-side of the ship intended

to be destroyed, that the sheer-hooks and grapplings fastened to the yardarms, &c. may effectually hook the enemy. He is expected to be the last person who quits the vessel, and being furnished with every necessary assistance and support, his reputation will greatly depend on the success of his enterprise.

FISH, a machine employed to hoist or draw up the flukes of the ship's anchor towards the top of the bow in order to stow it, after having been heaved up by the cable. It is composed of four parts, viz. the pendant, the block, the hook, and the tackle; which, together with their several uses, are described in the article DAVIT.

FISH, *jumelle*, is also a long piece of oak, convex on one side, and concave on the other. It is used to fasten upon the outside of the lower masts, either as an additional security, to strengthen them when it becomes necessary to carry an extraordinary pressure of sail, in pursuit of, or flight from, an enemy, or to reinforce them after they have received some damage in battle, tempestuous weather, &c.

The fishes are also employed for the same purpose on any yard, which happens to be sprung or fractured. Thus their form, application, and utility are exactly like those of the splinters applied to a broken limb in surgery.

FISH-GIG, *foesne*, an instrument used to strike fish at sea, particularly dolphins. It consists of a staff, three or four barbed prongs, and a line fastened to the end, on which the prongs are fixed: to the other end is fitted a piece of lead, which serves to give additional force to the stroke when the weapon flies, and to turn the points upward after the fish is penetrated.

FITTING-OUT, *equiper*, the act of providing a ship with a sufficient number of men, to navigate and arm

her for attack or defence: also to furnish her with proper masts, sails, yards, ammunition, artillery, cordage, anchors, and other naval furniture; together with sufficient provisions for the ship's company.

FLAG, *pavillon*, (*flag*, Dutch) a certain banner or standard, by which an admiral is distinguished at sea from the inferior ships of his squadron; also the colours by which one nation is distinguished from another.

In the British navy flags are either red, white, or blue, and are displayed from the top of the main-mast, fore-mast, or mizen-mast, according to the rank of the admiral.

The first flag in Great Britain is the royal standard, which is only to be hoisted when the king or queen are aboard the vessel: the second is that of the anchor of hope, which characterizes the lord high admiral, or lords commissioners of the admiralty: and the third is the union flag, in which the crosses of St. George and St. Andrew are blended. This last is appropriated to the admiral of the fleet, who is the first military officer under the lord high admiral.

When a flag is displayed from the flag-staff on the main-mast, the officer distinguished thereby, is known to be an admiral; when from the fore-mast, a vice-admiral; and when from the mizen-mast, a rear-admiral.

The next flag after the union is that of the white squadron, at the main-mast, and the last, which characterizes an admiral, is the blue, at the same mast-head.

For a vice-admiral, the first flag is the red; the second, the white; the third, the blue, at the flag-staff on the fore-mast.

The same order proceeds with regard to the rear-admirals, whose flags are hoisted on the top of the

mizen-mast: the lowest flag in our navy is accordingly the blue on the mizen-mast.

FLAG-OFFICER, a term synonimous to admiral.

FLAG-SHIP, the ship on which any flag is displayed.

FLAG-STAFF, *baton*, a pole erected at the head of a top-gallant-mast, or top-mast, whereon to hoist and display the flag or pendant.

FLAKE, *echafaud*, a sort of scaffold or platform, formed of hurdles and supported by stanchions, and used for drying cod-fish in Newfoundland. These flakes are usually placed near the shores of fishing-harbours.

FLAT, *plain*, a level ground lying at a small depth under the surface of the sea, and otherwise called a shoal or shallow.

To FLAT-IN, the action of drawing in the aftmost lower-corner, or clue of a sail towards the middle of the ship, to give the sail the greater power of turning the vessel. Thus if the mizen, or after-sails are flatted-in, it is evident that the intention is to carry the stern to leeward, and turn the head nearer to the direction of the wind: and if the head-sails are slatted-in, the intention is accordingly to make the ship *fall off*, when by design or accident she has come so near the wind as to make the sails shiver. Hence

FLAT-IN FORWARD, *traverse misaine*, is the order to draw in the fore-sheet, jib-sheet, and fore-stay-sail-sheet, towards the middle of the ship. This operation is seldom performed, except in light breezes of wind, when the helm has not sufficient government of the ship.

FLEET, *vaisseaux du roi*, (*flota*, Sax.) a general name given to his majesty's navy, or to any part thereof destined on a particular enterprise or

expedition: also a convoy or company of merchant ships, *flotte*, *conserve*, with or without ships of war to defend them.

The admirals of his majesty's fleet are classed into three squadrons, viz. the red, the white, and the blue. When any of these officers are invested with the command of a squadron or detachment of men of war, the particular ships are distinguished by the colours of their respective squadron: that is to say, the ships of the red squadron wear an ensign, whose union is displayed on a red field; the ensigns of the white squadron have a white field; and those of the blue squadron, a blue field; the union being common to all three. The ships of war therefore are occasionally annexed to any of the three squadrons, or shifted from one to another.

Of whatsoever number a fleet of ships of war is composed, it is usually divided into three squadrons; and these, if numerous, are again separated into divisions. The admiral, or principal officer, commands the centre; the vice-admiral, or second in command, superintends the van-guard; and the operations of the rear are directed by the rear-admiral, or the officer next in rank. See the article DIVISION.

The disposition of a fleet, while proceeding on a voyage, will in some measure depend on particular circumstances; as the difficulty of the navigation; the necessity of dispatch, according to the urgency or importance of the expedition; or the expectation of an enemy in the passage. The most convenient order is probably to range it into three lines or columns, each of which is parallel to a line close-hauled according to the tack, on which the line of battle is designed to be formed. This arrangement is more used than any, because it contains the advantages of

every other form, without their inconveniences. The fleet being thus more inclosed, will more readily observe the signals, and with greater facility form itself into the line of battle; a circumstance which should be kept in view in every order of sailing.

FLEETING, the act of changing the situation of a tackle, when the blocks are drawn together; or what is called *block and block* by sailors. The use of fleeting is accordingly to replace the mechanical powers into a state of action; the force by which they operated before being destroyed by the meeting of the blocks or pullies.

Fleeting therefore is nearly similar to the winding up of a watch or clock. See the article TACKLE.

FLOAT, a raft, or quantity of timber fastened together across, to be wafted along a river with the tide or current.

FLOATING, (*flotter*, Fr.) the state of being borne up, or wafted along with the tide on the surface of the water, the theory of which is explained in the article Trim.

FLOOR, the bottom of a ship; or all that part on each side of the keel, which approaches nearer to an horizontal, than a perpendicular situation, and whereon she rests when aground. Thus it is common to say, a sharp floor, a flat floor, a long floor, &c. Whence

FLOOR-TIMBERS, *varangues*, are those parts of the ship's timbers which are placed immediately across the keel, and upon which the bottom of the ship is framed: to these the upper parts of the *timbers* are united, being only a continuation of floor-timbers upwards. See *Naval* ARCHITECTURE.

FLOWING, the position of the *sheets*, or lower corners of the principal sails, when they are loosened to the wind, so as to receive it into their cavities in a

direction more nearly perpendicular than when they are *close-hauled*, although more obliquely than when the vessel is sailing before the wind.

A ship is therefore said to have a flowing sheet when the wind crosses the line of her course nearly at right angles: that is to say, a ship steering due north, with the wind at east, or directly on her side, will have a flowing sheet; whereas if the sheets were extended close aft, she would sail two points nearer the wind, viz. N. N. E. See the articles CLOSE-HAULED, LARGE, and TRIM.

FLY *of an ensign*, *battant*, the breadth or extent from the staff to the extremity or edge that flutters loose in the wind.

FLY-BOAT, or FLIGHT, a large flat-bottomed Dutch vessel, whose burthen is generally from four to six hundred tons. It is distinguished by a stern remarkably high, resembling a Gothic turret, and by very broad buttocks below.

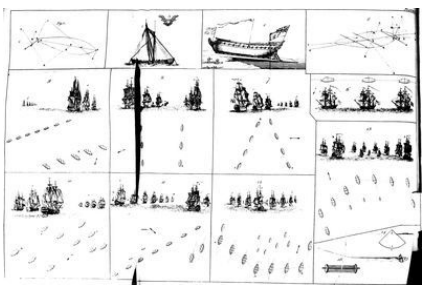


Plate. v.

FOOT *of a sail*, *fond de voile*, lower edge or bottom.

FOOT-ROPE, the rope to which the foot of a sail is sewed. See BOLT-ROPE.

FOOT-ROPES are also the same with horses of the yards. See that article.

FOOT-WALEING, the whole inside planks or lining of a ship, used to prevent any part of the ballast or cargo from falling between the floor-timbers. See MIDSHIP-FRAME.

FORE, the distinguishing character of all that part of a ship's frame and machinery which lies near the stem.

FORE AND AFT, throughout the ship's whole length, or from end to end.

FORE BOWLINE, the bowline of the fore-sail. See BOWLINE.

FORE-CASTLE, *gaillard d'avant*, a short deck placed in the fore part of the ship, above the upper deck. It is usually terminated, both before and behind, by a breast-work in vessels of war; the foremost end forming the top of the *beak-head*, and the hind part reaching to the after part of the fore-chains.

FORE-CAT-HARPINGS, a complication of ropes used to brace in the upper part of the fore-shrouds. See CAT-HARPINGS.

FORE-FOOT, *brion*, a piece of timber which terminates the keel at the fore end. It is connected by a scarf to the extremity of the keel, of which it makes a part: and the other end of it, which is incurvated upwards into a sort of knee or crotch, is attached to the lower end of the stem, of which it also makes a part, being also called the *gripe*.

As the lower arm of the fore-foot lies on the same level with the keel, so the upper one coincides with the middle line of the stem: its breadth and thickness therefore correspond to the dimensions of those pieces, and the heel of the cut-water is scarfed to its upper end.

The form of this piece, and its disposition and connexion with the adjacent pieces, appears by the letter *i*, in plate I. PIECES OF THE HULL.

FORE-HOOKS, the same with breast-hooks, which see.

FORELAND, a cape or promontory projecting into the sea; as the North or South Forelands.

FORE-LOCK, *clavette*, a little flat-pointed wedge of iron, used to drive through a hole in the end of a bolt, to retain it firmly in its place.

FORE-JEARS.		JEARS.
FORE-MAST.		MAST.
FORE-SAIL.		SAIL.
FORE-SHROUDS.		SHROUDS.
FORE-STAY.		STAY.
FORE-TOP.	See	TOP.
FORE-TOP-MAST.		TOP-MAST.
FORE-TOP-GALLANT-MAST.		TOP-GALLANT-MAST.
FORE-TYE.		TYE.
FORE-YARD, &c.		YARD, &C.

N B. By referring to the articles *Top-mast* and *Top-gallant-mast*, we mean to comprehend all the apparatus thereto belonging, as their yards, sails, &c.

FORE-REACHING UPON, the act of advancing before, or gaining ground of, some other ship or ships in company.

FORGING OVER, the act of forcing a ship violently over a shoal, by the effort of a great quantity of sail.

FORMING *the Line*. See the article LINE.

FORWARD, *avant*, towards the fore part of the ship. See AFORE.

FOTHERING, a peculiar method of endeavouring to stop a leak in the bottom of a ship while she is afloat, either under sail or at anchor. It is usually performed in the following manner: a basket is filled

with ashes, cinders, and chopped rope-yarns, *bonette lardeé*, and loosely covered with a piece of canvas; to this is fastened a long pole, by which it is plunged repeatedly in the water, as close as possible to the place where the leak is conjectured to lie. The oakum, or chopped rope-yarns, being thus gradually shaken through the twigs, or over the top of the basket, are frequently sucked into the hole along with the water, so that the leak becomes immediately choaked, and the future entrance of the water is thereby prevented.

FOUL, *empecheé*, as a sea-term, is generally used in opposition to clear, and implies intangled, embarrassed, or contrary, in the following senses:

A ship ran foul of us in the river, *i. e.* entangled herself amongst our rigging.

FOUL, when expressed of a ship's bottom, denotes that it is very dirty; as being covered with grass, sea-weeds, shells, or other filth which gathers to it during the course of a long voyage. When understood of the ground or bottom of a road, bay, sea-coast, or harbour, *mal sain*, it signifies rocky, or abounding with shallows, or otherwise dangerous.

When spoken of the hawse, it means that the cables are turned round each other, by the winding or turning about of the ship while she rides at anchor. See ELBOW and HAWSE.

FOUL, when applied to the wind, is used to express that it is unfavourable, or contrary to the ship's course, as opposed to *large* or *fair*.

To FOUNDER, *sancir*, to sink at sea, as being rendered, by the violence and continuation of a storm, and the excess of the leaks, unable to keep the ship afloat above the water.

FOX, a sort of *strand*, formed by twisting several rope-yarns together, and used as a *seizing*, or to

weave a *mat* or *paunch*, &c.

FRAME. See TIMBER.

FRAPPING, the act of crossing and drawing together the several parts of a tackle, or other complication of ropes, which had already been straitened to their utmost extent: in this sense it exactly resembles the operation of bracing up a drum, &c. The frapping always increases the tension, and of course adds to the security acquired by the purchase. Hence the cat-harpings are no other than frappings to the shrouds.

FRAPPING *a ship*, *ceintrer*, the act of passing three, four, or five turns of a cable round the hull, or frame of a ship, in the middle, to support her in a great storm, when it is apprehended that she is not strong enough to resist the violent efforts of the sea. This expedient however is rarely put in practice, unless in very old ships, which their owners are willing to venture to sea as long as possible, by ensuring them deeply.

FREEING, *affranchir*, the act of pumping, or otherwise throwing out the water which has leaked into a ship's bottom at sea, &c.

FREEZING, a sort of ornamental painting on the upper part of a ship's *quarter*, *stern*, or *bow*. It consists generally of armour, instruments of war, marine emblems, &c.

FREIGHT, or *fraight of a ship* (*affretement*) the hire, or a part thereof, usually paid for the carriage and conveyance of goods; or the sum agreed, upon between the owner and the merchant for the hire and use of a vessel.

FREIGHT also implies the lading or cargo which she has aboard.

FRESH, when applied to the wind, generally signifies strong, but not violent or dangerous: hence

when the gale increases, it is said to freshen.

To FRESHEN *the hawse*, *refraichir*, to relieve that part of the cable which for some time has been exposed to the friction in one of the *hawse-holes*, produced by the rocking and pitching of a ship as she rides at anchor in a high sea.

When a ship remains in such a situation, it is always necessary to wrap some old canvas, mat, leather, or such like material, round that part of the cable which rubs against the *stem*, &c. The matter used for this purpose is called *service*: but as the violent agitation of the ship, produced by the tempest, or sea, as she rides in an open road, must communicate a great friction to the cable, the service will consequently be soon worn through: it is necessary therefore to have it frequently renewed by a fresh application of the like materials, behind the former, for the preservation of the cable, on which every thing depends; and this renewal of service is called *freshening the hawse*, a circumstance which cannot be too vigilantly observed.

FRESHES, *souberme*, imply the impetuosity of an ebb-tide, increased by heavy rains, and flowing out into the sea, which it often discolours to a considerable distance from the shore; inasmuch as the line, which divides the two colours, may be perceived distinctly for a great length along the coast.

FRIGATE, (*fregate*, Fr.) in the navy, a light nimble ship built for the purposes of sailing swiftly. These vessels mount from twenty to thirty-eight guns, and are esteemed excellent cruizers.

FRIGATE-BUILT, *fregaté*, implies the disposition of the decks of such merchant ships as have a descent of four or five steps from the *quarter-deck* and *fore-castle* into the *waist*, in contra-distinction to those

whose decks are on a continued line for the whole length of the ship, which are called *galley-built*. See the article FLUSH.

Formerly the name of frigate was only known in the Mediterranean, and applied to a kind of long vessel, navigated in that sea with sails and oars. The English were the first who appeared on the ocean with those ships, and equipped them for war as well as commerce.

FULL AND BY, *pres & plein*, the situation of a ship with regard to the wind, when she is close-hauled, and sailing in such a manner as neither to steer too nigh the direction of the wind, nor to deviate to leeward; both of which movements are unfavourable to her course, as in the former her sails will shiver, and render the effort of the wind precarious and ineffectual; and in the latter she will advance in a direction widely distant from her real course. Hence, keep her full! *defie du vent!* is the order from the pilot or other officer to the helmsman, not to incline too much to windward, and thereby shake the sails so as to retard the course.

FURLING, (*ferler*, Fr.) the operation of wrapping or rolling a sail close up to the *yard*, *stay*, or *mast* to which it belongs, and winding a gasket or cord about it to fasten it thereto. And hence

FURLING-LINE denotes a cord employed in this office: those which are used for the larger sails are generally flat, and are known by the name of *gaskets*.

FUTTOCKS, the middle division of a ship's timbers; or those parts which are situated between the *floor* and the top-timbers. See this fully explained in the article TIMBER.

As the epithet *hooked* is frequently applied in common language to any thing bent or incurvated, and particularly to several crooked timbers in a ship,

as the *breast-hooks*, *fore-hooks*, *after-hooks*, &c. this term is evidently derived from the lowest part or *foot* of the timber, and from the shape of the piece. Hence

FUTTOCK-SHROUDS, or rather FOOT-HOOK SHROUDS. See the article SHROUDS.

G.

GAFF, a sort of boom or pole, frequently used in small ships, to extend the upper edge of the mizen; and always employed for the same purpose on those sails whose foremost edges are joined to the mast by hoops or lacings, and which are usually extended by a *boom* below. Such are the main-sails of all sloops, brigs, and schooners.

The foremost, or inner extremity of the gaff, is furnished with two cheeks forming a semi-circle, which incloses the after-part of the mast so as to confine the gaff close to its respective mast whilst the sail is hoisting or lowering. It is further secured in this situation by a rope passing from one of the cheeks to the other on the fore side of the mast; and to prevent the friction of this rope upon the mast, by hoisting or lowering, several little wooden balls, called *trucks*, are hung upon it, in the same manner as the holy beads are hung upon a catholic's rosary.

GAGE. See WEATHER-GAGE.

To GAIN *the wind*, in navigation, *gagner au vent*, to arrive on the weather-side, or to windward of, some other vessel in sight, when both are plying to windward, or sailing as near the wind as possible.

GALE *of wind*, a phrase used by sailors to express a storm or tempest. It is more particularly termed a hard gale, or strong gale.

GALEON, a name formerly given to ships of war, furnished with three or four batteries of cannon. It is now retained only by the Spaniards, and applied to the largest size of their merchant ships, employed on West-Indian voyages, and usually furnished with four decks. They likewise bestow the same name on those vessels, whether great or small, which proceed annually to La Vera Cruz. The Portugueze also have several ships which they send to India and the Brazils, nearly resembling the galeons, and by them called *caragues*.

GALLED, *raqué*, the state of a mast, yard, cable, or other rope, when it is deprived of the surface, and chafed by friction. To preserve those articles from being damaged by this effect, it is therefore usual to cover them with skins, mats, canvas, or such materials, in the places where they are the most exposed to it by the rocking of the vessel. See the article SERVICE.

GALLERY, a balcony projecting from the *stern* or *quarter* of a ship of war, or large merchantman. In the former, the stern-gallery is usually decorated with a ballustrade, extending from one side of the ship to the other; the fore-part is limited by a partition called the skreen-bulk head, in which are framed the cabin windows; and the roof of it is formed by a sort of vault, termed the *cove*, which is frequently ornamented with sculpture. See STERN.

The quarter gallery of a ship of 74 guns is represented at large, in the plate referred to from the article QUARTER.

GALLEY, *galere*, a kind of low flat-built vessel, furnished with one deck, and navigated with sails

and oars, particularly in the Mediterranean.

The largest sort of these vessels, *galeasse*, is employed only by the Venetians. They are commonly 162 feet long above, and 133 feet by the keel; 32 feet wide, with 23 feet length of stern-post. They are furnished with three masts, and thirty-two banks of oars; every bank containing two oars, and every oar being managed by six or seven slaves, who are usually chained thereto. In the fore-part they have three little batteries of cannon, of which the lowest is of two 36 pounders, the second of two 24 pounders, and the uppermost of two 2 pounders: three 18 pounders are also planted on each quarter. The compliment of men for one of these galleys is generally 1000 or 1200. They are esteemed extremely convenient for bombarding or making a descent upon an enemy's coast, as drawing but little water; and having by their oars frequently the advantage of a ship of war, in light winds or calms, by cannonading the latter near the surface of the water; by scouring her whole length with their shot, and at the same time keeping on her quarter or bow, so as to be out of the direction of her cannon.

The gallies next in size to these, which are also called half-gallies, are from 120 to 130 feet long, 18 feet broad, and 9 or 10 feet deep. They have two masts, which may be struck at pleasure, and are furnished with two large lateen sails, and five pieces of cannon. They have commonly 25 banks of oars, as described above. A size still less than these are called quarter-gallies, carrying from twelve to sixteen banks of oars. There are very few gallies now besides those in the Mediterranean, which are found by experience to be of little utility, except in fine weather; a circumstance which renders their service extremely precarious. They generally keep close under the

shore, but sometimes venture out to sea to perform a summer cruise. See the articles QUARTER and VESSEL.

GAMMONING, *lieure*, a rope used to bind the inner quarter of the bowsprit close down to the ship's stem, in order to enable it the better to support the stays of the fore-mast, and carry sail in the fore part of the vessel. Seven or eight turns of this rope, fig. 7. plate IV. are passed over the bowsprit A, and through a large hole in the stem or knee of the head Y alternately: after all the turns are drawn as firm as possible, the opposite ones are braced together under the bowsprit by a *frapping*, as exhibited in the same figure.

GANG, a select number of a ship's crew appointed on any particular service, and commanded by an officer suitable to the occasion.

GANG-BOARD, *planche*, a board or plank with several cleats or steps nailed upon it for the convenience of walking into, or out of, a boat upon the shore, where the water is not deep enough to float the boat close to the landing-place.

GANGWAY, *passe-avant*, a narrow platform, or range of planks, laid horizontally along the upper part of a ship's side, from the quarter-deck to the forecastle, for the convenience of walking more expeditiously, *fore and aft*, than by descending into the waist. This platform is therefore peculiar to ships which are *deep-waisted*. It is fenced on the outside by several small iron pillars, and a rope extended from one to the other; and sometimes by a netting, to prevent any one from falling off into the sea when the ship is in motion. This is frequently called the gang-board in merchant vessels.

GANGWAY, *echelle*, is also that part of a ship's side, both within and without, by which the passengers

enter and depart. It is for this purpose provided with a sufficient number of steps, or *cleats*, nailed upon the ship's side, nearly as low as the surface of the water; and sometimes furnished with a railed accommodation-ladder, whose lower end projects from the ship's side, being secured in this position by iron braces, so as to render the ascent and descent extremely convenient.

GANGWAY, *accoursie*, is likewise used to signify a passage left in the hold, when a ship is laden, in order to arrive at any particular place therein, occasionally; as to examine the situation of the provisions or cargo; to discover and stop a leak; or to bring out any article required for service; &c. Finally, a gangway implies a thoroughfare, or narrow passage of any kind.

GARLAND, a sort of net, whose opening is extended by a wooden hoop of sufficient size to admit a bowl or platter within it. It is accordingly used by the sailors as a locker or cupboard to contain their provisions, being hung up to the deck within the *birth*, where they commonly mess between-decks.

Shot-GARLAND, *epitie*, a piece of timber nailed horizontally along the ship's side from one gun-port to another, and used to contain the round-shot ready for charging the great guns in battle. For this purpose it is furnished with several semi-globular cavities, corresponding to the size of the cannon-balls which it is employed to contain.

GARNET, *garant*, a sort of tackle fixed to the main-stay of a merchant ship, and used to hoist in and out the goods of which the cargo is composed.

GARNET is also a small tackle fastened to the clues or lower corners of the main-sail or fore-sail, for the purpose of trussing up those sails, as occasion requires; and hence it is called CLUE-GARNET, which

see.

GARBOARD-STREAK, *gabord*, in ship-building, the first range or *streak* of planks laid upon a ship's bottom next to the keel, throughout the whole length of the floor. The edge of this plank is let into a groove or channel in the side of the keel, which is called the rabbit of the garboard-streak.

GASKET, *garcet*, a sort of platted cord fastened to the sail-yards of a ship, and used to *furl* or tie up the sail firmly to the yard. This is performed by wrapping the gasket round the yard and sail six or seven times, the turns being at a competent distance from each other.

GAUNTLOPE, pronounced gauntlet, a race which a criminal is sentenced to run in a vessel of war, as a punishment for felony, or some other heinous offence.

It is executed in the following manner: the whole ship's crew is disposed in two rows, standing face to face on both sides of the deck, so as to form a lane, whereby to go *forward* on one side, and return *aft* on the other; each person being furnished with a small twisted cord, called a knittle, having two or three knots upon it. The delinquent is then stripped naked above the waist, and ordered to pass forward between the two rows of men, and aft on the other side, a certain number of times, rarely exceeding three; during which every person gives him a stripe as he runs along. In his passage through this painful ordeal he is sometimes tripped up, and very severely handled while incapable of proceeding. This punishment, which is called *running the gauntlet*, *courir la bouline*, is seldom inflicted except for such crimes as will naturally excite a general antipathy amongst the seamen; as on some occasions the culprit would pass without receiving a single blow,

particularly in cases of mutiny or sedition, to the punishment of which, our common sailors seem to have a constitutional aversion.

GEARS. See JEARS.

GIMBALS, *balanciers*, the brass rings by which a sea-compass is suspended in its box that usually stands in the binacle. See the article BINACLE.

GIMBLETING, a term particularly applied to the anchor, to denote the action of turning it round by the stock, so that the motion of the stock appears similar to that of the handle of a gimblet, when it is employed to turn the wire.

GIRT, the situation of a ship which is moored so strait by her cables, extending from the *hause* to two distant anchors, as to be prevented from swinging or turning about, according to any change of the wind or tide, to the current of which her head would otherwise be directed.

The cables are extended in this manner, by a strong application of mechanical powers within the ship; so that as she veers, or endeavours to swing about, her side bears upon one of the cables, which catches on her heel, and interrupts her in the act of traversing. In this position she must ride with her broadside or stern to the wind or current, till one or both of the cables are slackened so as to sink under the keel; after which the ship will readily yield to the effort of the wind or current, and turn her head thither. See the article RIDING.

GIRT-LINE, *cartahu*, a rope passing through a single block, on the head of the lower masts, to hoist up the rigging thereof; as also the persons employed to place the rigging and cross-trees upon the mast-heads. The girt-line is therefore the first rope employed to rig a ship, and by means of this all the rest are drawn up and fixed; after which it is

removed till the ship is to be unrigged.

GONDOLA, a sort of *barge*, curiously ornamented, and navigated on the canals of Venice; also a passage-boat of six or eight oars, in other parts of the coast of Italy.

GOOGINGS, *femelles*, certain clamps of iron bolted on the stern-post of a ship, whereon to hang the rudder, and keep it steddy; for which purpose there is a hole in each of them, to receive a correspondent spindle bolted on the back of the rudder, which turns thereby as upon hinges. There are generally four, five, or six googings on a ship's stern-post and rudder, according to her size, and upon these the rudder is supported, and traverses from side to side as upon an axis. See HELM.

GOOSE-NECK, a sort of iron hook fitted on the inner end of a boom, and introduced into a clamp of iron, or eye-bolt, which encircles the mast, or is fitted to some other place in the ship, so that it may be unhooked at pleasure. See BOOM.

GOOSE-WINGS *of a sail*, the clues or lower corners of a ship's main-sail, or fore-sail, when the middle part is furled or tied up to the yard.

The goose-wings are only used in a great storm to scud before the wind, when the sail at large, or even diminished by a *reef*, would be too great a pressure on the ship, in that situation.

GORING, *langue*, that part of the skirts of a sail, where it gradually widens from the upper part or head, towards the bottom: the goring-cloths are therefore those, which are cut obliquely, and added to the breadth. See Sail.

GRAPPLING, (*grapin*, Fr.) a sort of small anchor, fitted with four or five flukes or claws, plate IV. fig. 5. and commonly used to ride a boat or other small vessel.

Fire-GRAPPLING, *grapin d'abordage*, an instrument nearly resembling the former, but differing in the construction of its flukes, which are furnished with strong barbs on their points, fig. 4. plate IV. These machines are usually fixed on the yard-arms of a ship, in order to grapple any adversary whom she intends to board. They are however more particularly useful in *fire-ships*, for the purposes described in that article.

GRATINGS, *caillebotis*, a sort of open covers for the hatches, formed by several small laths or battens of wood, which cross each other at right angles, leaving a square interval between. They are formed to admit the air and light from above into the lower apartments of the ship, particularly when the turbulence of the sea or weather renders it necessary to shut the ports between decks; and also to let the smoke escape from the lower decks in the time of battle.

GRAVING, *oeuvres de marée*, the act of cleaning a ship's bottom when she is laid aground during the recess of the tide. See the article BREAMING, where this operation is particularly explained.

GRIPES, *haubans de chaloupe*, a machine formed by an assemblage of ropes, hooks, and *dead-eyes*, and used to secure the boats upon the deck of a ship at sea, and prevent them from being shaken by the labouring of the vessel. The hooks, which are fastened at their ends, are fixed in ring-bolts in the deck on each side of the boat; whence, passing over her middle and extremities, they are extended by means of the dead-eyes, so as to render the boats as firm and secure as possible.

GRIPING, *ardent*, the inclination of a ship to run to windward of her course, particularly when she sails with the wind on her beam or quarter. This effect is

partly occasioned by the shock of the waves that strike the ship perpetually on the weather-quarter, and force the stern to leeward; but chiefly by the arrangement of the sails, which disposes the ship continually to edge to windward, while in this situation of sailing.

GROMMET, *daillot*, a sort of small wreath, formed of a *strand* of rope, and used to fasten the upper edge of a stay-sail to its respective stay, in different places. By means of the grommets, the sail is accordingly hoisted or lowered, *i. e.* drawn up or down upon its stay, in the same manner as a curtain is extended or drawn along upon its rod, by the assistance of rings. See also the article HANK.

GROUNDING, the act of laying a ship ashore, in order to bream or repair her. It is also applied to running aground accidentally when under sail, or driving in a tempest.

GROUND-TACKLE, *amarrages*, a general name given to all sorts of ropes and furniture which belong to the anchors, or which are employed in mooring, or otherwise securing a ship in a road or harbour; as cables, hausers, tow-lines, warps, and buoy-ropes.

GROWING, implies the direction of the cable from the ship towards the anchors; as, the cable grows on the starboard-bow, *i. e.* stretches out forwards on the starboard, or right side.

GUARD-BOAT, a boat appointed to row the rounds amongst the ships of war which are laid up in any harbour, &c. to observe that their officers keep a good look-out, calling to the guard-boat as she passes, and not suffering her crew to come aboard, without having previously communicated: the watch-word of the night.

GUARD-IRONS, certain curved or arched bars of iron placed over the ornamental figures, on a ship's

head or quarter, to defend them from the impression of some other ship when they lie close to, or rub against each other.

GUARD-SHIP, a vessel of war appointed to superintend the marine affairs in a harbour or river, and to see that the ships, which are not commissioned, have their proper watch kept duly, by sending her guard-boats around them every night: she is also to receive seamen who are impressed in the time of war.

GULF, *golfe*, (*golfo*, Ital.) a broad and capacious bay, comprehended between two promontories, and sometimes taking the name of a sea, when it is very extensive, but particularly when it only communicates with the sea by means of a streight: such are the Euxine, or Black Sea, otherwise called the gulf of Constantinople; the Adriatic Sea, called also the gulf of Venice; the gulf of Sidra near Barbary, and the gulf of Lions near France: all these gulfs are in the Mediterranean: there are besides the gulf of Mexico, the gulf of St. Lawrence, and the gulf of Calliphornia, which are in North America. There are also the gulf of Persia, otherwise called the Red Sea, between Persia and Arabia; the gulf of Bengal in India, and the gulfs of Cochinchina and Kamtschatca, near the countries of the same name.

GUNNEL, or GUN-WALE, *plat-bord*, the upper edge of a ship's side.

GUNNER *of a ship of war*, an officer appointed to take charge of the artillery and ammunition aboard; to observe that the former are always kept in order, and properly fitted with tackles and other furniture, and to teach the sailors the exercise of the cannon. See EXERCISE.

GUN-ROOM, an apartment on the after end of the lower, or gun-deck, of a ship of war; generally

destined for the use of the gunner in large ships, but in small ones, it is used by the lieutenants as a dining-room, &c.

GUST, *dragon de vent*, a sudden and violent squall of wind, bursting from the hills upon the sea, so as to endanger the shipping near the shore. These are peculiar to some coasts, as those of South Barbary and Guinea.

GUTTER-LEDGE, *traversier d'ecoutille*, a cross-bar laid along the middle of a large hatchway in some vessels, to support the covers, and enable them the better to sustain any weighty body which may be moved or laid thereon.

GUY, a rope used to steddy any weighty body whilst it is hoisting or lowering, particularly when the ship is shaken by a tempestuous sea.

GUY is likewise a large slack rope, extending from the head of the main-mast to the head of the fore-mast, and having two or three large blocks fastened to the middle of it. This is chiefly employed to sustain the tackle used to hoist in and out the cargo of a merchant ship, and is accordingly removed from the mast-heads as soon as the vessel is laden or delivered.

GYBING, the act of shifting any boom-sail from one side of the mast to the other.

In order to understand this operation more clearly, it is necessary to remark, that by a boom-sail is meant any sail whose bottom is extended by a *boom*, the fore-end of which is hooked to its respective mast, so as to swing occasionally on either side of the vessel, describing an arch, of which the mast will be the center. As the wind or the course changes, it also becomes frequently necessary to change the position of the boom, together with its sail, which is accordingly shifted to the other side of the vessel as a

door turns upon its hinges. The boom is pushed out by the effort of the wind upon the sail, and is restrained in a proper situation by a strong *tackle* communicating with the vessel's stern, and called the *sheet*. It is also confined on the fore-part by another tackle, called the *guy*. See the preceding article.

H.

HAGS TEETH, or HAKES TEETH, those parts of a *matting, pointing,* &c. which are interwoven with the rest, in an erroneous and irregular manner, so as to appear aukward in the general uniformity of the work. See POINTING, &c.

HAILING, the salutation or accosting of a ship at a distance, either at sea or in a harbour. The usual expression is, Hoa, the ship ahoay! To which she answers, Holloa! Whence came ye? Where are ye bound? Good voyage! What cheer? All well! How fare ye? &c.

HALIARDS, *drisse*, the ropes or tackles usually employed to hoist or lower any sail upon its respective masts or stay. See also JEARS.

HAMMOC, *branle*, a piece of canvas, six feet long and three feet wide, gathered or drawn together at the two ends, and hung horizontally under the deck, lengthways, for the sailors to sleep therein. There are usually from fourteen to twenty inches in breadth allowed between decks for every hammoc in a ship of war: this space however must in some measure depend on the number of the crew, &c. in proportion

to the room of the vessel.

In the time of battle the hammocs, together with their bedding, are all firmly corded, and fixed in the nettings on the quarter-deck, or where-ever the men are too much exposed to the view, or fire of the enemy. See the article ENGAGEMENT.

HANDING *the sails*, the same operation with furling them, which see.

HAND-OVER-HAND! *main avant!* the order to the men, who pull upon any rope, to pass their hands alternately one before the other, or one above the other, if they are hoisting, in order to hasten the service.

A sailor is said to go aloft, hand-over-hand, when he ascends into the tops, &c. by a single rope, as a shroud or back-stay, without the help of the *rattlings*, by the dexterity of throwing one hand above the other, and lifting his weight along with it.

HANDSPEC, *anspec*, a wooden bar used as a lever to heave about the windlass, in order to draw up the anchor from the bottom, particularly in merchant ships: for this purpose the handle or small end is round and tapering; and the other end is square, in order to conform to the shape of the holes in the windlass. It is also employed as a lever on many other occasions, as stowing the anchors, or provisions, or cargo, in the ship's hold.

Gunner's HANDSPEC, *renard*, an handspec shorter and flatter than the above, and armed with two claws, for the purpose of managing the artillery in battle, &c.

HANK FOR HANK, a phrase expressed of two ships which *tack* and make a progress to windward together. The Dolphin and Cerberus turned up the river *hank for hank*, without being able to get to windward of each other.

HANKS, *daillots*, certain wooden rings fixed upon the stays of a ship, whereby to confine the stay-sails thereto at different heights. They are used in the place of *grommets*, being a later invention and much more convenient; because, being framed by the bending of a tough piece of wood into the form of a wreath, and fastened at the two ends by means of notches, they retain their circular figure and elasticity; whereas the grommets, which are formed of rope, are apt to relax in warm weather and adhere to the stays, so as to prevent the sails from being readily hoisted or lowered.

HARBOUR, *havre*, a general name given to any sea-port or haven; as also to any place convenient for mooring shipping, although at a great distance from the sea. The qualities requisite in a good harbour are, that the bottom be entirely free from rocks or shallows; that the opening be of sufficient extent to admit the entrance or departure of large ships, without difficulty; that it should have good anchoring-ground, and be easy of access; that it should be well defended from the violence of the wind and sea; that it should have room and convenience to receive the shipping of different nations, and those which are laden with different merchandizes; that it be furnished with a good light-house, and have variety of proper rings, posts, moorings, &c. in order to remove or secure the vessels contained therein: and finally, that it have plenty of wood, and other materials for firing, besides hemp, iron, mariners, &c.

HARD-A-LEE, *barre à bord*, *sous le vent*, the situation of the helm when it is pushed close to the *lee* side of the ship, either to *tack* or keep her head to the wind, when lying by or *trying*: also the order to put the helm in this position.

HARD-A-WEATHER, *arrive tout*, the order to put the helm close to the weather or windward side of the ship, in order to bear away. It is likewise the position of the helm, in consequence of that order; being in both senses opposed to *hard-a-lee*.

HARPINGS, the fore-parts of the wales which encompass the bow of a ship, and are fastened to the stem, being thicker than the after part of the wales, in order to reinforce the ship in this place, where she sustains the greatest shock of resistance in plunging into the sea, or dividing it, under a great pressure of sail.

Cat-HARPINGS. See CAT-HARPINGS.

HARPOON, (*harpon*, Fr.) a spear or javelin used to strike the whales in the Greenland fishery.

The harpoon, which is sometimes called the harping-iron, is furnished with a long staff, having at one end a broad and flat triangular head, sharpened at both edges, so as to penetrate the whale with facility: to the head of this weapon is fastened a long cord, called the whale-line, which lies carefully *coiled* in the boat, in such a manner, as to run out without being interrupted or intangled. As soon as the boat has rowed within a competent distance of the whale, the harponeer launches his instrument; and the fish, being wounded, immediately descends under the ice with amazing rapidity, carrying the harpoon along with him, and a considerable length of the line. Being soon exhausted with the fatigue and loss of blood, he re-ascends in order to breathe, where he presently expires, and floats upon the surface of the water, when they approach the carcase by drawing in the whale-line.

HATCH, or HATCHWAY, *ecoutille*, a square or oblong opening in the deck of a ship, of which there are several, forming the passages from one deck to

another, and into the *hold*, or lower apartments. See the DECK, plate III. where A represents the main-hatchway of the lower deck; N N, the fore-hatchway; and O O, the after-hatchway.

There are likewise hatches of a smaller kind, called scuttles. See U U in the same figure, as also the article SCUTTLE.

HATCHES is also, although improperly, a name applied by sailors to the covers or lids of the hatchways.

To HAUL, *haler*, an expression peculiar to seamen, implying to pull a single rope, without the assistance of blocks, or other mechanical powers: when a rope is otherwise pulled, as by the application of tackles, or the connection with blocks, &c. the term is changed into *bowsing*. See also the articles BOWSE, HOIST, and ROWSING.

To HAUL *the wind*, *venir an vent*, to direct the ship's course nearer to that point of the compass from which the wind arises. Thus supposing a ship sailing south-west, with the wind northerly, and some particular occasion renders it necessary to haul the wind farther to the westward; to perform this operation it is necessary to arrange the sails more obliquely with her keel; to brace the yards more forward, by slackening the starboard, and pulling in the larboard braces, and to haul the lower *sheets* farther aft: and finally, to put the helm a-port, *i. e.* over to the larboard side of the vessel. As soon as her head has turned directly to the westward, and her sails are trimmed accordingly, she is laid to have hauled the wind four points, that is to say, from S. W. to W. She may still go two points nearer to the direction of the wind, by disposing her sails according to their greatest obliquity; or, in the sea-phrase, by *trimming all sharp*: and in this situation she

is said to be close-hauled, as sailing W. N. W. See the articles CLOSE-HAULED and SAILING.

HAUSE, or HAWSE, is generally understood to imply the situation of the cables before the ship's stem, when she is moored with two anchors out from forward, viz. one on the starboard, and the other on the larboard *bow*. Hence it is usual to say, She has a clear hause, or a foul hause. It also denotes any small distance *a-head* of a ship, or between her head and the anchors employed to ride her; as, "He has anchored in our hause;" the "brig fell athwart our hause," &c.

A ship is said to ride with a clear hause, when the cables are directed to their anchors, without lying athwart the stem; or crossing, or being twisted round each other, by the ships winding about, according to the change of the wind, tide, or current.

A foul hause, on the contrary, implies that the cables lie across the stem, or bear upon each other, so as to be rubbed and chafed by the motion of the vessel.

The hause accordingly is foul, by having either a cross, an elbow, or a round turn. If the larboard cable, lying across the stem, points out on the starboard side, while the starboard cable at the same time grows out on the larboard side, there is a cross in the hause. If, after this, the ship, without returning to her former position, continues to wind about the same way, so as to perform an entire revolution, each of the cables will be twisted round the other, and then directed out from the opposite bow, forming what is called a round turn. An elbow is produced when the ship stops in the middle of that revolution, after having had a cross: or, in other words, if she rides with her head northward with a clear hause, and afterwards turns quite round so as

to direct her head northward again, she will have an elbow. See the articles ELBOW and RIDING.

HAUSE-HOLES, *ecubiers*, certain cylindrical holes cut through the bows of a ship on each side of the item, through which the cables pass in order to be drawn into, or let out of the vessel, as occasion requires. They are represented by *d d* in fig. 10. plate IV. being fortified on each side by the

HAUSE-PIECES, a name given to the foremost timbers of a ship, whose lower ends rest upon the knuckle-timber, or the foremost of the cant-timbers. They are generally parallel to the stem, having their upper ends sometimes terminated by the lower part of the beak-head, and otherwise, by the top of the bow, particularly in small ships and merchantmen.

HEAD, an ornamental figure erected on the continuation of a ship's stem, as being expressive of her name, and emblematical of war, navigation, commerce, &c.

The heads which have any affinity to war or navigation, are in general either historical, as referring to some of the deities or heroes of antiquity; or allegorical, as alluding to some of the natural consequences of battle, or the virtues most essential to a life exposed to perpetual danger. Thus, in the former sense, they represent a Neptune, an Alcides; a Mars, an Achilles; a Minerva, or a Jason; and in the latter they produce a *Magnanime*, an Intrepid, a Revenge, or a Victory.

The head of a ship however has not always an immediate relation to her name, at least in the British navy. Various instances might be produced to shew, that our artists, as it suits their conveniency or judgment, can dispense with this supposed idea of propriety. Hence we sometimes observe the place of a Jason supplied by a Medea; or a best of prey made

the representative of an illustrious lady. The same liberty of design may therefore, with equal propriety, be allowed to symbolize the successes of our arms, by a groupe of heterogeneous figures, of sundry shapes and sizes, according to the artists opinion of their superiority or subordination. Their attitude and situation, as well as their size, must accordingly depend, in a great measure, on the space into which they are to be crowded: for although the figures may be of equal importance in themselves, yet as there is not room for them all, as large as the life, on a ship's head, it becomes expedient to diminish a few, in order to give place to others. The emblems by which allegorical figures are usually characterized in painting, poetry, and sculpture, are not always thought necessary in a work of this kind, nor even the postures in which these figures are exhibited. And indeed, if we reflect with how much labour and application the workman has endeavoured to fill up every vacancy with some little figure of a convenient form and size, we ought rather to admire his ingenuity than censure him for a violation of those general rules of art, by which it is supposed necessary, on such occasions, to relieve the eye from a scene of perplexity and confusion.

The heads of many of our ships of war have undoubtedly great beauty and propriety; and candour must acknowledge that some of the most elegant and judicious have been borrowed from the French designs, which are never left to the invention of illiterate mechanics. A multitude of ornaments appears rather unnecessary in any building calculated for the purposes of war. If there be any general rule to determine the subjects, and the quantity of sculpture employed in ship-building, it seems to be connected with the ideas of dignity and

simplicity. These too are the genuine characteristics of the Grecian and Roman orders of architecture, as opposed to that perplexity, and rage for embellishment, which peculiarly distinguish the Gothic. It is hardly possible for us to recollect the various disasters to which a single hero, or goddess, on the head of a ship, is exposed by tempestuous weather, battle, and the unexpected encounter of ships, without trembling for the havoc and indecency that may happen in an assemblage of gods and conc-shells, princesses and satyrs; heroes, blunder-buffes, sea-monsters, little children, globes and thunder-bolts, and all the apparatus necessary to constitute the head of a ship of the first class in our navy.

In plate IV. we have sketched four heads, which are calculated for vessels of different sizes and constructions. Fig. 6. exhibits an image of Hercules brandishing his club over the heads of Cerberus, calculated for a ship of the line. Fig. 7. represents Jupiter riding on his eagle, and armed with his thunders, being a suitable head for a capital ship. The eagle displayed by fig. 8. may serve for a frigate; and fig. 9. which expresses an incumbent dragon, is very proper for any small vessel with a projecting beak or prow. These figures have been selected from many others, because, being very rarely used to decorate the head of a ship, it is possible that several of our readers may never before have observed them. The two first, which are usually called image-heads, are bold, warlike, and classical. The eagle in the third is certainly a proper emblem of dignity, force, and velocity: and it is apprehended neither the representation of the latter, nor any other figure in that position, are to be met with amongst our shipping.

HEAD, *avant*, is also used, in a more enlarged

sense, to signify the whole front or fore part of the ship, including the bows on each side: the head therefore opens the column of water through which the ship passes when advancing. Hence we say, head-sails, head-sea, head-way, &c.

Thus fig. 10. plate IV. represents one side of the fore-part, or head of a seventy-four gun ship, together with part of the bow, keel, and gunnel. The names of the several pieces, exhibited therein, are as follow:

A A fore part of the keel, with *a a* the two false keels beneath it.

A C The stem.

a a The cat-head.

b b The supporter of the cat-head, *sous-barbe*.

c c The knight-head, or bollard-timber, of which there is one on each side, to secure the inner-end of the bowsprit.

d d The hause-holes.

e e The navel-hoods, *i. e.* thick pieces of plank laid upon the bow to strengthen the edges of the hause-holes.

f The davit-chock, by which the *davit* is firmly wedged while employed to fish the anchor.

g The bulk-head, which terminates the forecastle on the fore-side, being called the beak-head bulk-head by ship-wrights.

H The gun-ports of the lower deck.

h The gun-ports of the upper deck and forecastle.

I, I, The channels, with their dead-eyes and chain-plates.

i The gripe, or fore-foot, which unites the keel with the stem, forming a part of either.

k k These dotted lines represent the thickness and descent of the different decks from the fore-part of the ship towards the middle. The lowest of the three

dotted lines *l* expresses the convexity of the beams, the difference between the height of the deck in the middle of its breadth, and at the ship's side. This is also exhibited more clearly in the midship-frame, where the real curve of the beam is delineated.

N. B. These lines must be always parallel to the lines which terminate the gun-ports above and below.

m m The timbers of the head part of the bowsprit.

X The rails of the head which lie across the timbers.

Q Z Fore-part of the main-wale.

R X Fore-part of the channel-wale.

U C The load water-line.

See also the continuation of a ship throughout her whole length, upon a smaller scale, plate I. ELEVATION.

Fig. 11. represents a head-view of a ship, with the projection of her principal timbers, and all her planks laid on one side. This figure corresponds to that of the elevation, plate I. and the stern-view, fig. 2. plate X.

It is evident that the fore-part of a ship is called its head, from the affinity of motion and position it bears to a fish, and in general to the horizontal situation of all animals whilst swimming.

By the HEAD, the state of a ship, which is laden deeper at the fore-end than the after-end.

HEAD-FAST, *amarre d'avant*, a rope employed to fasten a ship to a wharf, chain, or buoy, or to some other vessel along-side.

HEAD-LAND, *acrotere*, a name frequently given to a cape, or promontory.

HEADMOST, the situation of any ship or ships which are the most advanced in a fleet, or line of battle.

HEAD-ROPE, that part of the bolt-rope which terminates any of the principal sails on the upper-edge, which is accordingly sewed thereto. See the article BOLT-ROPE.

HEAD-SAILS, *voiles de l'avant*, a general name for all those sails which are extended on the fore-mast and bowsprit, and employed to command the fore-part of the ship: such are the fore-sail, fore-top-sail, fore-top-gallant-sail, jib, fore-stay-sail, and the sprit-sail with its top-sail. This term is used in opposition to *after-sails*, which see.

HEAD-TO-WIND, *de bout au vent*, the situation of a ship or boat, when her head is turned to windward.

HEAD-WAY, *sillage*, the motion of advancing at sea. It is generally used when a ship first begins to advance; or in calm weather, when it is doubtful whether she is in a state of rest or motion. It is in both senses opposed to retreating, or moving with the stern foremost. See the article STERN-WAY.

HEART, *moque*, a peculiar sort of dead-eye, somewhat resembling the shape of a heart, but differing from the common dead-eyes, inasmuch as it is only furnished with one large hole in the middle, fig. 32. plate II. whereas the common dead-eyes have always three holes. The hearts are principally used to contain the *laniards*, by which the stays are extended. See DEAD-EYE.

HEAVER, a name given by seamen to a wooden staff, employed by them as a lever on many occasions; particularly in setting up the top-mast-shrouds, frapping the top masts, dropping the larger blocks, seizing the standing rigging, &c. See those articles.

HEAVING, *virer*, (*heafian*, Sax.) the act of turning about a *capstern*, *windlass*, or other machine of the like kind, by means of bars or handspecs.

HEAVING *the lead*. See the article SOUNDING.

HEAVING *a-head*, is advancing the ship by heaving-in the cable, or other rope, which is fastened to an anchor at some distance before her. To heave a-stern is therefore to draw the ship backwards by the same operation.

HEAVING-*down*. See the article CAREENING.

HEAVING-*out*, the act of unfurling and throwing loose a sail from the place where it had been rolled and fastened. This phrase is more particularly applied to the stay-sails: thus we say, "Loose the top-sails, and heave out the stay-sails!" which is accordingly done, either to *set* or *dry* them.

HEAVING-*short*, is the drawing so much of the cable into the ship, by means of the capstern or windlass, as that by advancing, she will be almost perpendicularly above the anchor, and in a proper situation to set sail.

HEAVING-*taught*, the act of heaving about the capstern, till the rope applied thereto becomes streight and ready for action.

HEEL, *talon*, a name usually given to the after-end of a ship's keel; as also to the lower end of the stern-post, to which it is firmly connected.

HEEL *of a mast*, the lower end, which is diminished into the frustrum of a pyramid, so as to sink immoveably into a hole of the same shape, cut in the step, which is attached to the ship's keel.

HEEL *of a top-mast*, the lower end, which is sustained upon the *tressel-trees* by means of an iron bar, called the fid. See the article MAST.

To HEEL, *carguer*, to stoop or incline to either side. It is usually applied to a ship when she is forced into this position by the wind acting upon her sails, while braced obliquely across her; or by being ballasted so as to lean more to one side than the other. See the

articles CRANK, STIff, and TRIM.

HELM, *gouvernail*, (*helme*, Sax.) a long and flat piece of timber, or an assemblage of several pieces, suspended along the hind part of a ship's stern-post, where it turns upon hinges to the right or left, serving to direct the course of the vessel, as the tail of a fish guides the body.

The helm is usually composed of three parts, viz. the rudder, the tiller, and the wheel, except in small vessels, where the wheel is unnecessary.

The length and breadth of the rudder are represented in plate VIII. where it is evident that it becomes gradually broader in proportion to its distance from the top, or to its depth under the water. The *back*, or inner part of it, which joins to the stern-post, is diminished into the form of a wedge throughout its whole length, so as that the rudder may be more easily turned from one side to the other, where it makes an obtuse angle with the keel. The hinges upon which it is supported are also expressed in this figure. Those which are bolted round the stern-post to the after extremity of the ship, are called googings, and are furnished with a large hole on the afterpart of the stern-post. The other parts of the hinges, which are bolted to the back of the rudder, are called pintles, being strong cylindrical pins, which enter into the googings, and rest upon them. The length and thickness of the rudder is nearly equal to that of the stern-post, as represented in fig. 1. plate X.

The rudder is turned upon its hinges by means of a long bar of timber, called the tiller, which is fixed horizontally in its upper end within the vessel. The movements of the tiller to the right and left, accordingly, direct the efforts of the rudder to the government of the ship's course as she advances,

which, in the sea-language, is called steering. The operations of the tiller are guided and assisted by a sort of tackle, communicating with the ship's side, called the tiller-rope, which is usually composed of untarred rope-yarns, for the purpose of traversing more readily through the blocks or pullies.

In order to facilitate the management of the helm, the tiller-rope, in all large vessels, is wound about a wheel, which acts upon it with the powers of a crane or windlass. The rope employed in this service being conveyed from the fore-end of the tiller *k*, to a single block *i*, on each side of the ship, (plate III. DECK) is farther communicated to the wheel, by means of two blocks, suspended near the mizen-mast, and two holes immediately above, leading up to the wheel, which is fixed upon an axis, on the quarter-deck, almost perpendicularly over the fore end of the tiller. Five turns of the tiller-rope are usually wound about the barrel of the wheel, and, when the helm is amidship, the middle turn is nailed to the top of the barrel, with a mark by which the helmsman readily discovers the situation of the helm, as the wheel turns it from the starboard to the larboard side. The spokes of the wheel generally reach about eight inches beyond the rim or circumference, serving as handles to the person who steers the vessel. As the effect of a lever increases in proportion to the length of its arm, it is evident that the power of the helmsman, to turn the wheel, will be increased according to the length of the spokes, beyond the circumference of the barrel.

When the helm, instead of lying in a right line with the keel, is turned to one side or the other, as in BD, fig. 1. plate V. it receives an immediate shock from the water, which glides along the ship's bottom in running *aft* from A to B; and this fluid pushes it

towards the opposite side, whilst it is retained in this position: so that the stern, to which the rudder is confined, receives the same impression, and accordingly turns from B to *b* about some point *c* whilst the head of the ship passes from A to *a*. It must be observed, that the current of water falls upon the rudder obliquely, and only strikes it with that part of its motion which acts according to the sine of incidence, pushing it in the direction N P, with a force which not only depends on the velocity of the ship's course, by which this current of water is produced, but also upon the extent of the sine of incidence. This force is by consequence composed of the square of the velocity with which the ship advances, and the square of the sine of incidence, which will necessarily be greater or smaller according to circumstances; so that if the vessel runs three or four times more swiftly, the absolute shock of the water upon the rudder will be nine or sixteen times stronger under the same incidence: and, if the incidence is increased, it will yet be augmented in a greater proportion, because the square of the sine of incidence is more enlarged. This impression, or, what is the same thing, the power of the helm, is always very feeble, when compared with the weight of the vessel; but as it operates with the force of a long lever, its efforts to turn the ship are extremely advantageous. For the helm being applied to a great distance from the centre of gravity, G, or from the point about which the vessel turns horizontally, if the direction P N of the impression of the water upon the rudder be prolonged, it is evident that it will pass perpendicularly to R, widely distant from the centre of gravity G: thus the absolute effort of the water is very powerful. It is not therefore surprizing that this machine impresses the ship with a considerable

circular movement, by pushing the stern from B to *b*, and the head from A to *a*; and even much farther, whilst the sails with rapidity: because the effect of the helm always keeps pace with the velocity with which the vessel advances[31].

Amongst the several angles that the rudder makes with the keel, there is always one position more favourable than any of the others, as it more readily produces the desired effect of turning the ship, in order to change her course. To ascertain this, it must be considered, that if the obliquity of the rudder with the keel is greater than the obtuse angle A B D, so as to diminish that angle, the action of the water upon the rudder will increase, and at the same time oppose the course of the ship in a greater degree; because the angle of incidence will be more open, so as to present a greater surface to the shock of the water, by opposing its passage more perpendicularly. But at that time the direction N P of the effort of the helm upon the ship will pass, with a smaller distance from the centre of gravity G towards R, and less approach the perpendicular N L, according to which it is absolutely necessary that the power applied should act with a greater effect to turn the vessel. Thus it is evident that if the obtuse angle A B D is too much enclosed, the greatest impulse of the water will not counterbalance the loss sustained by the distance of the direction N P from N L; or by the great obliquity, which is given to the same direction N P of the absolute effort of the helm with the keel A B. If, on the contrary, the angle A B D is too much opened, the direction N P of the force of action of the helm will become more advantageous to turn the vessel, because it will approach nearer the perpendicular N L; so that the line prolonged from N P will increase the line G R, by removing R to a greater distance

from the centre of gravity G: but then the helm will receive the impression of the water too obliquely, for the angle of incidence will be more acute; so that it will only present a small portion of its breadth to the shock of the water, and by consequence will only receive a feeble effort. By this principle it is easy to conceive, that the greatest distance G R from the centre of gravity G is not sufficient to repair the diminution of force occasioned by the too great obliquity of the shock of the water. Hence we may conclude, that when the water either strikes the helm too directly, or too obliquely, it loses a great deal of the effect it ought to produce. Between the two extremes there is therefore a mean position, which is the most favourable to its operations.

The diagonal N P of the rectangle I L represents the absolute direction of the effort of the water upon the helm. N I expresses the portion of this effort which is opposed to the ship's head-way, or which pushes her astern, in a direction parallel to the keel. It is easily perceived that this part N I of the whole power of the helm contributes but little to turn the vessel; for if I N is prolonged, it appears that its direction approaches to a very small distance G V from the centre of gravity G, and that the arm of the lever B N = G V, to which the force is applied, is not in the whole more than equal to half the breadth of the rudder: but the relative force N L, which acts perpendicular to the keel, is extremely different. If the first N I is almost useless, and even pernicious, by retarding the velocity; the second N L is capable of a very great effect, because it operates at a considerable distance from the centre of gravity G of the ship, and acts upon the arm of a lever G E, which is very long. Thus it appears, that between the effects N L and N I, which result from the absolute effort N

P, there is one which always opposes the ship's course, and contributes little to her motion of turning; whilst the other produces only this movement of rotation, without operating to retard her velocity[32].

Geometricians have determined the most advantageous angle made by the helm with the line prolonged from the keel, and fixed it at 54° 44′ presuming that the ship is as narrow at her floating-line, or at the line described by the surface of the water round her bottom, as at the keel. But as this supposition is absolutely false, inasmuch as all vessels augment their breadth from the keel upward to the extreme breadth, where the floating-line or the highest water-line is terminated; it follows that this angle is too large by a certain number of degrees. For the rudder is impressed by the water, at the height of the floating-line, more directly than at the keel, because the fluid exactly follows the horizontal outlines of the bottom; so that a particular position of the helm might be supposed necessary for each different incidence which it encounters from the keel upwards. But as a middle position may be taken between all these points, it will be sufficient to consider the angle formed by the sides of the ship, and her *axis*, or the middle-line of her length, at the surface of the water, in order to determine afterwards the mean point, and the mean angle of incidence.

It is evident that the angle 54° 44′ is too open, and very unfavourable to the ship's head-way, because the water acts upon the rudder there with too great a sine of incidence, as being equal to that of the angle which it makes with the line prolonged from the keel below: but above, the shock of the water is almost perpendicular to the rudder, because of the breadth

of the bottom, as we have already remarked. If then the rudder is only opposed to the fluid, by making an angle of 45° with the line prolonged from the keel, the impression, by becoming weaker, will be less opposed to the ship's head-way, and the direction N P, fig. 1. plate V. of the absolute effort of the water upon the helm drawing nearer to the lateral perpendicular, will be placed more advantageously, for the reasons above mentioned[33]. On the other hand, experience daily testifies, that a ship steers well when the rudder makes the angle D B E equal to 35° only.

It has been already remarked, that the effect of moving the wheel to govern the helm increases in proportion to the length of the spokes; and so great is the power of the wheel, that if the helmsman employs a force upon its spokes equivalent to 30 pounds, it will produce an effect of 90 or 120 pounds upon the tiller. On the contrary, the action of the water is collected into the middle of the breadth of the rudder, which is very narrow in companion with the length of the tiller; so the effort of the water is very little removed from the fulcrum B upon which it turns; whereas the tiller forms the arm of a lever ten or fifteen times longer, which also increases the power of the helmsman in the same proportion that the tiller bears to the lever upon which the impulse of the water is directed. This force then is by consequence ten or fifteen times stronger, and the effort of 30 pounds, which at first gave the helmsman a power equal to 90 or 120 pounds, becomes accumulated to one of 900 or 1800 pounds upon the rudder. This advantage then arises from the shortness of the lever upon which the action of the water is impressed, and the great comparative length of the tiller, or lever, by which the rudder is

governed; together with the additional power of the wheel that directs the movements of the tiller, and still farther accumulates the power of the helmsman over it. Such a demonstration ought to remove the surprize with which the prodigious effect of the helm is sometimes considered, from an inattention to its mechanism: for we need only to observe the pressure of the water, which acts at a great distance from the centre of gravity G, about which the ship is supposed to turn, and we shall easily perceive the difference there is between the effort of the water against the helmsman, and the effect of the same impulse against the vessel. With regard to the person who steers, the water acts only with the arm of a very short lever N B, of which B is the fulcrum: on the contrary, with regard to the ship, the force of the water is impressed in the direction N P, which passes to a great distance from G, and acts upon a very long lever E G, which renders the action of the rudder extremely powerful in turning the vessel; so that, in a large ship, the rudder receives a shock from the water of 2700 or 2800 pounds, which is frequently the case, when she sails at the rate of three or four leagues by the hour; and this force being applied in E, perhaps 100 or 110 feet distant from the centre of gravity G, will operate upon the ship, to turn her about, with 270000 or 308000 pounds; whilst, in the latter case, the helmsman acts with an effort which exceeds not 30 pounds upon the spokes of the wheel.

After what has been said of the helm, it is easy to judge, that the more a ship increases her velocity with regard to the sea, the more powerful will be the effect of the rudder, because it acts against the water with a force, which increases as the square of the swiftness of the fluid, whether the ship advances or retreats; or, in other words, whether she has head-

way or stern-way; with this distinction, that in these two circumstances the effects will be contrary. For if the vessel retreats, or moves astern, the helm will be impressed from I to N, fig. 1. plate V. and, instead of being pushed, according to N P, it will receive the effort of the water from N towards R; so that the stern wall be transported according to the same movement, and the head turned in a contrary direction.

When the helm operates by itself, the centre of rotation of the ship, and her movement, are determined by estimating the force of this machine; that is to say, by multiplying the surface of the rudder by the square of the ship's velocity[34]. See the articles RUDDER, SAILING, STEERING, TRIM, and WORKING.

HIGH AND DRY, a phrase which implies the situation of a ship, when she has run aground, so as to be seen dry upon the strand.

HIGH WATER, *haute marée*, the greatest height of the flood-tide, See FLOOD and TIDE.

HITCH, *clef*, a sort of knot or noose, by which one rope is fastened to another, or to some other object, as a post, ring, timber-head, mast, &c. Hence we say an half-hitch, *demi-clef*, a clove-hitch, a rolling-hitch, &c. See BEND and KNOT.

HOASE, *manche pour l'eau*, a long flexible tube, formed of leather or tarred canvas, but chiefly of the latter, and employed to conduct the fresh water, which is hoisted aboard a ship, into the casks that are ranged in the hold; and to pass the water, or other liquors, out of one cask into another. For the latter use, one of the ends or openings of the hoase is fixed in the empty cask, whilst the other is applied to the pump that extracts the water out of the full one. This exercise is, on some occasions, necessary to alter

or preserve the trim of the vessel, without disturbing her stowage.

HOG, *goret*, a sort of flat scrubbing-broom, serving to scrape off the filth from a ship's bottom, under water, particularly in the act of *boot-topping*, which see.

This instrument is formed by inclosing a multitude of short twigs of birch, or such wood, between two pieces of plank, which are firmly attached to each other, after which the ends of the twigs or branches are cut off even, so as to form a sort of brush of considerable strength. To this machine is fitted a long staff, together with two ropes, the former of which is used to thrust the hog under the ship's bottom, and the latter to guide, and pull it up again, close to the planks thereof, so as to rub off all the filth effectually. This exercise is usually performed in the ship's boat, which is accordingly confined as close as possible to the vessel's side during the operation, and shifted from one part of the side to another, till the whole is compleated.

HOIST, *guindant*, the perpendicular height of a flag or ensign, as opposed to the *fly*, which implies its breadth from the staff to the outer edge.

HOISTING, *hisser*, the operation of drawing up any body by the assistance of one or more tackles, according to the weight intended to be raised. See the article TACKLE.

The act of pulling up any body, by the help of a single block only, is never expressed by the term *hoisting*, if we except the exercise of extending the sails, by drawing them upwards along the masts or stays, to which it is invariably applied. See also TRACING-UP and WHIPPING.

HOLD, *cale*, the whole interior cavity or belly of a ship, or all that part of her inside, which is comprehended between the floor and the lower-deck, throughout her whole length.

This capacious apartment usually contains the ballast, provisions, and stores of a ship of war, and the principal part of the cargo in a merchantman.

The disposition of those articles, with regard to each other, &c. necessarily falls under our consideration in the article STOWAGE; it suffices in this place to say, that the places where the ballast, water, provisions, and liquors are stowed, are known by the general name of the hold. The several store-rooms are separated from each other by *bulk-heads*, and are denominated according to the articles which they contain, the sail-room, the bread-room, the fish-room, the spirit-room, &c.

To trim the HOLD. See the article TRIM.

After-HOLD, a general name given to all that part of the hold which lies abaft the main-mast.

Fore-HOLD, that part of the hold which is situated in the fore-part of the ship, or before the main hatch-way.

HOLD, in navigation, is generally understood to signify a particular situation of a ship with regard to the shore, by which she is enabled to keep within a sufficient distance, to facilitate her course, or answer some other important object. Hence we say, Keep a good hold of the land! or, Keep the shore well aboard! which are synonimous phrases, implying to keep near, or in sight of the land.

HOLDING-*on*, the act of pulling back the hind part of any cable, or other rope, which is heaved round, by the capstern or windlass, or drawn in by the purchase of a tackle. See CAPSTERN &c.

To have a clearer idea of this exercise, it is necessary to premise, that there are seldom or never more than three turns of any rope passed about the barrel of the capstern, when it is employed in heaving; because a great number of turns of a large rope would soon cover the whole barrel, and utterly destroy the effect of this motion, till those turns could be removed; a circumstance which might be

attended with very bad consequences. On the contrary, when there are only a few turns, the capstern or windlass is always kept sufficiently clear for action for it is evident, that every revolution of either will heave-in a quantity of the rope, upon which it is employed, equal to the circumference of its barrel. Now as there are only a few turns upon the barrel at once, an equal quantity of the rope will necessarily come off from the capstern at the same time; and this is accordingly pulled back as strongly as possible, to prevent it from *surging* or jerking round the barrel, by being held too loosely. This is called *holding-on*, which therefore may be defined, the act of retaining any quantity of rope, acquired by the effort of a capstern, windlass, or tackle, as being employed in hoisting as well as heaving.

HOLDING *water*, the operation of stopping a boat in her course, by holding the oars in the water and bearing the blade, or flat part, strongly against the current made *along-side*, by her passing swiftly through the water. See BACK-ASTERN, OAR, and ROWING.

HOLLOA! *commande!* an exclamation of answer, to any person, who calls to another to ask some question, or to give a particular order. Thus, if the master intends to give any order to the people in the main-top, he previously calls, Main-top, hoay! To which they answer, Holloa! to shew that they hear him, and are ready. It is also the first answer in hailing a ship at a distance. See HAILING.

HOME, in a naval sense, either implies the situation of some object, where it retains its full force of action; or where it is properly lodged for convenience or security. In the former sense it is applied to the sails; and in the latter, it usually refers to the stowage of the hold, or the anchors.

When it is expressed of the sails, it denotes that their *clues*, or lower corners, are close to the blocks upon the yard-arm, immediately beneath them; it is therefore understood only of the loftier sails, as the top-sails, top-gallant-sails, and the studding-sails thereto belonging. Hence to haul-home the top-sail sheets, is to extend the bottom of the top-sail to the lower-yard, by means of the sheets. See CLUE and SHEET.

In the stowage of the hold, &c. a cask, bale, or case, is said to be *home*, when it bears against, or lies close to some other object, without leaving any interval between; and indeed the security, or firmness of the stowage, greatly depends on this circumstance.

HOME, when spoken of the anchor, seems to imply the station of the ship, with regard to her anchor; which is accordingly said to come home when it loosens from the ground, by the effort of the cable, and approaches the place where the ship floated, at the length of her moorings. See the article ANCHOR.

HOMMOC, *tertre*, a name given by mariners to a hillock, or small eminence of land resembling the figure of a cone, and appearing on the sea-coast of any country.

HOOD, *tremue*, a sort of low wooden porch, resembling the *companion*, and placed over the stair-case or ladder, which leads into the steerage or apartments, where the crew generally reside in a merchant-ship. The use of the hood is to admit the air and light, and at the same time prevent the rain from falling into the steerage.

HOOK, a crooked piece of iron, of which there are several of different shapes and sizes, used at sea, as boat-hooks, can-hooks, cat-hooks, fish-hooks, foot-hooks, &c. See the articles BOAT-HOOK, CAN-HOOK,

&c.

HORSE, *marche-pied*, a rope reaching from the middle of a yard to its extremity, or what is called the yard-arm, and depending about two or three feet under the yard for the sailors to tread upon, whilst they are loosing, reefing or furling the sails, rigging out the studding-sail booms, &c. In order therefore to keep the horse more parallel to the yard, it is usually suspended thereto, at proper distances, by certain ropes called *stirrups*, which hang about two feet under the yard, having an eye in their lower ends through which the horse passes. See the article RIGGING.

HORSE is also a thick rope, extended in a perpendicular direction near the *fore* or *after*-side of a mast, for the purpose of hoisting or extending some sail thereon. When it is fixed before a mast, it is calculated for the use of a sail called the *square-sail*, whose yard being attached to the horse, by means of a *traveller*, or *bull's-eye*, which slides up and down occasionally, is retained in a steddy position, either when the sail is set, or whilst it is hoisting or lowering. When the horse is placed *abaft* or behind a mast, it is intended for the *try-sail* of a snow, and is accordingly very rarely fixed in this position, except in those sloops of war which occasionally assume the form of snows, in order to deceive the enemy.

HOUNDS, a name given to those parts of a mast-head, which gradually project on the right and left side, beyond the cylindrical or conical surface, which it preserves from the *partners* upwards. The hounds, whose upper parts are also called *cheeks*, are used as shoulders to support the frame of the top, together with the top-mast and the rigging of the lower-mast. See the article MAST.

HOUSED, *à la serre*, the situation of the great guns

of a ship, when they are secured at sea by their tackles and breechings. See CANNON.

HOWKER, a vessel in the Dutch marine, commonly navigated with two masts, viz. a main-mast and a mizen-mast, and being from sixty to upwards of two hundred tons in burthen.

HOUSING, or HOUSE-LINE, a small line, formed of three fine strands, or twists of hemp, smaller than rope-yarn. It is chiefly used to *seize* blocks into their strops, to bind the corners of the sails, or to fasten the bottom of a sail to its bolt-rope, &c. See BOLT-ROPE.

HOY, a small vessel, chiefly used in coasting, or carrying goods to or from a ship, in a road or bay, where the ordinary lighters cannot be managed with safety or convenience.

It would be very difficult to describe, precisely, the marks of distinction between this vessel and some others of the same size, which are also rigged in the same manner; because what is called a *hoy* in one place, would assume the name of a *sloop* or *smack* in another: and even the people, who navigate these vessels, have, upon examination, very vague ideas of the marks by which they are distinguished from those above mentioned. In Holland, the hoy has two masts; in England it has but one, where the main-sail is sometimes extended by a boom, and sometimes without it. Upon the whole, it may be defined a small vessel, usually rigged as a sloop, and employed for carrying passengers and luggage from one place to another, particularly on the sea-coast.

HULK, an old ship of war, fitted with an apparatus, to fix or take out the masts of his majesty's ships, as occasion requires.

The mast of this vessel, *a a*, fig. 2. plate V. is extremely high, and withal properly strengthened by

shrouds and *stays*, in order to secure the sheers, *machine à mater*, which serve, as the arm of a crane, to hoist out or in the masts of any ship lying alongside. The sheers, *b b*, are composed of several long masts, whose heels rest upon the side of the hulk, and having their heads declining outward from the perpendicular, so as to hang over the vessel whose masts are to be fixed or displaced. The tackles, *c c*, which extend from the head of the mast to the sheer-heads, are intended to pull in the latter towards the mast-head, particularly when they are charged with the weight of a mast after it is raised out of any ship, which is performed by strong tackles depending from the sheer-heads. The effort of these tackles is produced by two capsterns, fixed on the deck for this purpose.

HULK is also a name bestowed on any old vessel laid by, as unfit for further service: it is probably derived from the ολκαδες, or vessels of burthen of the ancient Grecians.

HULL, *corps d'un vaisseau*, the frame, or body of a ship, exclusive of her masts, yards, sails, and rigging: it is usually expressed of a ship either before she is furnished with masts, &c. or after she is dismasted and stripped of the aforesaid machinery.

To HULL *a ship*, is to fire cannon-balls into her hull within the point-blank range.

HULL-*to*, the situation of a ship when she is *trying a-hull*, or with all her sails furled; as in trying. See the article TRYING.

HURRICANE, *ouragan*, (*huracan*, Span.) a violent and prodigious tempest, occasioned by the collection and opposition of several winds, that sometimes blow from one quarter and sometimes from another, producing a dangerous agitation in the sea, where the waves break, and dash against each other with

astonishing fury. On the approach of a hurricane, the sea and air become perfectly calm and motionless, without a breath of wind stirring either. Soon after this the sky is darkened, the clouds accumulate, and the light of the day is replaced by terrible flashes of lightening. The hurricanes often last abundantly long, and are usually accompanied with many fatal accidents[35]. During the continuance of this general calamity, the vessels which were anchored in the roads frequently cut their cables and put to sea, where they drive at the mercy of the winds and waves, after having struck their yards and top-masts.

The hurricanes are more usual between the tropics, particularly in the Atlantic ocean, than to the northward or southward of the torrid zone.

J.

JACK, a sort of flag or colours, displayed from a mast erected on the outer end of a ship's bowsprit. In the British navy the jack is nothing more than a small union flag, composed of the intersection of the red and white crosses; but in merchant ships this union is bordered with a red field. See the article UNION.

JAMMING, the act of inclosing any object between two bodies, so as to render it immoveable, whilst they continue in the same position. This expression is usually applied to the situation of some running-rope, when it happens to be squeezed by the compression of the standing-rigging, &c. and by consequence incapable of performing its office, by

traversing in the blocks, till it is released from this confinement. In this sense jamming is opposed to *rendering*, which see.

A cask, box, &c. is also said to be jammed, when it is in the same manner wedged in between weighty bodies, so as not to be dislodged without great difficulty.

JEARS, or GEERS, *drisse*, an assemblage of tackles, by which the lower yards of a ship are hoisted up along the mast to their usual station, or lowered from thence as occasion requires; the former of which operations is called *swaying*, and the latter, *striking*. See those articles.

In a ship of war, the jears are usually composed of two strong tackles, each of which has two blocks, viz. one fastened to the lower-mast-head, and the other to the middle of the yard. The two blocks which are *lashed* to the middle, or *slings* of the yard, are retained in this situation by means of two cleats, nailed on each side, whose arms enclose the ropes by which the blocks are fastened to the yard. The two ropes, which communicate with these tackles, lead down to the deck on the opposite side of the mast, according to the situation of the upper jear-blocks.

The jears, in merchant-ships, have usually two large single blocks on the opposite side of the mast-head, and another of the same size in the middle of the yard. The rope, which communicates with these, passes through one of the blocks hanging at the mast-head, then through the block on the yard, and afterwards through the other hanging-block upon the mast. To the two lower ends of this rope, on the opposite sides of the mast, are fixed two tackles, each of which is formed of two double blocks, the lower one being hooked to a ring-bolt in the deck, and the upper one spliced, or seized into the lower end of the

great rope above, which is called the tye. By this contrivance the mechanical power of the tackle below is transmitted to the tye, which, communicating with blocks on the yard, readily *sways up*, or lowers it, either by the effort of both jears at once, on the opposite sides of the mast, or by each of them separately, one after the other.

JETTY-HEAD, a name usually given, in the royal dock-yards, to that part of a wharf which projects beyond the rest; but more particularly the front of a wharf, whose side forms one of the cheeks of a dry or wet dock.

JEWEL-BLOCKS, a name given to two small blocks, which are suspended at the extremity of the main and fore-top-sail-yards, by means of an eye-bolt, driven from without into the middle of the yard-arm, parallel to its axis. The use of these blocks is to retain the upper-part of the topmast studding-sails beyond the skirts of the top-sails, so that each of those sails may have its full force of action, which would be diminished by the incroachment of the other over its surface. The *haliards*, by which those studding-sails are hoisted, are accordingly passed through the jewel-blocks; whence, communicating with a block on the top-mast-head, they lead downwards to the top or decks, where they may be conveniently hoisted. See the article SAIL.

JIB, *foc*, the foremost sail of a ship, being a large stay-sail extended from the outer end of the bowsprit, prolonged by the jib-boom, towards the fore-top-mast-head. See *Sail*.

The jib is a sail of great command with any side-wind, but especially when the ship is *close-hauled*, or has the wind upon her beam; and its effort in *casting* the ship, or turning her head to leeward, is very powerful, and of great utility, particularly when the

ship is *working* through a narrow channel. See SAILING.

JIB-BOOM, a boom run out from the extremity of the bowsprit, parallel to its length, and serving to extend the bottom of the jib, and the stay of the fore-top-gallant-mast. This boom, which is nothing more than a continuation of the bowsprit forward, to which it may be considered as a top-mast, is usually attached to the bowsprit by means of two large boom-irons, (see the article IRON-WORK) or by one boom-iron, and a *cap* on the outer-end of the bowsprit; or, finally, by the cap without, and a strong lashing within, instead of a boom-iron; which is generally the method of securing it in small merchant-ships. It may therefore be drawn in upon the bowsprit, as occasion requires, which is usually practised when the ship enters a harbour, where it might very soon be broke, or carried away, by the vessels which are moored therein, or passing by under sail.

JIBING. See GYBING.

JIGGER, a machine, consisting of a piece of rope about five feet long, with a block at one end and a sheave at the other; and used to *hold-on* the cable, when it is heaved into the ship by the revolution of the *windlass*. See HOLDING-ON.

The jigger is particularly useful when the cable is either slippery with mud or ooze, or when it is stiff and unwieldy; in both of which cases it is very difficult to stretch it back from the windlass by hand, which however is done with facility and expedition, by means of the jigger, as follows: the end of the rope, to which the sheave is fastened by a knot, is passed round the cable close to the windlass, and the hind part of the rope coming over the sheave, is stretched aft by means of another rope passing

through the jigger-block. As soon as the last rope is extended, the turn of the former about the cable is firmly retained in its position, by the compression of its hind part under the sheave, acting upon what may be called the neck of the jigger. But as the cable continues to be heaved into the ship, it is evident that the jigger, which is fastened on a particular part thereof, stretching it back, will be removed further aft, by every turn of the windlass, and the effort of the jigger will be lessened in proportion to its distance from the windlass: this circumstance renders it necessary to *fleet* it, or replace in a proper state of action, as occasion requires. The man who performs this office accordingly calls out, fleet, jigger! one of the men, at the windlass, instantly fixes his handspec between the deck and the cable, so as to *jam* the latter to the windlass, and prevent it from running out till the jigger is refixed.

JIGGER-TACKLE, a light small tackle, consisting of a double and single block, and used on sundry occasions by seamen. See TACKLE.

IN, *dedans*, the state of any of a ship's sails, when they are furled or stowed. It is used in this sense also in opposition to *out*, which implies that they are *set*, or extended to assist the ship's course.

INSURANCE, *assurance*, a certain contract, by which an individual, or company, agrees to indemnify whatever losses or damages may happen to a ship or cargo, during a voyage, provided they are not occasioned by default of the person insured. For this agreement the latter pays a certain sum in advance, called the *præmium*, which accordingly falls to the insurer, in case the ship arrives in a safe harbour; but if the ship is lost, the insurer renders the stipulated sum to the merchant.

JOURNAL, in navigation, a sort of diary, or daily

register of the ship's course, winds, and weather; together with a general account of whatever is material to be remarked in the period of a sea-voyage.

In all sea-journals, the day, or what is called the 24 hours, terminates at noon, because the errors of the dead-reckoning are at that period generally corrected by a solar observation. The daily compact usually contains the state of the weather; the variation, increase, or diminution of the wind; and the suitable shifting, reducing, or enlarging the quantity of sail extended; as also the most material incidents of the voyage, and the condition of the ship and her crew; together with the discovery of other ships or fleets, land, shoals, breakers, soundings, &c.

The form of keeping journals is very different in merchant-ships; but one method appears to be invariably pursued in the navy, which nevertheless is certainly capable of improvement, because no form can be properly called perfect, that leaves as great a space for one day's work, the matter of which may be contained in very few lines, as for another that abounds with important incidents, so as to occupy ten times the space. If therefore there be any such thing as propriety of method on this occasion, it seems to imply, that the space containing, should conform to the matter contained, which will necessarily be greater or less, according to circumstances.

IRON-WORK, *ferrure*, a general name for all the pieces of iron, of whatsoever figure or size, which are used in the construction of a ship: as bolts, boom-irons, nails, spikes, chains and chain-plates, block-strops, cranks, braces, pintles, and googings.

The most material of these articles are explained in their proper places; but as the article *bolt*, of which

the figures are represented in plate II. was accidentally omitted in the proper place, according to the plan of this work, it may not be improperly introduced here.

A bolt then is generally a cylindrical pin of iron, of which there are various sorts, used for sundry occasions in ship-building.

The bolts are principally employed either to unite several members of a ship's frame into one solid piece, or to fasten any moveable body on a particular occasion. Those which are calculated for the former purpose have commonly small round heads, somewhat flatted, as in fig. 1 & 2. plate II. On the contrary, the bolts which are intended for the latter use, have either a large round head, as those of the chains, fig. 4. or an eye, with or without a ring in the same place, fig. 5, 6, and 39, as those which are designed to secure the great guns, the *jears* of the main-sail and fore-sail, the stoppers of the cables, &c.

The bolts are short or long, according to the thickness of the timber wherein they are to be lodged: they penetrate either quite through the pieces into which they are driven, or to a certain determinate depth. The last of these, called a rag-bolt, is retained in its situation by means of several barbs, fig. 3. which, fastening into the timbers, prevent the bolt from loosening from its station by the working of the ship. The first, after being driven through the pieces it is intended to unite, is confined by a flat iron wedge, called the forelock, which is thrust through a narrow hole in the small end of the bolt, where it is hardened home by a hammer; and to prevent the forelock from cutting the wood-work in this position, a little iron ring is fixed over the end of the bolt, between the forelock and the timber.

Those bolts, which have the largest of the round-

heads, are called fender-bolts, being driven into the wales, stem, or sides of some small vessels of burthen, as lighters, beancods, prames, &c. to defend their timber-work from the shock of any other vessels which may fall aboard by accident.

A boom-iron is composed of two iron rings, formed into one piece, so as nearly to resemble the figure of 8. It is employed to connect two cylindrical pieces of wood together, when the one is used as a continuation of the other; such is the jib-boom to the bowsprit; and such are the *studding-sail* booms to the respective yards from whose extremities they are prolonged. The rims, or circles of the boom-irons, are broad and flat; and one of them, which is firmly driven upon the main, or fore-yard-arm, is somewhat larger than the other, as exhibited in fig. 7. plate II. The studding-sail-boom usually rests in the small ring, through which it is occasionally thrust outwards from the yard-arm, when the studding-sail is to be set. Every boom of this kind has, or ought to have, two boom-irons, one of which is fixed on the extremity of the yard, and the other further inward. The former of these is frequently framed of one ring only, which projects from the end of the yard, where it is fastened by a strong iron bar, opening into a sort of fork or crotch that slides upon the yard lengthwise, where it is fastened by nails driven from above and below.

ISLAND of ICE, a name given by sailors to a great quantity of ice collected into one huge solid mass, and floating about upon the seas near or within the arctic circle.

Many of these fluctuating islands are met with on the coasts of Spitzbergen, to the great danger of the shipping employed in the Greenland fishery.

JUNK, *bouts de cable*, a name given to any

remnants or pieces of old cable, which is usually cut into small portions for the purpose of making points, mats, gaskets, sennit, &c. See POINTS, &c.

JURY-MAST, a temporary or occasional mast, erected in a ship to supply the place of one which has been carried away by tempest, battle, or the labouring of a ship in a turbulent sea.

K.

KAICLING, or KECKLING, a name given to any old ropes, which are wound about a cable, with a small interval between the turns, and used to preserve the surface of the cable from being fretted, when it rubs against the ship's bow, or *fore-foot*. See also ROUNDING and SERVICE.

KEDGE, *ancre de touei*, a small anchor, used to keep a ship steddy whilst she rides in a harbour or river, particularly at the turn of the tide, when she might otherwise drive over her principal anchor, and entangle the stock or flukes with her slack cable, so as to loosen it from the ground. This is accordingly prevented by a kedge-rope, that restrains her from approaching it.

The kedges are also particularly useful in *transporting* a ship, *i. e.* removing her from one part of the harbour to another, by means of ropes, which are fastened to these anchors. They are generally furnished with an iron stock, which is easily displaced, for the convenience of stowing them. See the articles ANCHOR and WARP.

KEEL, the principal piece of timber in a ship, which is usually first laid on the blocks in building.

If we compare the carcase of a ship to the skeleton of the human body, the keel may be considered as the back-bone, and the timbers as the ribs. It therefore supports and unites the whole fabric, since the stem and stern-post, which are elevated on its ends, are, in some measure, a continuation of the keel, and serve to connect and enclose the extremities of the sides by transoms; as the keel forms and unites the bottom by timbers.

The keel is generally composed of several thick pieces, (A, plate I. PIECES of the HULL) placed lengthways, which, after being scarfed together, are bolted, and clinched upon the upper side. When these pieces cannot be procured large enough to afford a sufficient depth to the keel, there is a strong thick piece of timber bolted to the bottom thereof, called the *false keel*, which is also very useful in preserving the lower-side of the main keel. In our largest ships of war, the false keel is generally composed of two pieces, which are called the upper and the lower false keels. See MIDSHIP-FRAME.

The lowest plank in a ship's bottom, called the *garboard-streak*, has its inner-edge let into a groove, or channel, cut longitudinally on the side of the keel: the depth of this channel is therefore regulated by the thickness of the garboard-streak.

KEEL is also a name given to a low flat-bottomed vessel, used in the river Tyne to bring the coals down from Newcastle, and the adjacent parts, in order to load the colliers for transportation.

Upon an even KEEL, the position of a ship when her keel is parallel to the plane of the horizon, so that she is equally deep in the water at both ends.

KEEL-HAULING, a punishment inflicted for various

offences in the Dutch navy. It is performed by plunging the delinquent repeatedly under the ship's bottom on one side, and hoisting him up on the other, after having passed under the keel. The blocks, or pullies, by which he is suspended, are fastened to the opposite extremities of the main-yard, and a weight of lead or iron is hung upon his legs to sink him to a competent depth. By this apparatus he is drawn close up to the yard-arm, and thence let fall suddenly into the sea, where, passing under the ship's bottom, he is hoisted up on the opposite side of the vessel. As this extraordinary sentence is executed with a serenity of temper peculiar to the Dutch, the culprit is allowed sufficient intervals to recover the sense of pain, of which indeed he is frequently deprived during the operation. In truth, a temporary insensibility to his sufferings ought by no means to be construed into a disrespect of his judges, when we consider that this punishment is supposed to have peculiar propriety in the depth of winter, whilst the flakes of ice are floating on the stream; and that it is continued till the culprit is almost suffocated for want of air, benumbed with the cold of the water, or stunned with the blows his head receives by striking the ship's bottom.

To KEEP, a term used on several occasions in navigation: as,

To KEEP *the land aboard*, is to keep within sight of land as much as possible. See also HOLD.

To KEEP *the luff*, to continue close to the wind, *i. e.* sailing with a course inclined to the direction of the wind, as much as possible, without deviating to leeward. This is also called, *keeping the wind*. See CLOSE-HAULED.

To KEEP *off*, *alargeer*, *tenir le largue*, to sail off, or keep at a distance from the shore. See also OFFING.

Boat-KEEPER, one of the rowers, who remains as a centinel in his turn, to take care of any boat and her contents, either when she lies by the shore, or alongside of the ship; or when she is towed astern of her.

KELSON, *contre quille*, a piece of timber, which may be properly defined the interior, or counter-part of the keel, as it is laid upon the middle of the floor-timbers, immediately over the keel, and, like it, composed of several pieces, scarfed together, represented by X, plate I. PIECES of the HULL. In order to fit with more security upon the floor-timbers and crotches, it is notched about an inch and a half deep, opposite to each of those pieces, and thereby firmly scored down upon them to that depth, where it is secured by spike-nails. The pieces of which it is formed are only half the breadth and thickness of those of the keel.

The kelson serves to bind and unite the floor-timbers to the keel. It is confined to the keel by long bolts, which, being driven from without through several of the timbers, are fore-locked or clinched upon rings on the upper side of the kelson.

KETCH, a vessel equipped with two masts, viz. the main-mast and mizen-mast, and usually from 100 to 250 tons burthen.

KETCHES are principally used as yachts, or as bomb-vessels, the former of which are employed to convey princes of the blood, ambassadors, or other great personages from one part to another; and the latter are used to bombard citadels, or towns, or other fortresses.

The bomb-ketches are therefore furnished with all the apparatus necessary for a vigorous bombardment. They are built remarkably strong, as being-fitted with a greater number of *riders* than any other vessel of war; and indeed this reinforcement is

absolutely necessary to sustain the violent shock produced by the discharge of their mortars, which would otherwise, in a very short time, shatter them to pieces. See MORTAR and SHELL.

KEVELS, *taquets*, a frame composed of two pieces of timber, whose lower ends rest in a sort of step or foot, nailed to the ship's side, from whence the upper ends branch outward into arms or horns, serving to belay the great ropes by which the bottoms of the main-sail and fore-sail are extended. These are represented by fig. 3. plate V.

KEY, *quai*, a long wharf, usually built of stone, by the side of a harbour or river, and having several store-houses for the convenience of lading and discharging merchant-ships. It is accordingly furnished with posts and rings, whereby they are secured; together with cranes, capsterns, and other engines, to lift the goods into, or out of, the vessels which lie along-side.

KEYS, *attalons*, are also certain sunken rocks, lying near the surface of the water, particularly in the West-Indies.

KINK, a sort of twist or turn in any cable or other rope, occasioned by its being very stiff or close-laid; or by being drawn too hastily out of the roll or tier, when it lies coiled. See the article COILING.

KNEE, *courbe*, a crooked piece of timber, having two branches, or arms, and generally used to connect the beams of a ship with her sides or timbers.

The branches of the knees form an angle of greater or smaller extent, according to the mutual situation of the pieces which they are designed to unite. One branch is securely bolted to one of the deck-beams, whilst the other is in the same manner attached to a corresponding timber in the ship's side, as represented by E in the MIDSHIP-FRAME, plate VII.

Besides the great utility of knees in connecting the beams and timbers into one compact frame, they contribute greatly to the strength and solidity of the ship, in the different parts of her frame to which they are bolted, and thereby enable, her, with greater firmness, to resist the effects of a turbulent sea.

In fixing of these pieces, it is occasionally necessary to give an oblique direction to the vertical, or side-branch, in order to avoid the range of an adjacent gun-port, or, because the knee may be so shaped as to require this disposition; it being sometimes difficult to procure so great a variety of knees as may be necessary in the construction of a number of ships of war.

In France, the scarcity of these pieces has obliged their shipwrights frequently to form their knees of iron.

KNEES are either said to be *lodging* or *hanging*. The former are fixed horizontally in the ship's frame, having one arm bolted to the beam, and the other across two or three timbers, as represented by F in the DECK, plate III. The latter are fixed vertically, as we have described above. See also BUILDING, DECK, and MIDSHIP-FRAME.

KNEE *of the head*, *poulaine*, a large flat piece of timber, fixed edgways upon the fore-part of a ship's stem, and supporting the ornamental figure or image, placed under the bowsprit. See the article HEAD.

The knee of the head, which may properly be defined a continuation of the stem, as being prolonged from the stem forwards, is extremely broad at the upper-part, and accordingly composed of several pieces united into one, Y Y, plate I. PIECES of the HULL. It is let into the head, and secured to the ship's *bows* by strong knees fixed horizontally upon both, and called the *cheeks of the head*, Z Z,

plate IV. fig. 10. The heel of it is scarfed to the upper end of the fore-foot, and it is fastened to the stem above by a knee, called a *standard*, expressed by &, in plate I. PIECES of the HULL.

Besides supporting the figure of the head, this piece is otherwise useful, as serving to secure the boom, or *bumkin*, by which the fore-tack is extended to windward; and, by its great breadth, preventing the ship from falling to leeward, when *close-hauled*, so much as she would otherwise do. It also affords a greater security to the bowsprit, by increasing the angle of the bob-stay, so as to make it act more perpendicularly on the bowsprit.

The knee of the head is a phrase peculiar to shipwrights; as this piece is always called the *cut-water* by seamen, if we except a few, who affecting to be wiser than their brethren, have adopted this expression probably on the presumption that the other is a cant phrase, or vulgarism. It appears a material part of the province of this work to call the several articles contained therein by their proper names, and to reject those which are spurious, however sanctified by the authority of official dulness, or seconded by the adoption of dignified ignorance. Accordingly we cannot help observing, that when a term of art has been established from time immemorial, and besides being highly expressive, produces the testimony of foreign nations[36] to its propriety, nothing more certainly betrays a superficial understanding, than the attempt to change it, without being able to assign the shadow of a reason for this alteration. For although *knee of the head*, being invariably used by the artificers, is of course explained in this work as a term of naval architecture, wherein practice has indeed rendered it natural and intelligible; it is nevertheless very rarely

used by seamen, especially in common discourse, unless when it is intended to impress the hearer with an idea of the speaker's superior judgment.

KNIGHT-HEAD, or BOLLARD-TIMBER. See the article HEAD.

KNIGHT-HEADS, two strong pieces of timber, fixed on the opposite sides of the main-deck, a little behind the fore-mast, in a merchant-ship.

They are used to support and inclose the ends of the windlass, which accordingly is turned therein as upon an axis. As each of the knight-heads is formed of two pieces, they may be occasionally separated in order to take off the turns of the cable from the windlass, or replace them upon it. They are sometimes called the *bits*, and in this sense their upper-parts only are denominated knight-heads, which being formerly embellished with a figure designed to resemble a human head, gave rise to the name they have ever since retained. See the article WINDLASS.

KNIGHT-HEADS, *sep de drisse*, was also a name formerly given to the lower jear-blocks, which were then no other than bits, containing several sheaves, and nearly resembling our present top-sail-sheet bits.

KNITTLE, *eguillette*, (*from knit*) a small line, which is either plaited or twisted, and used for various purposes at sea; as to fasten the service on the cable, to reef the sails by the bottom, and to hang the hammocs between decks, &c.

KNOT, a large knob formed on the extremity of a rope, by untwisting the ends thereof, and interweaving them regularly amongst each other. There are several sorts of knots, which differ in their form and size, according to the uses for which they are designed: the principal of these are the diamond-knot, the rose-knot, the wall-knot or walnut, some of

which are single, and others double.

The knots are generally used to fasten one rope to another, by means of a small cord attached to the neck of the knot, called the *laniard*, which is firmly tied about both ropes. They are also designed to prevent the end of a rope from sliding through an *eye*, which the knot is intended to confine in a particular situation. See BECKETS.

L.

TO LABOUR, *travailler*, as a sea-term, implies to roll or pitch heavily in a turbulent sea; an effect, by which the masts and hull of the ship are greatly endangered, because by the rolling motion the masts strain upon their shrouds with an effort, which increases as the sine of their obliquity: and the continual agitation of the vessel gradually loosens her joints, and often makes her extremely leaky.

LADDER, *echelle*, a well-known convenience, of which there are a great number in a ship, formed of two pieces of plank joined together by crosspieces, which serve as steps, whereby to mount or descend from one deck to another.

The ladders derive their names from the several hatchways, or other parts of a ship, wherein they are situated. Besides these, there are, of a particular construction, the accommodation-ladder and the quarter-ladders.

Accommodation-LADDER, is a sort of light stair-case, occasionally fixed on the gangway of the

admiral, or commander in chief, of a fleet. It is furnished with rails and entering-ropes, covered with red bays, and the lower-end of it is retained at a competent distance from the ship's side by iron bars, or braces, to render the passage more convenient to those who enter or depart from the ship. See the article GANGWAY.

Quarter-LADDERS, two ladders of rope, depending from the right and left side of a ship's stern, whereby to descend into the boats which are moored astern, in order to bring them up along-side of the ship; or to use them for any other occasion.

LADEN, *chargée*, the state of a ship when she is charged with a weight or quantity of any sort of merchandizes, or other materials, equal to her tonnage or burthen. If the cargo with which she is laden is extremely heavy, her burthen is determined by the weight of the goods; and if it is light, she carries as much as she can *stow*, to be fit for the purposes of navigation. As a ton in measure is generally estimated at 2000 lb. in weight, a vessel of 200 tons ought accordingly to carry a weight equal to 400,000 lb. when the matter of which the cargo is composed is specifically heavier than the water in which she floats; or, in other words, when the cargo is so heavy that she cannot float high enough, with so great a quantity of it, as her hold will contain.

LADEN *in bulk*, the state of being freighted with a cargo which is neither in casks, boxes, bales, or cases, but lies loose in the hold; being defended from the moisture, or wet of the hold, by a number of mats and a quantity of *dunnage*. Such are usually the cargoes of corn, salt, or such materials.

LAID-UP, the situation of a ship when she is either moored in a harbour during the winter season, or laid by, for want of employment: or when by age and

craziness she is rendered incapable of further service.

LANCH, a peculiar sort of long-boat, used by the French, Spanish, and Italian shipping; and in general by those of other European nations, when employed in voyaging in the Mediterranean sea.

A lanch is proportionably longer, lower, and more flat-bottomed than the long-boat; it is by consequence less fit for sailing, but better calculated for rowing and approaching a flat shore. Its principal superiority to the long-boat, however, consists in being, by its construction, much fitter to under-run the cable, which is a very necessary employment in the harbours of the Levant sea, where the cables of different ships are fastened across each other, and frequently render this exercise extremely necessary.

LANCH is also the movement by which a ship or boat descends from the shore, either when she is at first built, or at any time afterwards.

To facilitate the operation of lanching, and prevent any interruption therein, the ship is supported by two strong platforms, laid with a gradual inclination to the water, on the opposite sides of her keel, to which they are parallel. Upon the surface of this declivity are placed two corresponding ranges of planks, which compose the base of a frame called the *cradle*, whose upper-part envelops the ship's bottom, whereto it is securely attached. Thus the lower surface of the cradle, conforming exactly to that of the frame below, lies flat upon it, lengthways, under the opposite sides of the ship's bottom; and as the former is intended to slide downwards upon the latter, carrying the ship along with it, the planes or faces of both are well daubed with soap and tallow.

The necessary preparations for the lanch being made, all the blocks and wedges, by which the ship was formerly supported, are driven out from under

her keel, till her whole weight gradually subsides upon the platforms above described, which are accordingly called the *ways*. The *shores* and stanchions by which she is retained upon the stocks till the period approaches for lanching, are at length cut away, and the screws applied to move her, if necessary. The motion usually begins on the instant when the shores are cut, and the ship slides downward along the ways, which are generally prolonged under the surface of the water, to a sufficient depth, to float her as soon as she arrives at the farthest end thereof.

When a ship is to be lanched, the ensign, jack, and pendant, are always hoisted, the last being displayed from a staff erected in the middle of the ship. Plate V. fig. 4. represents a ship of war ready to be lanched from the stocks.

The largest ship that ever was lanched in England, is the Britannia, of 100 guns, built at Portsmouth. Ships of the first rate are commonly constructed in dry docks, and afterwards floated out, by throwing open the flood-gates, and suffering the tide to enter, as soon as they are finished.

LAND-FALL, *atterrage*, the first land discovered after a sea-voyage: hence it is common for ships, who accost each other at sea, to wish a good land-fall at parting, by which they imply a discovery of land, at or near the place whither their course is directed, and which they expect to *make* by their journals.

LAND-LOCKED, *bouclé*, the situation of a ship which is environed by the land on all sides in a road, bay, or haven; so as to exclude the prospect of the sea, unless over some intervening land. See the French word *terre*, and the phrases following it.

LANGREL, or LANGRAGE, *mitrailles*, a particular kind of shot, formed of bolts, nails, bars, or other

pieces of iron tied together, and forming a sort of cylinder, which corresponds with the bore of the cannon, from which it is intended to be discharged. This contrivance is particularly designed to wound or carry away the masts, or tear the sails and rigging of the adversary, so as to disable him from flight or pursuit. It is never used in royal ships, but very often by privateers and merchantmen.

LANIARD, (*lanier*, Fr.) a short piece of cord or line, fastened to several machines in a ship, and serving to secure them in a particular place, or to manage them more conveniently. Such are the laniards of the gun-ports, the laniard of the buoy, the laniard of the cat-hook, &c.

The principal laniards used in a ship, however, are those employed to extend the shrouds and stays of the masts, by their communication with the dead-eyes, so as to form a sort of mechanical power, resembling that of a tackle. See DEAD-EYES.

These laniards, *rides*, are fixed in the dead-eyes as follows: One end of the laniard is thrust through one of the holes in the upper dead-eye, and then knotted, to prevent it from drawing out; the other end is then passed through one of the holes in the lower dead-eye, whence, returning upward, it is inserted through the second hole in the upper dead-eye, and next through the second in the lower dead-eye, and finally through the third holes in both dead-eyes. The end of the laniard being then directed upwards from the lowest dead-eye, is stretched as stiff as possible by the application of tackles; and that the several parts of it may slide with more facility through the holes in the dead-eyes, it is well smeared with hog's lard or tallow, so that the strain is immediately communicated to all the turns at once.

LANTHORN, a well-known machine, of which

there are many used in a ship, particularly for the purpose of directing the course of other ships in a fleet or convoy: such are the poop and top-lanthorns, &c.

LAP-SIDED, *bordier*, the state of a ship, which is built in such a manner as to have one side heavier than the other; and, by consequence, to retain a constant *heel*, or inclination towards the heaviest side; unless when she is brought upright, by placing a greater quantity of the cargo, or ballast, on the other side. See BALLAST.

LARBOARD, *babord*, a name given by seamen to the left side of a ship, wherein the right and left are apparently determined by the analogy of a ship's position, on the water, to that of a fish.

LARGE, a phrase applied to the wind, when it crosses the line of a ship's course in a favourable direction, particularly on the *beam* or *quarter*. To understand this more clearly, let us suppose a ship steering west; then the wind, in any point of the compass to the eastward of the south or north, may be called *large*, unless indeed when it is directly east, and then it is said to be right aft.

Sailing LARGE, *aller vent largue*, is therefore advancing with a large wind, so as that the *sheets* are slackened and *flowing*, and the *bowlines* entirely disused. This phrase is generally opposed to sailing *close-hauled*, or with a *scant* wind, in which situation the sheets and bowlines are extended as much as possible.

LASHING, *amarrage*, a piece of rope employed to fasten or secure any moveable body in a ship, or about her masts, sails, and rigging: also the act of fastening or securing any thing by means of the rope used for this purpose.

LATEEN-SAIL, a long triangular sail extended by a

lateen-yard, and frequently used by xebecs, polacres, settees, and other vessels navigated in the Mediterranean sea.

LAYING THE LAND, in navigation, the state of motion which increases the distance from the coast, so as to make it appear lower and smaller; a circumstance which evidently arises from the intervening convexity of the surface of the sea. It is used in contradistinction to *raising* the land, which is produced by the opposite motion of approach towards it.

LEAK, a chink or breach in the decks, sides, or bottom of a ship, through which the water passes into her hull. When a leak first commences, the vessel is said to have sprung a leak.

LEAKY, the state of a ship when abounding with leaks.

LEE, an epithet used by seamen to distinguish that part of the hemisphere to which the wind is directed, from the other part whence it arises; which latter is accordingly called *to windward*. This expression is chiefly used when the wind crosses the line of a ship's course, so that all on one side of her is called *to-windward*, and all on the opposite side, *to leeward*: and hence,

Under the LEE, implies farther to the leeward, or farther from that part of the horizon from whence the wind blows; as,

Under the LEE *of the shore*; *i. e.* at a short distance from the shore which lies to windward. This phrase is commonly understood to express the situation of a vessel, anchored, or sailing under the weather-shore, where there is always smoother water, and less danger of heavy seas, than at a great distance from it[37].

LEE-LARCHES, the sudden and violent rolls which a

ship often takes to the leeward in a high sea, particularly when a large wave strikes her on the weather-side.

LEE-SIDE, all that part of a ship or boat which lies between the mast, and the side farthest from the direction of the wind; or otherwise, the half of a ship, which is pressed down towards the water by the effort of the sails, as separated from the other half, by a line drawn through the middle of her length. That part of the ship, which lies to windward of this line, is accordingly called the *weather-side*.

Thus admit a ship to be sailing southward, with the wind at east, then is her starboard, or right-side, the *lee-side*; and the larboard, or left, the *weather-side*.

LEEWARD-SHIP, a vessel that falls much to-leeward of her course, when sailing *close-hauled*, and consequently loses much ground.

To LEEWARD, towards that part of the horizon which lies under the lee, or whither the wind bloweth. Thus, "We saw a fleet under the lee," and, "We saw a fleet to-leeward," are synonimous expressions.

LEE-WAY, is the lateral movement of a ship to-leeward of her course, or the angle which the line of her way makes with the keel when she is *close-hauled*. See that article.

This movement is produced by the mutual effort of the wind and sea upon her side, forcing her to-leeward of the line upon which she appears to sail; and in this situation her course is necessarily a compound of the two motions by which she is impelled, of which the one presses forward, according to the line of her keel, from H to K, fig. 5. plate V. whilst the other, acting in the line B A, pushes her to leeward of the course from B towards A, with a motion which is usually in proportion to

the force of the wind, and the rate of her velocity, as appears by the following theory.

When a ship is close-hauled, and the head-sails are in perfect equilibrio with those abaft, the resistance of the water from A to B. fig. 5. plate V. is equal to the impulse of the sails, whether it is impressed upon the centre of gravity H of the ship, or any other point of her length before or abaft it. In this situation, the ship will as readily bear away as come nearer to the wind, with regard to the resistance of the water upon her bottom on one side, and the impulsion of the wind upon the sails on the other. But it must be observed, that the united effort of the sails acts upon the ship according to a direction B A, perpendicular to their surfaces, and commencing its action in some point H, being the mean *d* between the different effects C G, of the sails *afore* and abaft, which should exactly correspond with the resistance of the water from A towards B; so that the vessel is pushed to leeward of the course I K, which she steers in the direction B A of the effort of the sails. But the resistance of the water, acting upon the lee-side of her bottom, counterbalances this effort, and becomes stronger, in proportion to the greater facility with which she divides the fluid with her stem; so that she will really advance in the course N R, which lies nearer the line of her keel than B A. Thus the angle K H R of the lee-way is proportional to the greater or less resistance the ship meets with from the fluid upon her lee side, respectively with her greater or less facility of dividing it with her fore-part; so that the lee-way is very inconsiderable, except, when the ship is close-hauled, and is accordingly disregarded whenever the wind, is large.

This demonstration might be pushed farther by a fact founded on daily experience, which proves that

not only the lee-way depends on the form of the vessel, but also the degree of velocity with which she advances; and perhaps never, intirely, upon the greater or less obliquity of the sails with the keel, as some authors have pretended. For when a swift-sailing ship is *close-hauled*, with all her sails out, in a very light wind, and scarcely having *steerage-way*, the lee-way is considerable even in smooth water. This is occasioned by the tardy motion of the vessel, which being feebly pushed forward, cannot impress the water with a forcible effect, and by consequence feels no resistance from it, but is accordingly carried with facility by her sails, in the direction of their effort B A: and if we consider the situation of the ship's side, which presents a great surface of sail above the water, it appears that the lee-way will become yet more perpendicular to the keel. But when the wind makes a forcible impression, the velocity of moving forward is considerably augmented; the ship strikes the fluid with a force, expressed by the square of two or three leagues of swiftness, from B towards A, in the space of an hour, whilst the water repels her effort in a contrary direction. The resistance of the water is then, in the ratio of this square, to the square of her first velocity, or head-way; and in this state will not readily yield to its effort. The lee-way immediately decreases, and will be still farther diminished, if the ship's course is accelerated. If then at the moment when the ship advances with great rapidity, she *bears away* 12 or 15 degrees, or even two points, without altering the general arrangement of her sails, their obliquity remains the same, the ship therefore ought to have the same lee-way, according to the opinion of those who have written on the theory of sailing. The velocity is augmented, because the sails then receive the wind by a greater

sine of incidence, and thereby acquire a more powerful effort, whilst the ship's *head* is always struck by the water in the same parts, and by the same sine of incidence; so that the lee-way is also diminished, because the water resists more, in consequence of the accelerated swiftness; and because the resistance is more exerted on the ship's side than on her head, which is less opposed to its impulsion. Hence we may conclude, that the lee-way of a ship does not entirely depend on the disposition of her sails; that it is different in different vessels, because they are neither formed alike, nor are their sails equally *trimmed* in the same oblique courses: and finally, because they have always a different velocity, at the same time, and under the same sail. Thus it is evident, that the lee-way is always composed of the ship's comparative velocity; of her form, which gives more or less proportional resistance upon the side than on the fore-part; and of the disposition of her sails, as forming a greater or smaller obliquity with the keel. See also CLOSE-HAULED, DRIFT, and SAILING.

LEECHES, *bords*, the borders or edges of a sail, which are either sloping or perpendicular. See GORING.

The leeches of all sails, whose tops and bottoms are parallel to the deck, or at right angles with the mast, are denominated from the ship's side, and the sail to which they belong; as the *starboard* leech of the main-sail, the *lee* leech of the fore-top-sail, &c. but the sails which are fixed obliquely upon the masts, have their leeches named from their situation with respect to the ship's length; as the fore-leech of the mizen, the after-leech of the jib, or fore-stay-sail, &c.

LEECH-LINES, *cargues-bouline*, certain ropes

fastened to the middle of the leeches of the main-sail and fore-sail, and communicating with blocks under the opposite sides of the top, whence they pass downwards to the deck, serving to truss up those sails to the yard, as occasion requires. See BRAILS.

LEECH-ROPE, *ralingue*, a name given to that part of the bolt-rope, to which the border, or skirt of a sail is sewed. In all sails, whose opposite leeches are of the same length, it is terminated above by the earing, and below by the clue. See BOLT-ROPE, CLUE, and EARING.

LENGTHENING, the operation of cutting a ship down across the middle, and adding a certain portion to her length. It is performed by sawing her planks asunder, in different places of her length, on each side of the midship frame, to prevent her from being weakened too much in one place. The two ends are then drawn apart, to a limited distance, which must be equal to the proposed addition of length. An intermediate piece of timber is next added to the keel, upon which a sufficient number of timbers are erected, to fill up the vacancy produced by the separation. The two parts of the kelson are afterwards united, by an additional piece which is scored down upon the floor-timbers; and as many beams as may be necessary, are fixed across the ship in the new interval. Finally, the planks of the side are prolonged, so as to unite with each other, and those of the ceiling refitted in the same manner; by which the whole process is completed.

To LET *in*, *enclaver*, amongst shipwrights, is to fix a diminished part of one plank or piece of timber into a vacancy, formed in another for this purpose. See RABBIT.

LETTER OF MART, a commission granted by the lords of the admiralty, or by the vice-admiral of any

distant province, to the commander of a merchant-ship, or privateer, to cruize against, and make prizes of, the enemy's ships and vessels, either at sea, or in their harbours.

To LIE *along*, or LIE *over*. See the article ALONG.

To LIE-*to*. See LYING-TO, &c.

LIEUTENANT *of a ship of war*, the officer next in rank and power to the captain, in whose absence he is accordingly charged with the command of the ship; as also the execution of whatever orders he may have received from the commander relating to the king's service.

The lieutenant, who commands the watch at sea, keeps a list of all the officers and men thereto belonging, in order to muster them, when he judges it expedient, and report to the captain the names of those who are absent from their duty. During the night-watch, he occasionally visits the lower decks, or sends thither a careful officer, to see that the proper centinels are at their duty, and that there is no disorder amongst the men; no tobacco smoaked between decks, nor any fire or candles burning there, except the lights which are in lanthorns, under the care of a proper watch, on particular occasions. He is expected to be always upon deck in his watch, as well to give the necessary orders, with regard to *trimming* the sails and superintending the navigation, as to prevent any noise or confusion; but he is never to change the ship's course without the captain's directions, unless to avoid an immediate danger.

The lieutenant, in time of battle, is particularly to see that all the men are present at their quarters, where they have been previously stationed according to the regulations made by the captain. He orders and exhorts them every where to perform their duty, and acquaints the captain at all other times of the

misbehaviour of any persons in the ship, and of whatever else concerns the service or discipline.

The youngest lieutenant of the ship, who is also stiled lieutenant at arms, besides his common duty, is particularly ordered, by his instructions, to train the seamen to the use of small arms, and frequently to exercise and discipline them therein. Accordingly his office, in time of battle, is chiefly to direct and attend them, and at all other times to have a due regard to the preservation of the small arms, that they be not lost or embezzled, and that they are kept clean and in good condition for service.

LIFTS, *balanciers*, certain ropes, descending from the cap and mast-head, to the opposite extremities of the yard immediately under; where, passing through a block or pulley, they become double. They are used to keep the yard in equilibrio; or to pull one of its extremities higher than the other, as occasion requires; but particularly to support the weight of it, when a number of seamen are employed thereon, to furl or *reef* the sail.

The lifts of the top-sail-yards, called the top-sail-lifts, are also used as *sheets* to extend the bottom of the top-gallant-sail above.

The yards are said to be squared by the lifts, when they hang at right angles with the mast; that is to say, parallel to the horizon, when the vessel is upright upon the water.

Topping-LIFT. See TOPPING-LIFT.

LIGHT, *lege*, in the sea-language is used in contradistinction to laden. A ship is accordingly called light, either when she has no cargo, or when she is not sufficiently ballasted.

LIGHTER, *allege*, a large, open, flat-bottomed vessel, generally managed with oars, and employed to carry goods to or from a ship when she is to be

laden or delivered. See the article VESSEL.

There are also some lighters furnished with a deck throughout their whole length, in order to contain those merchandizes, which would be damaged by rainy weather: these are usually called close-lighters.

LIGHT-HOUSE, *phare*, *tour à feu*, a sort of tower erected upon a cape or promontory on the sea-coast, or upon some rock in the sea, and having a great fire, or light formed by candles, upon its top, in the night time, which is constantly attended by some careful person, so as to be seen at a great distance from the land. It is used to direct the shipping on the coast, that might otherwise run ashore, or steer an improper course, when the darkness of the night, and the uncertainty of currents, &c. might render their situation, with regard to the shore, extremely doubtful.

LIGHT-ROOM, *fanal de soute*, a small apartment, inclosed with glass windows, near the magazine of a ship of war. It is used to contain the lights by which the gunner, and his assistants, are enabled to fill the cartridges with powder, to be ready for action.

LIMBERS, or LIMBER-HOLES, *parclosses*, certain square holes cut through the lower parts of a ship's floor-timbers, very near the keel. Being disposed in a line, parallel to the keel, they form a channel, which communicates with the pumps throughout the whole length of the floor, so that the water which enters by a leak, and would otherwise be intercepted by the timbers, is easily conveyed to the well-room, where the pumps are fixed. Every floor-timber has two limber-holes cut through it, viz. one on each side of the *kelson*.

LIMBER-BOARDS, short pieces of plank, which form a part of the ceiling, or lining of a ship's floor, close to the kelson, and immediately above the limbers.

They are occasionally removed, when it becomes necessary, to examine, or clear the limber-holes of any filth, sand, chips, or gravel, by which they may be clogged, so as to interrupt the passage of the water, in the ship's floor, to the pump-well.

LIMBER-ROPE, a long rope, frequently retained in the limber-holes of a ship, and communicating from one to another, in order to clear them by pulling the rope backwards and forwards, so as to loosen the sand or dirt by which they may occasionally be choaked.

LINE, *ligne*, a general name given to the arrangement or order in which a fleet of ships of war are disposed to engage an enemy.

This disposition, which is the best calculated for the operations of naval war, is formed by drawing up the ships in a long file, or right line, prolonged from the keel of the hindmost to that of the foremost, and passing longitudinally through the keels of all the others, from the van to the rear; so that they are, according to the sea-phrase, in the *wake* of each other.

In the line, or order of battle, all the ships of which it is composed are *close-hauled*, upon the starboard or larboard-tack, about 50 fathoms distant from each other. See plate V. fig. 5. where *a b* represents the elevation, and A B the plan of this order, upon the starboard-tack; the direction of the wind in both being expressed by the arrow in the latter.

A fleet is more particularly drawn up in the line when in presence of an enemy. It ought to be formed in such a manner as that the ships should mutually sustain and reinforce each other, and yet preserve a sufficient space in their stations, to *work* or direct their movements with facility during the action. Thus they will be enabled effectually to cannonade the

enemy, without incommoding the ships of their own squadron.

The line close-hauled is peculiarly chosen as the order of battle, because if the fleet, which is to windward, were arranged in any other line, the enemy might soon gain the *weather-gage* of it; and even if he thinks it expedient to decline that advantage, it will yet be in his power to determine the distance between the adverse fleets, in an engagement, and to compel the other to action. The fleet to leeward, being in a line close-hauled, parallel to the enemy, can more readily avail itself of a change of the wind, or of the neglect of its adversary, by which it may, by a dextrous management, get to windward of him: or, should it fail in this attempt, it will nevertheless be enabled, by the favourable state of the wind, to avoid coming to action, if the enemy is greatly superior; or to prevent him from escaping, if he should attempt it.

Besides these advantages, this order of battle is singularly convenient and proper in other respects. The sails of each ship are disposed in such a manner as to counter-act each other, so that the ships in general neither advance or retreat during the action. By this circumstance they are enabled to retain their stations with greater stability, and to prosecute the battle with vigour and resolution, yet without perplexity and disorder. The uniformity of the line will be preserved, so that the admiral’s orders may be readily communicated by signals from the van to the rear. The distress of any particular ship, that is disabled and rendered incapable to continue the action, will be presently discovered, and her place accordingly supplied by one of the ships in reserve. The circumstances and situation of the enemy’s line will be ever open to the view of the commander in

chief, so that he may be enabled to convert any disaster that may happen therein to his own advantage.

It may be alledged indeed, that the same reasons hold good with regard to the enemy, to whom this arrangement will be equally beneficial. It may also be observed, that particular occasions have rendered it necessary to break the order of the line; and that sometimes this expedient has been practised with equal judgment and success. To the first of these allegations it may be answered, that in war as well as politics, there are certain general rules absolutely necessary to be observed by the hostile powers: rules which are founded on mutual convenience, and authorised by the invariable example of all ages! Whatever tends to facilitate the designs of the adverse parties on each other, or whatever operates to shorten the period of war, and render it less destructive and fatal, are objects which ought never to be disregarded. Disorder has not only a tendency to protract the war, but to make it more bloody and ruinous, and to aggravate all the calamities with which it is inseparably attended. Perhaps this observation is particularly applicable to our present purpose, unless the consequences of disorder in a sea-fight, as related below, should rather be considered as the creation of fancy, than a recital of facts, naturally resulting from known causes. Although peculiar circumstances have sometimes, by their success, justified the measure of engaging an enemy's fleet, without forming the line; or after the line has been separated; there is nevertheless very few operations in war that require greater delicacy and vigilance, if the hostile fleets are very near to each other. Perhaps no military enterprize can be attended with greater hazard, or with fewer hopes of

success. The incessant fire of so large an assembly of ships in a very short time covers the scene of action with a cloud of smoke, which is constantly accumulating. The winds that enabled the two fleets to approach each other are soon become extremely feeble, or perhaps perfectly lulled, by the explosions of a vigorous cannonade: they are of course incapable any longer to dissipate the smoke, which then darkens the air, and is almost impenetrable to the eye. If in this situation the hostile ships are promiscuously scattered amongst each other, it is easy to foretel the mischief, perplexity, and distraction, to which the whole will be inevitably exposed. Not only is the most comprehensive skill of the commander in chief rendered useless; the smaller ships, abandoned to their ill fortune, may be torn to pieces by superior force, without relief or succour: and, what is infinitely worse than all, the ships of the same fleet may cannonade each other, with all the resolution and spirit which they exert against their enemies! If the design of war is conquest, and not massacre, it is thus totally perverted! The battle, instead of being brought to a speedy issue, and decided by a victory and defeat, is unhappily protracted into a scene of slaughter and ruin, equally fatal and undecisive to both parties.

If then disorder and confusion are fraught with such dangerous consequences in a naval armament, it is no less certain that the principal sinews of its strength are discipline, regularity, vigilance, and activity. It has been already remarked, that the ships of the line should be sufficiently close, to sustain each other; for if they are farther apart than those of the enemy’s line, many single ships will suffer the fire of two at once. Hence the fleet is rendered inferior to that of the enemy, at the onset of battle; a

circumstance which evinces the superiority of larger ships, accompanied with weightier metal! the enemy is defeated by the efforts of a more numerous and more powerful artillery.

Besides these advantages, the larger ships are in other respects highly preferable in a line of battle. They overlook those of an inferior rate, which are accordingly laid open to the fire of their musquetry. In a high sea they can more safely employ the artillery of their lower deck than a smaller ship; and if both are obliged to shut their lower deck ports, the advantage of the three-decked ships, with regard to their cannon, will yet be considerable: they have three tier against two, and two against one. The same superiority subsists, in case they are dismasted, when the upper-deck is encumbered with the ruins.

The large ships, being higher *between-decks*, are less incommoded with the smoke; and their cannon is managed with greater facility.

The large ships, having greater solidity of frame, are better calculated to resist the effects of battle and tempest. In general also, they sail better than the small ones, except in fine weather; for in a fresh wind, when the sea becomes agitated, they have always the superiority.

The fire-ships do not succeed so well against large ships as the smaller ones: the artillery will sink them, or oblige them sooner to relinquish their design; and they are easily *towed* away by the great long boats.

The line of a fleet, which has abundance of capital ships, need not be so much enclosed as that of an enemy who has fewer. The former may be also less numerous, without being weaker.

An open line will, on many occasions, work more easily than one which is more enclosed; and if it is less numerous, the movements thereof are more

expeditious; the signals better attended; the general order more exactly preserved; and the ships less liable to be separated. Hence it will be less embarrassed by a change of wind, and the order will be sooner re-established.

A less numerous line will more readily approach or escape from an enemy, or a hostile shore; and, finally, when cruizing in a smaller space, it will not be so much contracted.

From the preceding reflections it results, that the line, which contains more capital ships, will be stronger than one more numerous, if composed of smaller ships. This reflection however does not exclude a certain number of the third and fourth *rates*, which are necessary in all naval armaments[38].

As the hostile fleets are drawn up in two opposite lines, with their sides to the wind, it is evident that one must be to the leeward of the other, as appears in fig. 8. plate V. Both situations however have their defects as well as advantages.

The advantages of a weather-line are generally, that it may approach the enemy so as to determine the time and distance of action. If it is more numerous than the lee-line, it may easily appoint a detachment to fall upon the van and rear of the latter, and enclose it between two fires. It is little incommoded by the fire or smoke of the cannon, and may dispatch the fire-ships, under cover of the smoke, upon the disabled ships of the lee-line; or wheresoever they may occasion perplexity and disorder, by obliging the enemy to break the line and *bear away*.

The weather-line has nevertheless its defects, which sometimes counterbalance the advantages above recited. If the sea is rough, and the wind boisterous, it cannot readily fight with the lower-

deck battery. It cannot decline the action without the dangerous expedient of forcing through the enemy's line: and if it *keeps the wind*, the lee-line may enclose, and totally destroy it, especially if it is inferior in number to the latter; or if the ships thereof are in bad condition; for it then can find no other resource but in the dexterity of its manœuvres, unless it is favoured by the wind, or any oversight of the enemy. The disabled ships of the weather-line must tack, to avoid falling into the enemy's fleet; and if they are much shattered, they may be altogether separated from their own fleet, particularly if they are in the rear of the line.

The line to leeward has also its advantages, which have occasionally been preferred to those of the weather-line. The ships of the former may use the guns of their lower decks, without the hazard of taking in much water at the ports in stormy weather; whereas the line to windward dare not open them, without the greatest danger. If the lee-line, although more numerous, cannot so easily *double* upon the van and rear of the enemy, and inclose them between two fires, it may nevertheless have opportunities of tacking, and cutting off a part of the enemy's rear, by obliging them to bear away, or separate from the rest. The disabled ships to leeward are much more readily removed from the line than those to windward, without being obliged to tack and continue exposed to the enemy's fire: they bear away, and remain at a competent distance from the fleet in a state of safety. Finally, the lee-line can with more facility avoid the action than its adversary; a circumstance which is extremely favourable to an inferior squadron.

The defects of the lee-line, on the contrary, are, that it cannot decide the time and distance of the

battle, which may commence before it is sufficiently formed; and it will perhaps be attacked by an enemy, who bears away upon it in regular order. The fire and smoke of the weather-line are a great inconvenience to it; and it cannot easily break the enemy's line with its fire-ships, which are very slowly and with great difficulty conveyed to windward.

It must be remarked, that the admiral's ship attentively preserves her station in the centre of the line; for if the commander in chief should give way to the caprice or inattention of any of those under his direction, it would introduce an endless disorder into the squadron.

To illustrate this article, and enable the reader to form a clearer idea of the line, we have, in plate V. represented several distinct views, according to the different situations which it occasionally assumes.

Fig. 7. exhibits a perspective view of the line of battle on the starboard-tack, A B being the plan thereof.

Fig. 8. *a*, represents the profile of the same line on the starboard-tack, as brought to action by the opposite line *b*. The plan of these squadrons, A B, appears immediately below.

It is necessary to remark here, that a fleet frequently retains the order of the same tack, occasionally, when the whole fleet goes about at once, as expressed by *a*, fig. 9. of which A is the plan. Or it goes about gradually, the headmost ship having *tacked* first, and the next tacked as soon as she arrived in her wake; the rest following the same example. See *c*, fig. 7. and C in the plan of the same figure.

It also frequently preserves the order of the line close-hauled, although steering with a large wind,

either in pursuit of a flying enemy, or proceeding in a particular course. Thus the fleet *b*, fig. 10. although ranged so as to be in a line upon the larboard-tack, if close to the wind, is chacing the fleet *a* to leeward, which is either parallel to the former and preserving the same order, or sails on a line abreast, as expressed by the plan C. See also the article ABREAST.

Fig. 11 exhibits a fleet formed into a line, on the starboard-tack, bearing away upon the continuation of the same line astern. Thus supposing them to be formed on the starboard-tack, and sailing due north, in a line ahead; it is evident that if every ship, at one and the same time, bears away and steers south, the whole fleet will again be upon a line ahead, with the wind upon the larboard-quarter, as expressed in this figure, and in the plan under it.

Fig. 12 represents a fleet bearing away, and having half of its ships ranged on the starboard-tack, and the other half on the larboard-tack, so as to form the two sides of the angle *b c a*, of which the commander in chief *a* makes the central point. This disposition is sometimes used to force through a passage which is guarded by an enemy. See also the plan thereof, A B C below, where it is evident that the admiral is the foremost ship, whilst bearing away, although she would be the last in both lines, if they were close-hauled.

Fig. 13 expresses the order of retreat, which is frequently practised by the French, and is directly the reverse of this; because the angular point is farthest to leeward in the former, whereas it is to windward of both lines in the latter; being also the headmost of both, when close-hauled, although the sternmost ship while they are bearing away.

In an engagement, the ships are generally *brought-*

to, with the main-top-sails laid aback, and their fore-top-sails full, for the purpose of bearing away more readily, when occasion requires. This disposition of the sails is represented in fig. 13. plate III. See also LYING-TO.

The line is said to be formed abreast, when the ships sides are all parallel to each other, on a line which crosses their keels at right angles. This is more frequently used in pursuing or retreating, with the wind right aft, so that the line forms a perpendicular with the direction of the wind, as exhibited by the ships C, in the plan annexed to fig. 10.

LINE is also a name given to several small cords, of different sizes, and used for various purposes at sea; as house-line, marline, rattling-line, &c. See those articles.

LINTSTOCK, *baton à feu*, a staff about three feet long, having a sharp point at one end, and a sort of fork or crotch in the other; the latter of which serves to contain a lighted match, and by the former the lintstock is occasionally stuck in the deck, in an upright position. It is frequently used in small vessels, in an engagement, where there is commonly one fixed between every two guns, by which the match is always kept dry and ready for firing.

LOADING. See the articles CARGO and LADING.

Shot-LOCKER. See GARLAND.

LOG, a machine used to measure the ship's head-way, or the rate of her velocity as she advances through the sea. It is composed of a reel and line, to which is fixed a small piece of wood, forming the quadrant of a circle. The term log however is more particularly applied to the latter.

The log, fig. 14, plate V. is generally about a quarter of an inch thick, and five or six inches from the angular point *a* to the circumference *b*. It is

balanced by a thin plate of lead, nailed upon the arch, so as to swim perpendicularly in the water, with about ⅔ immersed under the surface. The line is fastened to the log by means of two legs *a* and *b*, fig. 15, one of which passes through a hole *a* at the corner, and is knotted on the opposite side; whilst the other leg is attached to the arch by a pin *b*, fixed in another hole, so as to draw out occasionally. By these legs the log is hung in equilibrio, and the line, which, is united to it, is divided into certain spaces, which are in proportion to an equal number of geographical miles, as a half minute or quarter minute is to an hour of time.

This instrument is employed to measure the ship's course in the following manner: The reel, fig. 16, about which the log-line is wound, being held by one man, and the half-minute glass by another, the mate of the watch at the same time fixes the pin, and throws the log over the stern, which, swimming perpendicularly in the sea, feels an immediate resistance as the ship advances. To prevent the pin from being drawn by the effort of this resistance, the person who heaves the log continually slackens the line over the stern, or quarter, so that it becomes almost straight on the water, and the log continues nearly in the same place where it first alighted, and is considered as fixed therein. The knots are measured from a mark fastened at the distance of 12 or 15 fathoms from the log; the glass is therefore turned at the instant when this mark passes over the stern, and as soon as the glass runs out, the line is accordingly stopped; when the water, acting forcibly on the surface of the log, immediately dislodges the pin, so that the log, no longer resisting the effort of the water, is easily drawn aboard. The degree of the ship's velocity is then readily determined, by

examining the number of knots nearest to that part of the line, where it was stopped at the expiration of the glass, as the knots increase in their natural order from the mark above mentioned. The space comprehended between that mark and the log is used to let the latter be far enough astern, to be out of the eddy of the ship's *wake* when the glass is turned.

If the glass runs thirty seconds, the distance between the knots should be fifty feet. When it runs more or less, it should therefore be corrected by the following analogy: As 30 is to 50, so is the number of seconds of the glass to the distance between the knots upon the line. As the heat or moisture of the weather has often a considerable effect on the glass, so as to make it run slower or faster, it should be frequently tried by the vibrations of a pendulum. The line, being also liable to relax or shrink from the same cause, ought likewise to be measured, as occasion requires.

It is usual to heave the log once every hour in ships of war and East-India men; and in all other vessels, once in two hours; and if at any time of the watch, the wind has increased or abated in the intervals, so as to affect the ship's velocity, the officer generally makes a suitable allowance for it, at the close of the watch.

LOG-BOARD, a sort of table, divided into several columns, containing the hours of the day and night, the direction of the winds, the course of the ship, and all the material occurrences that happen during the twenty-four hours, or from noon to noon; together with the latitude by observation. From this table the different officers of the ship are furnished with materials to compile their journals, wherein they likewise insert whatever may have been omitted; or

reject what may appear superfluous in the log-board. See the article JOURNAL.

LOG-BOOK, a book into which the contents of the log-board is daily copied at noon, together with every circumstance deserving notice, that may happen to the ship, or within her cognizance, either at sea or in a harbour, &c. The intermediate divisions or watches of the log-book, containing four hours each, are usually signed by the commanding officer thereof, in ships of war or East-Indiamen.

LONG-BOAT, *chaloupe*, the largest and strongest boat belonging to any ship. It is principally employed to carry great burthens, as anchors, cables, ballast, &c. See the article BOAT.

LOOF, the after-part of a ship's bow; or that part of her side forward where the planks begin to be incurvated into an arch, as they approach the *stem*.

LOOK-OUT, *découverte*, a watchful attention to some important object, or event, which is expected to arise from the present situation of a ship, &c. It is principally used in navigation, when there is a probability of danger from the real or supposed proximity of land, rocks, enemies, and, in short, whatever peril she may encounter, through inattention, which might otherwise have been avoided by a prudent and necessary vigilance.

There is always a look-out kept on a ship's forecastle at sea, to watch for any dangerous objects lying near her track, and to which she makes a gradual approach as she advances: the mate of the watch accordingly calls often from the quarter-deck, "Look out afore there!" to the persons appointed to this service.

LOOMING, an indistinct appearance of any distant object, as the sea-coast, ships, mountains, &c. as, "she looms large afore the wind; the looming of the

land is high above the water," &c.

LOOP-HOLES, *meurtrieres*, certain small apertures, formed in the *bulk-heads* and other parts of a merchant-ship, through which the small arms are fired on an enemy who boards her.

To LOOSE, *deferler*, to unfurl or call loose any sail, in order to be *set*, or dried, after rainy weather.

LOST, *passé*, the state of being foundered or cast away; expressed of a ship when she has either sunk at sea, or struck upon a rock, shelf, or lee-shore, where she has beat to pieces by the violence of the sea.

LOW-WATER, that state of the tide, in which the reflux has fallen to its greatest depression from the sea-coasts, or rivers of any country. See the article TIDE.

To LOWER, *amener*, to ease down gradually, expressed of some weighty body, which is suspended by tackles, or other ropes, which, being slackened, suffer the said body to descend as slowly or expeditiously as the occasion requires. Hence

LOWER *handsomely*! and *lower cheerly!* are opposed to each other, the former being the order to lower gradually, and the latter to lower expeditiously.

LUFF, *lof*, the order from the pilot to the steersman to put the helm towards the *lee*-side of the ship, in order to make the ship sail nearer the direction of the wind. Hence, luff round, or luff alee, *envoie, lof tout*, is the excess of this movement, by which it is intended to throw the ship's head up in the wind, in order to tack her, &c.

A ship is accordingly said to spring her luff, *faire une olofée*, when she yields to the effort of the helm, by sailing nearer to the line of the wind than she had done before. See also HAULING *the wind*, and STEERING.

LUff-TACKLE, a name given by sailors to any large tackle that is not destined for a particular place, but may be variously employed as occasion requires. It is generally somewhat larger than the *jigger-tackle*, although smaller than those which serve to hoist the heavier materials into and out of the vessel; which latter are the main and fore-tackles, the stay and quarter-tackles, &c.

LUG-SAIL, *treou*, a square sail, hoisted occasionally on the mast of a boat, or small vessel, upon a yard which hangs nearly at right angles with the mast. These are more particularly in the barca longas, navigated by the Spaniards in the Mediterranean.

LYING-TO, or LYING-BY, *en panne*, the situation of a ship when she is retarded in her course, by arranging the sails in such a manner as to counteract each other with nearly an equal effort, and render the ship almost immoveable, with respect to her progressive motion, or *head-way*. A ship is usually *brought-to* by the main and fore-top-sails, one of which is laid *aback*, whilst the other is full; so that the latter pushes the ship forward, whilst the former resists this impulse, by forcing her astern. This is particularly practised in a general engagement, when the hostile fleets are drawn up in two lines of battle opposite each other. It is also used to wait for some other ship, either approaching or expected; or to avoid pursuing a dangerous course, especially in dark or foggy weather, &c.

LYING-TO *in a storm*. See the article TRYING.

M.

MAGAZINE, *soute au poudres*, a close room or store-house, built in the fore, or after-part of a ship's hold, to contain the gun-powder used in battle, &c. This apartment is strongly secured against fire, and no person is suffered to enter it with a lamp or candle: it is therefore lighted, as occasion requires, by means of the candles or lamps which are fixed in the *light-room* contiguous to it. See that article.

MAGNET. See the article COMPASS.

MAIN, an epithet usually applied by sailors to whatever is principal, as opposed to what is inferior or secondary. Thus the main land is used in contradistinction to an island or peninsula; and the main-mast, the main-wale, the main-keel, and the main-hatchway, are in like manner distinguished from the fore and mizen-masts, the channel-wales, the false-keel, and the fore and after-hatchways, &c.

As the sails, yards, and rigging of the main-mast, are all described in their proper places, namely, under those particular articles, to which the reader is referred, it will be unnecessary to say any thing farther of them here.

To MAKE, is variously applied, in the sea-language, to the land, to the sails, to the ship's course, &c.

To MAKE *a good board*. See the article BOARD.

To MAKE *the land*, *decouvrir*, is to discover it from a distant situation, in consequence of approaching it after a sea-voyage: as, "In your passage to cape Tiburon, it will be necessary to make Turk's Island."

To MAKE *sail*, *faire plus de voiles*, is to increase the quantity of sail already extended, either by letting out the *reefs*, and by hoisting an additional number of small sails, or by performing either of those exercises separately.

To MAKE *sternway*, *aller en arriere*, is to retreat or

move with the stern foremost.

To MAKE *water*, *faire eau*, usually signifies to leak, unless when the epithet *foul* is added thereto. A ship is said to make foul water, when running in shallow water, her keel disturbs and loosens the mud or ooze, lying at the bottom thereof.

MALLET, a sort of wooden hammer, of which there are several sorts used for different purposes on ship-board, as the

Calking-MALLET, an implement chiefly employed to drive the oakum into the *seams* of a ship, where the edges of the planks are joined to each other in the sides, decks, or bottom.

The head of this mallet is long and cylindrical, being hooped with iron to prevent it from splitting in the exercise of calking.

Serving-MALLET, a mallet used in *serving* the rigging, by binding the spun-yarn more firmly about it, than could possibly be done by hand; which is performed in the following manner: the spun-yarn being previously rolled up in a large ball, or clue, two or three turns of it are passed about the rope and about the body of the mallet, which for this purpose is furnished with a round channel in its surface, that conforms to the convexity of the rope intended to be served. The turns of the spun-yarn being strained round the mallet, so as to confine it firmly to the rope, which is extended above the deck, one man passes the ball continually about the rope, whilst the other, at the same time, winds on the spun-yarn by means of the mallet, whose handle acting as a lever, strains every turn about the rope as firm as possible.

MANGER, *gatte*, a small apartment, extending athwart the lower-deck of a ship of war, immediately within the hause-holes, and fenced on the afterpart by a partition, which separates it from the other part

of the deck behind it.

This partition serves as a fence to interrupt the passage of the water, which occasionally gushes in at the hause-holes, or falls from the wet cable whilst it is heaved in by the capstern. The water, thus prevented from running aft, is immediately returned into the sea, by several small channels, called *scuppers*, cut through the ship's side within the manger.

The manger is therefore particularly useful in giving a contrary direction to the water that enters at the hause-holes, which would otherwise run aft in great streams upon the lower deck, and render it extremely wet and uncomfortable, particularly in tempestuous weather, to the men who mess and sleep in different parts thereof.

MARINE, a general name for the navy of a kingdom or state; as also the whole œconomy of naval affairs; or whatever respects the building, rigging, arming, equipping, navigating, and fighting ships. It comprehends also the government of naval armaments, and the state of all the persons employed therein, whether civil or military.

MARINES, or MARINE-FORCES, a body of troops employed in the sea-service, under the direction of the lords of the admiralty.

MARLINE, (*merlin*, Fr.) a small line, somewhat less than house-line, and used for the same purposes. See HOUSE-LINE.

MARLING, the act of winding any small line, as marline, spun-yarn, packthread, &c. about a rope, so that every turn is secured by a sort of knot, so as to remain fixed in case all the rest should be cut through by friction, &c. This expedient is much preferable to the winding a line spirally about a rope for the same purpose, because as the turns are at

some distance from each other, the same quantity of line will serve for the one method as the other; with this difference, that if one of the spiral turns are cut through, the whole will be rendered useless, whereas by marling, this is entirely prevented.

Marling is commonly used to fasten slips of canvas, called *parsling*, upon the surface of a rope, to prevent it from being galled by another rope that rubs against it, to attach the foot of a sail to its bolt-rope, &c.

MARLING-SPIKE, *epissoir*, an iron pin, tapering to a point, and furnished with a large round head. It is principally used to penetrate the twists, or strands of a rope, in order to introduce the ends of some other through the intervals, in the act of *knotting* or *splicing*.

It is also used as a lever, on many other occasions, about the rigging, particularly in fixing the seizings upon the *shrouds*, *block-strops*, *clues* of the sails, &c.

To MAROON, *deserter*, to put one or more sailors ashore upon a desolate island, under pretence of their having committed some great crime. This detestable expedient has been repeatedly practised by some inhuman commanders of merchant-ships, particularly in the West-Indies.

MAST, *mât*, a long round piece of timber, elevated perpendicularly upon the keel of a ship, to which are attached the yards, the sails, and the rigging.

A mast, with regard to its length, is either formed of one single piece, which is called a *pole-mast*, or composed of several pieces joined together, each of which retains the name of mast separately. The lowest of these is accordingly named the lower-mast, *a*, fig. 1. plate VI. the next in height is the top-mast, *b*, which is erected at the head of the former; and the highest is the top-gallant-mast, *c*, which is prolonged from the upper end of the top-mast. Thus the two

last are no other than a continuation of the first upwards.

The lower-mast is fixed in the ship by an apparatus, described in the articles *hulk* and *sheers*: the foot, or heel of it, rests in a block of timber called the step, which is fixed upon the *kelson*; and the top-mast is attached to the head of it by the *cap* and the *tressel-trees*. The latter of these are two strong bars of timber, supported by two prominencies, which are as shoulders on the opposite sides of the mast, a little under its upper end: athwart these bars are fixed the *cross-trees*, upon which the frame of the top is supported. Between the lower mast-head, and the foremost of the cross-trees, a square space remains vacant, the sides of which are bounded by the two tressel-trees. Perpendicularly above this is the foremost hole in the cap, whose after-hole is solidly fixed on the head of the lower-mast. The top-mast is erected by a tackle, whose effort is communicated from the head of the lower mast to the foot of the top-mast; and the upper end of the latter is accordingly guided into, and conveyed up through, the holes between the tressel-trees and the cap, as above mentioned. The machinery by which it is elevated, or, according to the sea-phrase, *swayed-up*, is fixed in the following manner: the top rope *d*, fig. 2. passing through a block *e*, which is hooked on one side of the cap, and afterwards through a hole, furnished with a sheave or pulley *f*, in the lower end of the top-mast, is again brought upwards on the other side of the mast, where it is at length fastened to an eye-bolt in the cap *g*, which is always on the side opposite to the top-block *e*. To the lower end of the top-rope is fixed the top-tackle *h*, the effort of which being transmitted to the top-rope *d*, and thence to the heel of the top-mast *f*, necessarily lifts

the latter upwards, parallel to the lower-mast. When the top-mast is raised to its proper height, fig. 3. the lower end of it becomes firmly wedged in the square hole, above described, between the tressel-trees. A bar of wood, or iron, called the *fid*, is then thrust through a hole *i* in the heel of it, across the tressel-trees, by which the whole weight of the top-mast is supported.

In the same manner as the top-mast is retained at the head of the lower-mast, the top-gallant-mast is erected, and fixed at the head of the top-mast.

Besides the parts already mentioned in the construction of masts, with respect to their length, the lower-masts of the largest ships are composed of several pieces united into one body. As these are generally the most substantial parts of various trees, a mast, formed by this assemblage, is justly esteemed much stronger than one consisting of any single trunk, whose internal solidity may be very uncertain. The several pieces are formed and joined together, as represented in the section of a lower-mast of this sort, fig. 4. plate VI. where *a* is the shaft, or principal piece into which the rest are fixed, with their sides or faces close to each other. The whole is secured by several strong hoops of iron, driven on the outside of the mast, *a*, fig. 1. where they remain at proper distances.

The principal articles to be considered in equipping a ship with masts are, 1st, the number; 2d, their situation in the vessel; and 3d, their height above the water.

The masts being used to extend the sails by means of their yards, it is evident that if their number were multiplied beyond what is necessary, the yards must be extremely short, that they may not entangle each other in *working* the ship, and by consequence their

sails will be very narrow, and receive a small portion of wind. If, on the contrary, there is not a sufficient number of masts in the vessel, the yards will be too large and heavy, so as not to be managed without difficulty. There is a mean between these extremes, which experience and the general practice of the sea have determined; by which it appears, that in large ships, every advantage of sailing is retained by three masts and a bowsprit.

The most advantageous position of the masts is undoubtedly that from whence there results an equilibrio between the resistance of the water, on the body of the ship, on one part, and of the direction of their effort on the other. By every other position this equilibrio is destroyed, and the greatest effort of the masts will operate to turn the ship horizontally about its direction; a circumstance which retards her velocity. It is counterbalanced indeed by the helm; but the same inconvenience still continues; for the force of the wind, having the resistance of the helm to overcome, is not intirely employed to push the vessel forward. The axis of the resistance of the water should then be previously determined, to discover the place of the main-mast, in order to suspend the efforts of the water equally, and place the other masts so as that their particular direction will coincide with that of the *main-mast*. The whole of this would be capable of a solution, if the figure of the vessel were regular, because the point, about which the resistance of the water would be in equilibrio, might be discovered by calculation.

But when the real figure of the ship is considered, these flattering ideas will instantly vanish. This observation induced M. Saverien to employ a mechanical method to discover the axis of resistance of the water, which he apprehended might be used

with success in the manner following:

When the vessel is lanched, before the places of the masts are determined, extend a rope A B, fig. 6. plate VI. from the head to the stern. To the extremities A and B attach two other ropes A D, B C, and apply to the other ends of these ropes two mechanical powers, to draw the ship according to the direction B C, parallel to itself. The whole being thus disposed, let a moveable tube Z, fixed upon the rope A B, have another rope Z R attached to it, whose other end communicates with a mechanical power R, equal to the two powers D and C. This last being applied to the same vessel, in such manner as to take off the effects of the two others by sliding upon the rope A B, so as to discover some point Z, by the parallelism of the ropes A D B C feebly extended with the rope Z R; the line Z R will be the axis of the equilibrium of the water´s resistance, and by consequence the main-mast should be planted in the point Z.

The figures E, E, E, are three windlasses on the shore, by which this experiment is applied.

With regard to the situation of the other masts, it is necessary, in the same manner, to discover two points; so that the direction of the two mechanical powers operating, will be parallel to the axis of resistance R Z already found.

The exact height of the masts, in proportion to the form and size of the ship, remains yet a problem to be determined. The more the masts are elevated above the centre of gravity, the greater will be the surface of sail, which they are enabled to present to the wind; so far an additional height seems to be advantageous. But this advantage is diminished by the circular movement of the mast, which operates to make the vessel stoop to its effort; and this

inclination is increased, in proportion to the additional height of the mast; an inconvenience which it is necessary to guard against. Thus what is gained upon one hand is lost upon the other. To reconcile these differences, it is certain, that the height of the mast ought to be determined by the inclination of the vessel, and that the point of her greatest inclination should be the term of this height, above the centre of gravity. See the article TRIM.

With regard to the general practice of determining the height of the masts, according to the different rates of the ships in the royal navy, the reader is referred to the article SAIL.

In order to secure the masts, and counterbalance the strain they receive from the effort of the sails impressed by the wind, and the agitation of the ship at sea, they are sustained by several strong ropes, extended from their upper-ends to the outside of the vessel, called *shrouds*, see fig. 5. plate VI.

They are further supported by other ropes, stretched from their heads towards the fore-part of the vessel. See RIGGING.

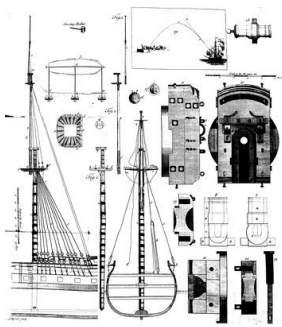


Plate vi.

The mast, which is placed at the middle of the ship's length, is called the main-mast, *grand-mât*; that which is placed in the fore-part, the foremast, *mât de misaine*; and that which is towards the stern is termed the mizen-mast, *mât d'artimon*.

N. B. *Mizen* is applied to this mast by all the nations of Europe, except the French, who alone call the fore-mast *misaine*.

MASTER *of a ship of war*, *maitre*, an officer appointed by the commissioners of the navy to take charge of the navigating and conducting a ship from port to port, under the direction of the captain. The management and disposition of the sails, the working of the ship into her station in the order of battle, and the direction of her movements in the time of action, and in the other circumstances of danger, are also more particularly under his inspection. It is likewise his duty to examine the provisions, and accordingly to admit none into the ship but such as are sound, sweet, and wholsome. He is moreover charged with the *stowage*, or disposition of these materials in the ship's hold; and to enable him the better to perform these services, he is allowed several assistants, who are properly termed mates and quarter-masters. See those articles.

MASTER *of a merchant-ship*, the commanding officer, who is appointed by the merchants to manage the navigation and every thing relating to her cargo, voyage, sailors, &c.

MASTER *at arms*, an officer appointed to teach the officers and crew of a ship of war the exercise of small arms; to confine and plant centinels over the prisoners, and superintend whatever relates to them during their confinement. He is also to observe that the fire and lights are all extinguished as soon as the evening gun is fired, except those which are

permitted by proper authority, or under the inspection of centinels. It is likewise his duty to attend the *gangway*, when any boats arrive aboard, and search them carefully, together with their rowers, that no spirituous liquors may be conveyed into the ship, unless by permission of the commanding officer. In these several duties he is assisted with proper attendants, called his corporals, who also relieve the centinels, and one another, at certain periods.

MASTER-*attendant*, an officer in the royal dock-yards, appointed to hasten, and assist at, the fitting-out or dismantling, removing or securing vessels of war, &c. at the port where he resides. He is particularly to observe, that his majesty's ships are securely moored; and for this purpose he is expected frequently to review the *moorings* which are sunk in the harbour, and observe that they are kept in proper repair to be always ready when occasion requires. It is also his duty to visit all the ships in *ordinary*, and see that they are frequently cleaned and kept in order; and to attend at the general musters in the dock-yards, taking care that all the officers, artificers, and labourers, registered in the navy-books, are present at their duty.

MAT, *coussin*, a sort of thick web or texture, formed of spun-yarn, or of a variety of *strands*, or separate parts of a small rope; or of a number of rope-yarns twisted into *foxes*. The foxes are therefore larger or smaller, as containing a greater or lesser number of rope-yarns, in proportion to the thickness of the mat intended to be woven.

Mats are commonly used to fasten upon the outside of such parts of the standing rigging as are exposed to the friction of other ropes, in extending, shifting, or trussing up the sails, particularly the

lower ones. The largest and strongest sort of these mats are called *panches*.

MATE *of a ship of war*, an officer under the direction of the master, by whose choice he is generally appointed, to assist him in the several branches of his duty. Accordingly he is to be particularly attentive to the navigation in his watch, &c. to keep the *log* regularly, and examine the line, and glasses by which the ship's course is measured, and to adjust the sails to the wind in the fore-part of the ship. He is also to have a diligent attention to the cables, seeing that they are well *coiled* and kept clean when laid in the *tier*, and sufficiently *served* when employed to ride the ship. Finally, he is to superintend, and assist at the stowage of the hold, taking especial care that all the ballast and provisions are properly stowed therein.

MATE *of a merchant-ship*, the officer who commands in the absence of the master thereof, and shares the duty with him at sea; being charged with every thing that regards the internal management of the ship, the directing her course, and the government of her crew.

The number of mates allowed to ships of war and merchantmen is always in proportion to the size of the vessel. Thus a first-rate man of war has six mates, and an East-Indiaman the same number; a frigate of 20 guns, and a small merchant-ship, have only one mate in each: and the intermediate ships have a greater or smaller number, according to their several sizes, or to the services on which they are employed.

MESS, a particular company of the officers or crew of a ship, who eat, drink, and associate together.

MESS-MATE, a companion or associate of the above division. See the article BIRTH.

MIDSHIP, *maitre*, a term of distinction, applied by

shipwrights to several pieces of timber which lie in the broadest part of the vessel; as,

MIDSHIP-BEAM, *maitre-bau*, the beam upon which the extreme breadth of a ship is formed, and which is situated in the *midship-frame*, nearly in the middle of her length, serving as a standard from whence the dimensions and proportions of the masts and yards are to be taken.

MIDSHIP-FRAME, *maitre-couple*, a name given to that timber, or combination of pieces, formed into one timber, which determines the extreme breadth of the ship, as well as the figure and dimension of all the inferior timbers.

In the 8th page, from the beginning of the article *Naval* ARCHITECTURE, the reader will find a full explanation of what is meant by a frame of timbers. He will also perceive the out-lines of all the principal frames, with their gradual dimensions, from the midship-frame delineated in the plane of projection annexed to that article. As the parts, of which the several frames are composed, have the same relation to each other throughout the vessel; and as all the corresponding pieces, without and within those frames, are also nearly alike, and fixed in the same manner, it will be sufficient for our purpose to represent the principal, or midship-frame, together with its corresponding parts, which are as follow:

Explanation of the *Midship-frame*, plate VII. which exhibits a transverse section of a 74 gun ship, at the broadest part, answering to the same scale by which are delineated the head, quarter, and stern of a ship, of the same size, in plates IV. VIII. and X. to which the reader is referred.

A the keel, with *a* the false keel beneath it.

B the chocks fixed upon the kelson, to retain the opposite pieces of the *riders* firmly together.

C one of the beams of the orlop.

D one of the lower-deck beams; with *d* the beams of the upper-deck.

E the hanging-knees, by which the beams are attached to the timbers.

F the standards, which are fixed above the decks to which they belong.

G the clamps, which sustain the extremities of the beams.

H the gun-ports of the lower-deck; with *h* the ports of the upper-deck.

I, K, L different pieces of *thick-stuff*, placed opposite to the several scarfs, or joinings, in the frame of timbers.

M the planks of the deck.

N the water-ways.

O the planks of the ceiling, between the several ranges of thick-stuff.

P the spirketting.

Q the mainwale, to fortify the ship's side opposite to the lower-deck.

R the channel-wale, opposite to the upper-deck.

S the waist-rail.

T the string, with the moulding under the gunwale.

U the floor-timbers, which are laid across the keel, and bolted to it.

V the several futtocks; and W the top-timbers, which are all united into one frame.

X the kelson.

MIDSHIPMAN, a sort of naval cadet, appointed by the captain of a ship of war, to second the orders of the superior officers, and assist in the necessary business of the vessel, either aboard or ashore.

The number of midshipmen, like that of all other officers, is always in proportion to the size of the ship to which they belong. Thus a first-rate man of

war has twenty-four, and the inferior rates a suitable number in proportion. No person can be appointed lieutenant, without having previously served two years in the royal navy in this capacity, or in that of *mate*, besides having been at least four years in actual service at sea, either in merchant-ships, or in the royal navy.

Midshipman is accordingly the station in which a young volunteer is trained in the several exercises, necessary to attain a sufficient knowledge of the machinery, discipline, movements, and military operations of a ship, to qualify him for a sea-officer.

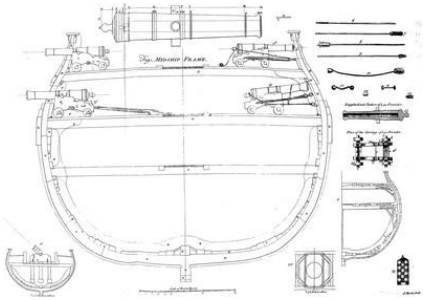


Plate vii.

As the chief object of our attention has been to facilitate the acquisition of this intelligence, we have endeavoured to treat those subjects at large, in the different parts of this work, according to their importance. We have also sketched the general outlines of the respective charges of all the superior officers, which, in conformity to the plan of this work, become previous to this article. Thus the duties of the admiral, the captain, the lieutenant, and the master, are already explained in their proper places; and whatever intelligence appears necessary to discharge those offices, is also, in a high degree, essential to the midshipman. Those officers indeed, as well as many others, are furnished with suitable instructions to regulate their conduct; but the midshipman, being invested with no particular charge from the government, is by consequence omitted in those official regulations. In a work of this kind, however, the importance of the subject is not always determined by the superiority of rank or station. If our province is to communicate instruction, those who are the least informed are certainly the principal objects thereof, and to them

our attention is more peculiarly directed. Hence the extent of our design comprehends many circumstances which would be immaterial in general orders and regulations; and hence abundance of particular directions to respective officers, inserted in those general regulations, are rejected here as foreign to our purpose. Averse as we are, on other occasions, to offend the rigid nicety of a critic, by introducing moral reflections, in a performance dedicated to scientifical description, we must for once be indulged with a short deviation from the plan hitherto invariably followed. Happy! if our efforts may in any degree operate to produce the effects for which they were calculated.

On his first entrance in a ship of war, every midshipman has several disadvantageous circumstances to encounter. These are partly occasioned by the nature of the sea-service, and partly by the mistaken prejudices of people in general, respecting naval discipline, and the genius of sailors and their officers. No character, in their opinion, is more excellent than that of the common sailor, whom they generally suppose to be treated with great severity by his officers, drawing a comparison between them not very advantageous to the latter. The midshipman usually comes aboard tinctured with these prejudices, especially if his education has been amongst the higher rank of people; and if the officers happen to answer his opinion, he conceives an early disgust to the service, from a very partial and incompetent view of its operations. Blinded by these prepossessions, he is thrown off his guard, and very soon surprized to find, amongst those honest sailors, a crew of abandoned miscreants, ripe for any mischief or villainy. Perhaps, after a little observation, many of

them will appear to him equally destitute of gratitude, shame, or justice, and only deterred from the commission of any crimes by the terror of severe punishment. He will discover, that the pernicious example of a few of the vilest in a ship of war are too often apt to poison the principles of the greatest number, especially if the reins of discipline are too much relaxed, so as to foster that idleness and dissipation, which engender sloth, diseases, and an utter profligacy of manners. If the midshipman, on many occasions, is obliged to mix with these, particularly in the exercises of extending or reducing the sails in the tops, he ought resolutely to guard against this contagion, with which the morals of his inferiors may be infected. He should however avail himself of their knowledge, and acquire their expertness in managing and fixing the sails and rigging, and never suffer himself to be excelled by an inferior. He will probably find a virtue in almost every private sailor, which is entirely unknown to many of his officers: that virtue is emulation, which is not indeed mentioned amongst their qualities by the gentleman of *terra firma*, by whom their characters are often copiously described with very little judgment. There is hardly a common tar who is not envious of superior skill in his fellows, and jealous on all occasions to be out-done in what he considers as a branch of his duty! Nor is he more afraid of the dreadful consequences of whistling in a storm, than of being stigmatized with the opprobious epithet of *lubber*. Fortified against this scandal, by a thorough knowledge of his business, the sailor will sometimes sneer in private, at the execution of orders, which to him appear aukward, improper, or unlike a seaman. Nay, he will perhaps be malicious enough to suppress his own judgment, and by a

punctual obedience to command, execute whatever is to be performed, in a manner which he knows to be improper, in order to expose the person commanding to disgrace and ridicule. Little skilled in the method of the schools, he considers the officer who cons his lesson by rote as very ill qualified for his station, because particular situations might render it necessary for the said officer to assist at putting his own orders in practice. An ignorance in this practical knowledge will therefore necessarily be thought an unpardonable deficiency by those who are to follow his directions. Hence the midshipman, who associates with these sailors in the tops, till he has acquired a competent skill in the service of extending or reducing the sails, &c. will be often entertained with a number of scurrilous jests, at the expence of his superiors. Hence also he will learn, that a timely application to those exercises can only prevent him from appearing in the same despicable point of view, which must certainly be a cruel mortification to a man of the smallest sensibility.

If the midshipman is not employed in these services, which are undoubtedly necessary to give him a clearer idea of the different parts of his occupation, a variety of other objects present themselves to his attention. Without presuming to dictate the studies which are most essential to his improvement, we could wish to recommend such as are most suitable to the bent of his inclination. Astronomy, geometry, and mechanics, which are in the first rank of science, are the materials which form the skilful pilot and the superior mariner. The theory of navigation is entirely derived from the two former, and all the machinery and movements of a ship are founded upon the latter. The action of the wind upon the sails, and the resistance of the water

at the stem, naturally dictate an enquiry into the property of solids and fluids: and the state of the ship, floating on the water, seems to direct his application to the study of hydrostatics and the effects of gravity. A proficiency in these branches of science will equally enlarge his views, with regard to the operations of naval war, as directed by the efforts of powder, and the knowledge of projectiles. The most effectual method to excite his application to those studies is, perhaps, by looking round the navy, to observe the characters of individuals. By this enquiry he will probably discover, that the officer, who is eminently skilled in the sciences, will command universal respect and approbation; and that whoever is satisfied with the despicable ambition of shining the hero of an assembly, will be the object of universal contempt. The attention of the former will be engaged in those studies, which are highly useful to himself in particular, and to the service in general. The employment of the latter is to acquire those superficial accomplishments, that unbend the mind from every useful science, emasculate the judgment, and render the hero infinitely more dextrous at falling into his station in the dance, than in the line of battle.

Unless the midshipman has an unconquerable aversion to the acquisition of those qualifications, which are so essential to his improvement, he will very rarely want opportunities of making a progress therein. Every step he advances in those meritorious employments, will facilitate his accession to the next in order. If the dunces, who are his officers or mess-mates, are rattling the dice, roaring bad verses, hissing on the flute, or scraping discord from the fiddle, his attention to more noble studies will sweeten the hours of relaxation. He should recollect

that no example from fools ought to influence his conduct, or seduce him from that laudable ambition which his honour and advantage are equally concerned to pursue.

MIZEN, *artimon*, (*misana*, Ital.) the aftermost or hindmost of the fixed sails of a ship, extended sometimes by a *gaff*, and sometimes by a *yard* which crosses the mast obliquely; the fore-end reaching almost down to the deck, and the after-end being peeked up as high above the middle of the yard, where it is attached to the mast. The figure of the mizen is accordingly a trapezia, or a parallelogram, one of whose corners is cut off by a diagonal, extended from one of its sides to the opposite corner, which becomes the *peek* of the mizen. See the article SAIL.

MIZEN-MAST, the mast upon which the mizen and its top-sail and stay-sails are supported, besides other sails, which are set occasionally, as the *driver*, ring-tail, &c. See the article MAST.

The shrouds, stays, and back-stays of this mast, as well as all the running-rigging, together with its several yards and sails, being described under the articles SHROWD, STAY, YARD, &c. the reader is referred thither for the explanations thereof, which are in general applicable also to the same furniture of both the other masts.

MOLE, a name given in the Mediterranean to a long pier, or artificial bulwark of masonry, extending obliquely across the entrance of a harbour, in order to break the force of the sea from the vessels which are anchored within.

MOLE is also, although improperly, applied to the harbour or haven, which is formed by the bulwark above described, which is then denominated the mole-head.

MONSOON, a name given to the periodical or trade-winds, which blow regularly in certain latitudes of the Indian ocean. They continue five or six months invariably in one direction, and then alter their course, and blow, during an equal space of time, from a different point of the compass with the same uniformity.

MOORING, the act of confining and securing a ship in a particular station, by chains or cables, which are either fastened to the adjacent shore, or to anchors in the bottom.

A ship may be either moored by the *head*, or by the head and stern; that is to say, she may be secured by anchors before her, without any behind: or she may have anchors out, both before and behind her; or her cables may be attached to posts, rings, or *moorings*, which answer the same purpose.

When a ship is moored by the head with her own anchors, they are disposed according to the circumstances of the place where she lies, and the time she is to continue therein. Thus wherever a tide ebbs and flows, it is usual to carry one anchor out towards the flood, and another towards the ebb, particularly where there is little room to range about; and the anchors are laid in the same manner, if the vessel is moored head-and-stern in the same place. The situation of the anchors, in a road or bay, is usually opposed to the reigning winds, or those which are most dangerous; so that the ship rides therein with the effort of both her cables. Thus if she rides in a bay, or road, which is exposed to a northerly wind and heavy sea from the same quarter, the anchors passing from the opposite *bows* ought to lie east and west from each other: hence both the cables will retain the ship in her station with equal effort against the action of the wind and sea.

MOORINGS are usually an assemblage of anchors, chains, and *bridles*, laid athwart the bottom of a river, or haven, to ride the shipping contained therein.

The anchors, employed on this occasion, have rarely more than one fluke, which is sunk in the river near low-water mark. Two anchors, being fixed in this manner, on the opposite sides of the river, are furnished with a chain, extending across from one to the other. In the middle of the chain is a large square link, whose lower end terminates in a swivel, which turns round in the chain as about an axis, whenever the ship veers about with the change of the tide. To this swivel-link are attached the bridles, which are short pieces of cable, well served, whose upper ends are drawn into the ship, at the mooring-ports, and afterwards fastened to the masts, or cable-bits.

A great number of moorings, of this sort, are fixed in the royal ports, or the harbours adjacent to the king's dock-yards, as Deptford, Chatham, Portsmouth, Plymouth, &c.

MORTAR, a piece of artillery, shorter and wider than the cannon, and having a chamber different from the size of its bore.

Mortars are used in the attack of a fortified place, by sea, to discharge bombs or carcases amongst the buildings. The bomb is a great hollow ball, filled with powder, which, falling into the works of a fortification, &c. destroys the most substantial buildings by its weight; and, bursting asunder, creates the greatest disorder and mischief by its splinters.

The chambers of mortars are extremely different in their figures, and each of those figures is defended by better or worse arguments. Thus they are spherical, cylindrical, conical, bottled, or concave. In reality,

nothing appears to be less determined upon true principles or experiments than the proportions of the several parts of a mortar[39].

As the sea-mortars, or those which are fixed in the bomb-vessels, are generally fixed at a much greater distance than is ever required ashore, they are made somewhat longer, and much heavier, than the land-mortars.

Plate VI. fig. 7. represents a sea-mortar, the principal parts of which are, A, the chace; B, the reinforce; C, the breech; and D, the trunnions. The interior part, comprehended between the dotted lines, is called the bore, wherein the bomb is lodged; and the inner part of the bore, which is diminished towards the breech, and contains the powder, is termed the chamber.

Mr. Muller, in his Treatise of Artillery, very justly observes, that the breech of our 13 inch sea-mortars is loaded with an unnecessary weight of metal. The chamber thereof contains 32 pounds of powder, and at the same time they are never charged with more than 12 or 15 pounds, by the most expert officers, because the bomb-vessel is unable to bear the violent shock of their full charge. Thus the action of the powder is diminished by the vacancy left in the chamber, which is never above half filled. As a charge of 12 or 15 pounds of powder at most is therefore sufficient, it is evidently proved, by the theory of powder, that this will produce the greatest effect when discharged from a mortar with a cylindrical chamber, represented by fig. 8. He also proves, by a variety of experiments made by Captain Desaguliers and himself, that the conical chamber, now used, is considerably inferior to the cylindrical one with the last charge of powder.

To facilitate the use of the mortar, it is placed in a

solid carriage of timber, called the bed, whose different parts are strongly bolted together. By means of this it is firmly secured in its situation, so that the explosion of the powder may not alter its direction. In the middle of the upper-side of this carriage, plate VI. fig. 9. are two semi-circular notches, to receive the trunnions; over these are fixed two very strong bands of iron, called the cap-squares, *a*, the middle of which is bent into a semi-circle, to embrace the trunnions, and keep them fast in the mortar-bed. The cap-squares are confined to the timber-work by strong pins of iron, called the eye-bolts, *b*, into whose upper ends are driven the keys, chained beneath them. On the fore-part of the bed a piece of timber is placed transversely, upon which rests the belly of the mortar, or that part which contains the chamber. The elevation of this piece, which is called the bed-bolster, is represented by fig. 13. and the plan by fig. 12. it is used to elevate and support the mortar whilst firing.

These beds are placed upon very strong frames of timber, which are fixed in the bomb-ketch, and represented in fig. 14. plate VI. They are securely attached to the frames, by means of a strong bolt of iron, fig. 15. called the pintle, passing perpendicularly through both, and afterwards through one of the beams of the vessel. Thus the pintle, which passes through the hole in the centre of the plan, fig. 10. serves as an axis to the bed; so that the mortar may be turned about horizontally as occasion requires.

Plate VI. fig. 9. represents the elevation of the bed of a 10 inch sea-mortar; fig. 10 is the plan, and 11 the front view thereof; fig. 12 exhibits the plan, and fig. 13 the elevation of the bed-bolster.

We have already observed, that the bomb, which is

usually called the shell by artillery-people, is a great hollow ball, charged with powder. Fig. 16 is a perspective view of the bomb, and fig. 17 a section of it, whereby the thickness is exhibited. The parts *a* and *b* of the shell are its handles, by which it is lifted up or removed; and *c* is the fuse-hole, or aperture, through which the powder is poured in to charge it.

It appears, by fig. 17, that the lower part of the shell is thickest, by which it becomes heavier on that side, and accordingly falls thereon, and never on the fuse. It is also the better enabled thereby to resist the impression of the powder, by which it is discharged from the mortar. Both of these reasons, however, Mr. Muller conceives to be immaterial, because nothing but an absolute stoppage of the air can exhaust the fuses, as their composition enables them to burn in water, as well as air or earth; and the explosion of the mortar would not, in his opinion, be able to break them, if they are equally thick every where. The most proper quantity of powder to charge a bomb is probably two thirds of the weight which would fill the cavity.

The fuse of the bomb is represented by *c d*, fig. 17. It is generally a conical tube, formed of beech, willow, or some dry wood, and filled with a composition of sulphur, salt-petre, and mealed-powder. The bomb being charged, this fuse is inserted in the cavity through the fuse-hole; and when fired, communicates the fire to the powder in the shell.

The fuses for bombs are charged with great care, that nothing may prevent them from communicating the fire to the powder in the centre of the bomb. They are driven into the shell so as that only about an inch and a half comes out beyond the fuse-hole; and then the shell is said to be fixed.

These fuses are also charged long before there is occasion to use them; and that the composition with which they are filled may not fall out, or be damaged, by growing damp, the two ends are covered with a composition of tallow, mixed either with pitch or bees wax. When the fuse is to be put into the shell, the little end is opened or cut off; but the great end is never opened till the mortar is to be fired[40].

When the proper quantity of powder, necessary to charge the mortar, is put into the chamber, it is covered with a wad, well beat down with the rammer. After this the fixed shell is placed upon the wad, as near the middle of the mortar as possible, with the fuse-hole uppermost, and another wad pressed down close upon it, so as to keep the shell firm in its position. The officer then points the mortar, or gives it the inclination necessary to carry the bomb to the place designed. When the mortar is thus fixed, the fuse is opened; the priming-iron is also thrust into the touch-hole of the mortar to clear it, after which it is primed with the finest powder. This done, two of the matrosses, or sailors, taking each one of the matches, the first lights the fuse, and the other fires the mortar. The bomb, thrown out by the explosion of the powder, is carried to the place intended; and the fuse, which ought to be exhausted at the instant of the shell's falling, inflames the powder contained therein, and bursts the shell into splinters; which, flying off circularly, occasion incredible mischief wheresoever they reach.

Necessary orders before a bombardment by sea.

When any fixed shells are issued from the tenders, the artillery people on board are immediately to fix others in their room, and are always to keep in their tenders the same number they had at first.

The shells are to be fixed in the boat appointed to carry them, provided the weather permits; otherwise, in the safest place on deck, and to be *kitted*, or lowered down into a spare rack, which must be in each boat for that purpose. While the shells are fixing, the powder-room is to be shut, the hatches laid and well secured against fire, and the place where they are fixed is to be well watered.

The shells being carefully examined in order that no spike is left therein, by which the fuse may be split, the fuses are to be cut the full length, and to be set home into the shell very strongly.

No shells, fixed during the service, are to be kitted; but if any should be left, when the service is over, they are immediately to be kitted.

The powder in the bomb-vessels is to be used first; and none to be opened or measured out, except in the captain's cabin, the door of which is to be kept shut during the whole time, and covered with tanned hides, to make it as secure as possible.

The fixed shells in the boats are to be likewise covered from fire or wet with hair-cloth and tanned hides, with the utmost care.

If the service is carried on at night, all the powder is to be ready measured out in cartridges, which may be kept in the powder-magazine and captain's cabin, in the empty powder-barrels and powder-bags; and all the shells requisite are to be ready. The tin tubes, one powder-horn, and the port-fires; also the punches and bits for the vents, are to be kept in the captain's cabin.

No fire or light, except match and port-fires, to be

on board either bomb-vessel or tender during the service.

The captain's cabin and the passage to it; also the way to the magazine and decks, are to be constantly watered.

The spunges for the mortars are to be all examined and tried, and if too large, they are to be cut so as to enter easily.

The vents of the mortars are to be examined, and the punches and tubes tried in them.

A laboratory-chest is to be on board each bomb-vessel, in the captain's cabin, in which all the small stores are to be kept.

Two tubs of water are to be on deck, for the lightest port-fires and match, which must be constantly held in them till ordered to fire.

Two careful men are also to be appointed for this service, who are to do nothing else on any account.

Two careful men of the artillery are to be left on board each tender, for the filling and fixing of the shells.

Application must be made to the admiral for two men of war's boats to attend on each bomb-ketch and tender, for carrying shells and stores. One of these is to be loaded with fixed shells, which, when sent to the bomb-vessel, must remain with her until they are all taken out, which should be only as they are wanted for loading the mortars; it is then to return to the tender. The other boat, mean while, will be receiving more fixed shells, and on the signal given from the bomb-ketch for more shells, must immediately repair to her with them.

A gang of warrant-officers, and eight seamen, are to be at each mortar, to give whatever assistance may be required.

A gang from the navy, with a careful warrant-

officer, and a non-commissioned officer of the artillery, are to have the charge between decks on board each bomb and tender, to get up the fixed shells that are in the rack; and a careful person is to remain constantly at the powder-room door, which must be kept shut as much as possible.

When any powder is wanted from the tender for loading the mortar, it should be measured out in the tender, and the proper charge put into paper-cartridges, upon which should be written the quantity, and the mortar for which it is allotted.

If the service of mortars should render it necessary to use pound-shots, 200 of them, with a wooden bottom, are to be put into the 13 inch mortar, and a quantity of powder, not exceeding five pounds; and 100 of the above shot, with 2½ lb. of powder for the 10 inch mortar, or 3 lb. at most.

One inch of fuse burns 4 seconds and 48 parts.

Weight of the sea-mortars and shells, as also of their full c

Nature of the mortar.	Powder contained in the chamber when full.			Weight of the mortar.			Weight of the shell when fixed.	W c
	lb.	oz.	pl.	Cwt.	qu.	lb.	lb.	
10 inch howitzer	12	0	0	31	2	26		
13 inch mortar	30	0	0	81	2	1	198	
10 inch mortar	12	0	0	34	2	11	93	

The howitzer, fig. 18. is a sort of mortar, which is to be fixed horizontally like a cannon; and has, like the cannon, a wheel-carriage. These pieces, however,

are very rarely used in the sea-service.

For an account of the elevation of the mortar, and flight of bombs according to the different charges of powder, the reader is referred to the article RANGE.

MOULD, *devers*, a thin flexible piece of timber, used by shipwrights, as a pattern whereby to form the different curves of the timbers, and other *compassing* pieces, in a ship's frame. There are two sorts of these, namely, the bend-mould and hollow-mould: the former of these determines the convexity of the timbers, and the latter, their concavity on the outside, where they approach the keel, particularly towards the extremities of the vessel. The figure, given to the timbers by this pattern, is called their *bevelling*. See that article.

MOUNTED, *monté*, the state of being armed or equipped with a certain number of cannon; expressed of a vessel of war.

MOUSE, *fusée*, a sort of knob, usually in the shape of a pear, wrought on the outside of a rope, by means of spun-yarn, parsling, &c. as described in the article *puddening*. It is used to confine some other securely to the former, and prevent it from sliding along its surface.

These mouses are particularly used on the stays of the lower-mast, to prevent the *eye* from slipping up to the mast; a circumstance which would render it extremely difficult to remove the stay from the mast-head, when necessary.

MOUSING *a hook*, the operation of fastening a small cord, or line, across the upper-part, from the point to the back thereof, in order to prevent it from unhooking by the motion of the vessel, or otherwise.

MUSTERING, (*mousteren*, Dutch) the act of calling over a list of the whole ship's company, or any particular detachment thereof, who are accordingly

summoned to answer by their names on the occasion.

N.

NAVAL, of or belonging to a ship, or to the royal navy. Hence we say, naval-stores, naval officers, &c.

NAVE-LINE, a sort of small tackle, depending from the head of the main-mast and foremast, and fastened to the middle of the *parrel* immediately behind the mast, and communicating with the gears. It is used to keep the parrel directly opposite to the yard, and particularly whilst hoisting or lowering, as it would otherwise hang under the yard, and prevent it from being sufficiently *braced*.

NAVIGATION, (*navigation*, Fr.) the art of directing the movements of a ship by the action of the wind upon the sails. See the article SAILING.

Navigation is then applied, with equal propriety, to the arrangement of the sails, according to the state of the wind; and to the directing and measuring a ship's course by the laws of geometry; or it may comprehend both, being then considered as the theory and practice thereof.

Since every sea-officer is presumed to be furnished with books of navigation, in which that science is copiously described, it would be superfluous to enter into a particular detail of it in this place. As it would also be a fruitless task to those who are entirely ignorant of the rules of trigonometry, it appears not to come within the limits of our design: and those

who are versed in that science generally understand the principles of navigation already. It suffices to say, that the course of a ship, and the distance she has run thereon, are measured by the angles and sides of a right-angled plain triangle, in which the hypothenuse is converted into the distance; the perpendicular, into the difference of latitude; the base, into the departure from the meridian; the angle, formed by the perpendicular and hypothenuse, into the course; and the opposite angle, contained between the hypothenuse and base, into its complement of the course.

The course of the ship is determined by the *compass*; and the *log-line*, or a solar observation, ascertains the distance. Hence the hypothenuse and angles are given, to find the base and perpendicular; a problem well known in trigonometry.

That part of navigation, which regards the piloting or conducting a ship along the sea-coast, can only be acquired by a thorough knowledge of that particular coast, after repeated voyages. The most necessary articles thereof are already described in the article COASTING: it is sufficient to observe, that the bearings and distances from various parts of the shore are generally ascertained in the night, either by *light-houses*, or by the different depths of the water, and the various sorts of ground at the bottom; as shells of different sizes and colours, sand, gravel, clay, stones, ooze, or shingle. In the day, the ship's place is known by the appearance of the land, which is set by the compass, whilst the distance is estimated by the master or pilot.

NAVY (from *navis*, Lat.) implies, in general, any fleet or assembly of ships. It is, however, more particularly understood of the fleet of vessels of war, that belong to a kingdom or state, to be employed

either in assaulting and destroying its enemies, or protecting its commerce, and defending its coasts against hostilities or invasion.

The navy of Great-Britain, together with its civil and military departments, is governed by the lord high-admiral, or the lords commissioners for executing this office. It is divided into several classes, or orders, in proportion to the size of the ships, &c. See the article RATE.

If the only objects to be considered in the distribution of the navy, into different rates, were to improve ship-building, and facilitate the operations of the marine, it might appear expedient to multiply the rates, much beyond their present number, which would oblige the shipwrights to study the principles of their art with more diligence and application. But the simplicity of the service in our dock-yards, and the views of œconomy, which ought never to be neglected when they regard important objects, has rendered it convenient to arrange the masts, the yards, the sails, the rigging, and artillery, into six rates; which, besides that of sloops of war, answers all the purposes of the navy. See DOCK-YARDS.

NAVY is also the collective body of officers employed in his majesty's sea-service.

NEAPED, (from *nepflod*, Sax.) the situation of a ship which is left aground on the height of a spring-tide, so that she cannot be floated off till the return of the next spring. See TIDE.

NEEDLE, See the article COMPASS.

NETTING, a sort of fence, formed of an assemblage of ropes, fastened across each other, so as to leave uniform intervals between. These are usually stretched along the upper-part of a ship's quarter, and secured in this position by *rails* and *stanchions*. See QUARTER.

NIPPERS, *garcettes de tournevire*, certain pieces of flat, braided cordage, used to fasten the cable to the *voyal* in a ship of war, when the former is drawn into the ship by mechanical powers applied to the latter.

These nippers are usually six or eight feet in length, according to the size of the cable; and five or six of them are commonly fastened about the cable and voyal at once, in order to be heaved in by the capstern. Those which are farthest aft are always taken off, as the cable approaches the main hatchway; and others are at the same time fastened on, in the fore-part of the ship, to supply their places. The persons employed to bind the nippers about the cable and voyal, are called nipper-men: they are assisted in this office by the boys of the ship, who always supply them with nippers, and receive the ends of those which are fastened, to walk aft with them, and take them off at the proper place, in order to return them to the nipper-men.

NITTLES. See KNITTLES.

NO NEARER! (*arrive!*) the command given by the pilot, or quarter-master, to the helmsman, to steer the ship no higher to the direction of the wind than the sails will operate to advance the ship in her course. It is often abbreviated into *no near*, and sometimes into *near*; and is generally applied when the sails shake in the wind. See SHIVERING.

NO MAN'S LAND, *St. Aubinet*, a space between the after-part of the belfrey and the fore-part of a ship's boat, when the said boat is stowed upon the booms, as in a *deep-waisted* vessel. These booms are laid from the forecastle nearly to the quarter-deck, where their after-ends are usually sustained by a frame called the gallows, which consists of two strong posts, about six feet high, with a cross piece, reaching from one to the other, *athwart-ships*, and serving to support the

ends of those booms, masts, and yards, which lie in reserve to supply the place of others carried away, &c. The space called *No man's land* is used to contain any blocks, ropes, tackles, &c. which may be necessary on the forecastle. It probably derives this name from its situation, as being neither on the starboard nor larboard side of the ship, nor on the *waiste* or *forecastle*; but being situated in the middle, partakes equally of all those places.

NORMAN, a name given to a short wooden bar, thrust into one of the holes of the windlass in a merchant-ship, whereon to fasten the cable. It is only used when there is very little strain on the cable, as in a commodious harbour, when the ship is well sheltered from the wind and tide.

NUTS *of the anchor*, two little prominencies, appearing like short square bars of iron, fixed across the upper-part of the anchor-shank, to secure the stock thereof in its place; for which purpose there is a corresponding notch, or channel, cut in the opposite parts of the stock, of the same dimensions with the nuts. See the article ANCHOR.

O.

OAKHAM, or OAKUM, the substance into which old ropes are reduced, when they are untwisted, loosened, and drawn asunder. It is principally used to drive into the seams, or intervals, between the planks of a ship, to prevent the water from entering. See the article CAULKING.

White OAKUM, is that which is formed of untarred ropes.

OAR, *rame*, (*are*, Sax.) a long piece of timber, flat at one end, and round or square at the other, and which being applied to the side of a floating-vessel, serves to make it advance upon the water.

That part of the oar which is out of the vessel, and which enters into the water, is called the blade, or wash, *plat*; and that which is within-board, is termed the loom, whose extremity, *manche*, being small enough to be grasped by the *rowers*, or persons managing the oars, is called the handle.

To push the boat or vessel forwards, by means of this instrument, the rowers turn their backs forward, and, dipping the blade of the oar in the water, pull the handle *forward* so that the blade at the same time may move *aft* in the water: But since the blade cannot be so moved, without striking the water, this impulsion is the same, as if the water were to strike the blade from the stern towards the head: the vessel is therefore necessarily moved according to this direction. Hence it follows, that she will advance with the greater rapidity, by as much as the oar strikes the water more forcibly. Thus it is evident, that an oar acts upon the side of a boat or vessel like a lever of the second class, whose fulcrum is the station, upon which the oar rests on the boat's *gunnel*. In large vessels, this station is usually called the *row-port*; but in lighters and boats it is always termed the *row-lock*.

To ship the OARS, *armer*, is to fix them in the row-locks ready for rowing.

OBSERVATION, the art of measuring the altitude of the sun or a star, in order to determine the latitude, or the sun's azimuth, &c.

OFF, an expression applied to the movement of a

ship, when she sails out from the shore towards the distant sea. When a ship is beating to windward, so that by one board she approaches towards the shore, and by the other sails out to sea-ward, she is said to stand off and on shore, alternately. Hence,

OffiNG, *largue*, *dehors*, implies out at sea; or at a competent distance from the shore, and generally out of anchor-ground.

OffWARD, the situation of a ship which lies aground, and leans off from the shore.

OLERON, a name given to a code of general rules relating to naval affairs, and formed by Richard I. when he was at the island of Oleron. These have been frequently esteemed the most excellent sea-laws in the world; and are still preserved in the black book of the admiralty.

OPEN, *debouclé*, the situation of a place which is exposed to the wind and sea, with little or no shelter for shipping to anchor therein.

OPEN, *ouvert*, is also expressed of any distant object, to which the sight or passage is not intercepted by something lying, or coming between. Thus, to be open with any place, is to be opposite to it; as the entry of a port, road, or haven.

OPENING, a passage, or streight, between two adjacent coasts or islands.

ORDINARY, *gardiens*, the establishment of the persons employed by the government to take charge of the ships of war, which are *laid-up* in the several harbours adjacent to the royal dock-yards. These are principally composed of the warrant-officers of the said ships, as the gunner, boatswain, carpenter, deputy-purser and cook, and their servants. There is besides a crew of labourers enrolled in the list of the ordinary, who pass from ship to ship occasionally to pump, moor, remove, or clean them, whenever it is

necessary.

The term *ordinary* is also applied, sometimes, to the ships themselves; it is likewise used to distinguish the inferior sailors from the most expert and diligent. Thus the latter are rated *able* on the navy-books, and have 1*l.* 4*s.* per month whereas those who are rated *ordinary*, have only 19*s.* per month.

ORLOP, (*over-loop*, Dutch) *faux-pont*, a plat-form of planks laid over the beams, in the hold of a ship of war, whereon the cables are usually coiled, and the several officers store-rooms contained.

OVER-BOARD, the state of being thrown out of a ship, or boat, into the water whereon she swims: also the act of falling from such a vessel into the sea, &c. as, the ship sprung a leak, and obliged us to throw the guns over-board; a heavy sea broke over the deck, and carried two of our men over-board.

OVER-CAST-STAFF, *trebuchet*, a scale, or measure, employed by shipwrights to determine the difference between the curves of those *timbers* which are placed near the greatest breadth, and those which are situated near the extremities of the keel, where the floor rises and grows narrower.

OVER-HAULING, *parcourir*, the act of opening and extending the several parts of a *tackle*, or other assemblage of ropes, communicating with blocks or *dead-eyes*. It is used to remove those blocks to a sufficient distance from each other, that they may be again placed in a state of action, so as to produce the effect required. See the article TACKLE.

OVER-HAULING, is also vulgarly expressed of an examination or inspection into the condition of a person or thing.

OVER-MASTED, the state of a ship, whose masts are too high, or too heavy, for the weight of her hull

to counter-balance.

OVER-SETTING, *chavirer*, the act of turning any thing upside-down; also the movement of a ship when she over-turns, *faire capot*, so that the keel becomes above the water, and the masts under the surface.

OUT, *dehors*, an expression frequently used at sea, implying the situation of the sails when they are *set*, or extended, to assist the ship's course; as opposed to *in*; which is also applied, in the contrary sense, to signify that such sails are furled.

OUT-FIT, is generally used to signify the expences of equipping a ship for a sea-voyage; or of arming her for war, or both together. See FITTING-OUT.

OUT OF TRIM, *endormi*, the state of a ship when she is not properly balanced for the purposes of navigation; which is either occasioned by the size, or position of her masts and sails; or by the comparative quantity, or arrangement of her cargo and ballast in the hold.

OUT-RIGGER, a strong beam of timber, of which there are several fixed on the side of a ship, and projecting from it, in order to secure the masts in the act of *careening*. See that article.

The outer ends of these beams are firmly lashed to a bolt in the ship's side beneath, by which they are enabled to support the mast, by counteracting the strain it suffers from the effort of the careening tackles; which being applied in the mast-head, draws it downwards, so as to act upon the vessel with the power of a lever, whose fulcrum is in her centre of gravity.

OUT-RIGGER is also a small boom, occasionally used in the *tops* to thrust out the breast-back-stays to windward, in order to increase their tension, and thereby give additional security to the top-mast.

This boom is usually furnished with a tackle at its inner-end, communicating with one of the topmast-shrouds; and has a notch on the outer end to contain the back-stay, and keep it steddy therein. As soon as the back-stay is drawn tight, by means of its tackle in the *chains*, the out-rigger is applied aloft, which forces it out to windward, beyond the circle of the top, so as to increase the angle which the mast makes with the back-stay, and accordingly enable the latter the better to support the former.

This machine is sometimes applied without any tackle; it is then thrust out to its usual distance beyond the top-rim, where it is securely fastened; after which the back-stay is placed in the notch, and extended below.

OWNER, the proprietor of a ship, by whom she is freighted to the merchant for a sea-voyage.

P.

PACKET, or PACKET-BOAT, (*paquet*, Fr.) a vessel appointed by the government to carry the mail of letters, packets, and expresses from one kingdom to another by sea, in the most expeditious manner. Thus the packet-boats, under the direction of the post-master-general of Great-Britain, carry the mails from Dover to Calais, from Falmouth to Lisbon, from Harwich to Helvoetsluys, and from Parkgate to Dublin.

PADDLE, *pagaie*, (*pattal*, Welsh) a sort of oar used by the savages of Africa and America to navigate

their canoes. It is much shorter and broader in the blade than the oars of a boat, and is equally employed in rowing and steering. See the article CANOE.

PAINTER, *cableau*, (probably from *bindar*, Sax. to bind) a rope employed to fasten a boat either along-side of the ship to which she belongs, or to some wharf, key, &c. as occasion requires.

PALM, *paumet*, an implement used instead of a thimble in the exercise of making and mending sails. It is formed of a piece of leather or canvas, on the middle of which is fixed a round plate of iron, of an inch in diameter, whose surface is pierced with a number of small holes, to catch the head of the sail-needle. The leather is formed so as to encircle the hand, and button on the back thereof, while the iron remains in the palm; so that the whole strength of the hand may be exerted to thrust the needle through the canvas, when it is stiff and difficult to be penetrated in sewing.

PANCH, a sort of thick and strong mat, or texture, formed by interweaving twists of rope-yarn as close as possible. It is chiefly used to fasten on the outside of the yards, or rigging, to prevent their surfaces from being rubbed by the friction of some other contiguous object, particularly when the vessel is rocked by a tempestuous sea. See also MAT.

PARBUCKLE, a contrivance used by sailors to *lower* a cask or bale from any height, as the top of a wharf or key, into a boat or lighter, which lies along-side, being chiefly employed where there is no crane or tackle.

It is formed by fastening the *bight* of a rope to a post, or ring, upon the wharf, and thence passing the two parts of the rope under the two quarters of the cask, and bringing them back again over it; so that

when the two lower parts remain firmly attached to the post, the two upper parts are gradually slackened together, and the barrel, or bale, suffered to roll easily downward to that place where it is received below. This method is also frequently used by masons, in lifting up or letting down large stones, when they are employed in building; and from them it has probably been adopted by seamen.

PARCELLING, certain long narrow slips of canvas, daubed with tar, and frequently bound about a rope, in the same manner as bandages are applied to a broken limb in surgery.

This is chiefly practised when the said rope is intended to be *served*, at which time the parcelling is laid in spiral turns, as smoothly upon the surface as possible, that the rope may not become uneven and full of ridges. It is also employed to raise the *mouses*, which are formed on the *stays* and on the *voyal* being firmly fastened by *marling* it from one end to the other.

PARCELLING a *seam*, is laying a shred of canvas upon it, and daubing it over with melted pitch, both above and below the canvas.

PARLIAMENT-HEEL, the situation of a ship, when she is made to stoop a little to one side, so as to clean the upper part of her bottom on the other side, and cover it with a new composition; and afterwards to perform the same office on that part of the bottom which was first immersed. The application of a new composition, or *coat* of stuff, on this occasion, is called *boot-topping*. See that article.

PARREL, *racage*, (probably from *parallel*) a machine used to fasten the sail-yards of a ship to the masts, in such a manner as that they may be easily hoisted and lowered thereon, as occasion requires.

There are four different sorts of parrels, one of

which is formed of a single rope; another, of a rope communicating with an assemblage of *ribs* and trucks; a third, of a rope passing through several trucks, without any *ribs*; and the fourth, of a *truss*, by which the yard may be at any time slackened from the mast, or confined thereto as close as possible.

The first of these, which is also the simplest, is formed of a piece of rope, well covered with leather, or spun-yarn, and furnished with an eye at each end. The middle of it being passed round the middle of the yard, both parts of it are fastened together on the after-side of the yard, and the two ends, which are equally long, are passed round the after-part of the mast; and one of them being brought under, and the other over the yard, the two eyes are lashed together with a piece of spun-yarn on the fore-side thereof, whilst another lashing is employed to bind them together, behind the mast, according to the manner described in the article MARLING.

The second and most complicated are composed of ribs and trucks, the former of which are long flat pieces of wood, having two holes near their ends, *bigots*, as represented by fig. *a.* plate VIII. the latter, *pommes*, are small globular pieces, *b*, with a hole through the middle, of the same size with those of the ribs. Between every two ribs are placed two trucks, of which one is opposite to the upper hole, and the other to the lower holes of both ribs; so that the parrel-rope, *bâtard*, which passes through the whole, unites them together like a string of beads.

In order to fasten this machine *c* more conveniently about the mast and yard, so as to attach the latter to the former, the parrel-rope is formed of two pieces, each of which are furnished with an eye at one end, and both eyes lie on one side of the mast; that is to say, one piece of the rope passes through

the lower part of the parrel, and thence under the yard, whilst the other comes through the upper part of the parrel and over the yard, till both eyes meet on the fore-side of the yard, where they are *joined* together. The other two ends of the parrel-rope are passed about the yard, and the hind part of the parrel alternately, till the latter is sufficiently secured to the former. The whole process is compleated by *marling* the turns of the parrel-rope together, so as to confine them close in the cavity, formed on the back of the ribs, as expressed in the figure.

The third is nothing more than a single rope, with any number of trucks thereon, sufficient to embrace the mast. These are calculated for the cheeks of a *gaff*. See that article.

The last, which are known by the name of truss-parrels, are somewhat resembling the first, only that instead of being fastened by lashings, the ropes, of which they are composed, communicate with tackles reaching to the deck, so that the parrel may be occasionally slackened or straitened, in order to let the yard move off from the mast, or confine it thereto as strictly as possible. The last of these are peculiar to the lower-yards, whereon they are extremely convenient. The second are always used for the top-sail yards, and frequently for the lower-yards, in merchant-ships; and the first are seldom employed but for the top-gallant-yards.

PARSLING. See PARCELLING.

PARTING, *démarrer*, the state of being driven from the anchors, expressed of a ship, when she has broke her cable by the violence of the wind, waves, or current, or all of them together.

PARTNERS, *etambraies*, certain pieces of plank nailed round the several *scuttles*, or holes, in a ship's deck, wherein are contained the masts and capsterns.

They are used to strengthen the deck where it is weakened by those breaches, but particularly to support it when the mast leans against it; as impressed by a weight of sail, or when the capstern bears forcibly upon it whilst charged with a great effort.

PARTNERS is also a name given occasionally to the scuttles themselves, wherein the masts and capsterns are fixed.

PASS, or PASSPORT, a permission granted by any state to navigate in some particular sea, without hindrance or molestation from it. It contains the name of the vessel, and that of the master, together with her tonnage, and the number of her crew, certifying that she belongs to the subjects of a particular state, and requiring all persons, at peace with that state, to suffer her to proceed on her voyage without interruption.

PASSAGE, *traversée*, a voyage from one place to another by sea; an outward or homeward-bound voyage.

PASSAREE, a rope used to fasten the main-tack down to the ship's side, a little behind the *chesstree*. This contrivance however is very rarely used, and never but in light breezes of wind.

PAUL, *elinguet*, (*epaule*, Fr.) a certain short bar of wood, or iron, fixed close to the *capstern*, or *windlass* of a ship, to prevent those engines from rolling back, or giving way, when they are employed to heave-in the cable, or otherwise charged with any great effort. See CAPSTERN and WINDLASS.

PAUNCH. See PANCH.

To PAY, *espalmer*, as a naval term, implies to daub or anoint the surface of any body, in order to preserve it from the injuries of the water, weather, &c.

Thus the bottom of a ship is paid with a composition of tallow, sulphur, resin, &c. as described in the article BREAMING.

The sides of a ship are usually paid with tar, turpentine, or resin; or by a composition of tar and oil, to which is sometimes added red oker, &c. to protect the planks thereof from being split by the sun or wind. The lower-masts are, for the same reasons, paid with materials of the same sort, if we except those, along which their respective sails are frequently hoisted and lowered; such are the masts of *sloops* and *schooners*, which are always paid with tallow for this purpose: for the same reason all top-masts and top-gallant-masts are also paid with hog's lard, butter, or tallow. See COAT and STUff.

PAYING-OFF, *abattée*, the movement by which a ship's head falls to leeward of the point whither it was previously directed: particularly when, by neglect of the helmsman, she had inclined to windward of her course, so as to make the head-sails shiver in the wind, and retard her velocity. See also FALLING-Off.

PAYING-Off is likewise used to signify the payment of the ship's officers and crew, and the discharge of the ship from service, in order to be laid-up at the moorings.

PAYING-OUT, or PAYING-AWAY, the act of slackening a cable, or other rope, so as to let it run out of the vessel for some particular purpose.

PEAK, or PEEK, a name given to the upper-corner of all those sails which are extended by a *gaff*; or by a yard which crosses the mast obliquely, as the mizen-yard of a ship, the main-yard of a *bilander*, &c. The upper extremity of those yards and gaffs are also denominated the peak. Hence

PEEK-HALIARDS, are the ropes, or tackles, by

which the outer end of a gaff is hoisted, as opposed to the *throat*-haliards, which are applied to the inner end. See HALIARDS.

PENDANT, *flamme*, a sort of long narrow banner, displayed from the mast-head of a ship of war, and usually terminating in two ends or points, as expressed by *a*, fig. 4. plate V. There are, besides others, pendants, *cornets*, of a larger kind, used to distinguish the chief of a squadron of ships. See the article COMMODORE.

PENDANT, *pantoire*, is also a short piece of rope, fixed under the shrouds, upon the head of the main-mast and fore-mast, from which it depends as low as the *cat-harpings*, having an eye in the lower-end, which is armed with an iron *thimble*, to prevent the eye from being fretted by the hooks of the main and fore-tackles, &c.

There are, besides, many other pendants of the latter kind, which are generally single or double ropes, to whose lower extremities is attached a block, or tackle: such are the fish-pendant, the yard-tackle-pendants, the reef-tackle-pendants, &c. all of which are employed to transmit the effort of their respective tackles to some distant object.

PERIAGUA, a sort of large canoe, used in the Leeward islands, South America, and the gulf of Mexico. It differs from the common vessels of that name, as being composed of the trunks of two trees, hollowed and united into one fabric; whereas those which are properly called canoes, are formed of the body of one tree. See CANOE.

PIER, a strong mound, or fence, projecting into the sea, to break off the violence of the waves from the entrance of a harbour.

PILLOW, *coussin*, a block of timber, whereon the inner-end of the bowsprit is supported. See

BOWSPRIT.

PILOT, the officer who superintends the navigation, either upon the sea-coast or on the main ocean. It is, however, more particularly applied by our mariners to the person charged with the direction of a ship's course, on, or near the sea-coast, and into the roads, bays, rivers, havens, &c. within his respective district[41].

PIN *of a block*. See BLOCK.

PINK, (*pinque*, Fr.) a name given to a ship with a very narrow stern; whence all vessels, however small, whose sterns are fashioned in this manner, are called *pink-sterned*.

PINNACE, a small vessel, navigated with oars and sails, and having generally two masts, which are rigged like those of a schooner.

PINNACE is also a boat, usually rowed with eight oars. See the article BOAT.

PINTLES, certain pins or hooks, fastened upon the back part of the rudder, with their points downwards, in order to enter into, and rest upon the *googings*, fixed on the stern-post to hang the rudder. See HELM.

PIRATE, *pirate* (πειρατης, Gr.) a sea-robber, or an armed ship that roams the seas without any legal commission, and seizes or plunders every vessel she meets indiscriminately, whether friends or enemies.

The colours usually displayed by pirates are said to be a black field, with a death's head, a battle-axe and hour-glass. The last instrument is generally supposed to determine the time allowed to the prisoners, whom they take, to consider whether they will join the pirates in their felonious combination, or be put to death, which is often perpetrated in the most cruel manner.

Amongst the most celebrated pirates of the north is

recorded *Alvilda*, daughter of a king of the Goths, named *Sypardus*. She embraced this occupation to deliver herself from the violence imposed on her inclination, by a marriage with *Alf*, son of *Sigarus*, king of Denmark. She drest herself as a man, and composed her band of rowers, and the rest of her crew, of a number of young women, attired in the same manner. Amongst the first of her cruizes she touched at a place where a company of pirates bewailed the death of their captain. The strangers were captivated with the agreeable manners of Alvilda, and chose her for their chief. By this reinforcement she became so formidable upon the sea, that prince Alf came to engage her. She sustained his attacks for a considerable time; but, in a vigorous action, Alf boarded her vessel, and having killed the greatest part of her crew, seized the captain, namely, herself; whom nevertheless he knew not, because the princess had a casque which covered her visage. Being master of her person, he removed the casque, and, in spite of her disguise, instantly recognized her, and offered her his hand in wedlock[42].

PITCH, *brai*, (*pix*, Lat.) a composition, black, dry, brittle, and shining, which remains at the bottom of an alembic after the oil of turpentine is drawn off by distillation. It is used in calking a ship, to fill the chinks, or intervals between the planks of her sides, or decks, or bottom. It is sometimes mixed with resin, or other glutinous material. See TAR.

To PITCH *the seams*. See the article PAY.

PITCHING, *tangage*, (*appicciare*, Ital.) may be defined, the vertical vibration which the length of a ship makes about her centre of gravity; or the movement, by which she plunges her *head* and after-part alternately into the hollow of the sea.

This motion may proceed from two causes: the waves, which agitate the vessel; and the wind upon the sails, which makes her stoop to every blast thereof. The first absolutely depends upon the agitation of the sea, and is not susceptible of inquiry; and the second is occasioned by the inclination of the masts, and may be submitted to certain established maxims[43].

When the wind acts upon the sails, the mast yields to its effort, with an inclination, which increases in proportion to the length of the mast, to the augmentation of the wind, and to the comparative weight and distribution of the ship's lading.

The repulsion of the water, to the effort of gravity, opposes itself to this inclination, or at least sustains it, by as much as the repulsion exceeds the momentum, or absolute effort of the mast, upon which the wind operates. At the end of each blast, when the wind suspends its action, this repulsion lifts the vessel; and these successive inclinations and repulsions produce the movement of *pitching*, which is very inconvenient; and when it is considerable, will greatly retard the course, as well as endanger the mast, and strain the vessel.

PLANE, a term used by shipwrights, implying the area, or imaginary surface, contained within any particular outlines. Thus the plane of elevation, plate I. exhibits a surface limited by the head before, by the stern abaft, by the keel below, and by the upper part of the vessel's side above. Thus the horizontal plane, in the same plate, is comprehended within the lines which describe the ship's greatest breadth and length; and thus also the plane of projection, represented likewise in plate I. circumscribes the greatest height and breadth of the same vessel.

PLANKING, *border*, the act of covering and lining

the sides of a ship with an assemblage of oak planks, which completes the process of ship-building, and is sometimes called *laying on the skin*, by the artificers. See the article BUILDING.

The breadth and thickness of all the planks of a 74 gun ship, as also of her *wales* and *thick-stuff*, are exhibited in the midship section, plate VII.

PLAT, *garcette de cable*, a sort of braided cordage, formed of several *strands* of old rope-yarn, twilled into *foxes*. It is used to wind about that part of the cable which lies in the *hause-hole*, or against the fore-part of the ship, where it would otherwise be greatly injured by the continual friction, produced by the agitation of the ship in stormy weather. See the articles FRESHEN and SERVICE.

PLUG, *pelardeaux*, (*plugg*, Swed.) certain pieces of timber, formed like the frustrum of a cone, and used to stop the hause-holes, and the breaches made in the body of a ship by cannon-balls; the former of which are called hause-plugs, and the latter, shot-plugs, which are formed of various sizes in proportion to the holes made by the different sizes of shot, which may penetrate the ship´s sides or bottom in battle; accordingly they are always ready for this purpose. See ENGAGEMENT.

PLUNDER, *butin*, a name given to the effects of the officers or crew of a prize, which are pillaged by the captors.

PLYING, the act of making, or endeavouring to make, a progress against the direction of the wind. Hence a ship, that advances well in her course in this manner of sailing, is said to be a good plyer, *boulinier*. See the articles BEATING and TACKING.

POINT, a low angle, or arm of the shore, which projects into the sea, or into a river, beyond the rest of the beach.

POINTING, the operation of tapering the end of a rope, and weaving a sort of mat, or close texture, about the diminished part of it, so as to thrust it more easily through any hole, and prevent it from being readily untwisted. Thus the end of a *reef-line* is pointed, so that, being stiffer, it may more readily penetrate the eye-let holes of the reef; and the ends of the strands of a cable are occasionally pointed, for the greater conveniency of *splicing* it to another cable, especially when this task is frequently performed. The extremities of the splice of a cable are also pointed, that it may pass with more facility through the hause-holes.

POINTS, *garcettes de ris*, short flat pieces of braided cordage, tapering from the middle towards each end, and used to reef the courses and top-sails of a ship. See the article REEF.

POLACRE, a ship with three masts, usually navigated in the Levant, and other parts of the Mediterranean. These vessels are generally furnished with square sails upon the main-mast, and *lateen* sails upon the fore-mast and mizen-mast. Some of them however carry square sails upon all the three masts, particularly those of Provence in France. Each of their masts is commonly formed of one piece, so that they have neither top-mast nor top-gallant-mast; neither have they any *horses* to their yards, because the men stand upon the top-sail-yard to loose or furl the top-gallant-sail, and on the lower-yard to *reef*, loose, or furl the top-sail, whose yard is lowered sufficiently down for that purpose. See also XEBEC.

POLE-AXE, a sort of hatchet nearly resembling a battle-axe, having an handle about 15 inches in length, and being furnished with a sharp point, or claw, bending downwards from the back of its head; the blade whereof is formed like that of any other

hatchet. It is principally employed to cut away and destroy the rigging of any adversary who endeavours to board.

Pole-axes are also said to have been successfully used on some occasions in boarding an enemy, whose sides were above those of the boarder. This is executed by detaching several gangs to enter at different parts of the ship's length, at which time the pole-axes are forcibly driven into her side, one above another, so as to form a sort of scaling-ladders.

POLE-MAST. See the article MAST.

Under bare POLES, *etre à sec*, the situation of a ship at sea when all her sails are furled, particularly in a tempest. See the articles SCUDDING and TRYING.

POMIGLION, a name given by seamen to the cascabel, or hindmost knob of a cannon. See that article.

PONTOON, (*ponton*, Fr.) a low flat vessel, nearly resembling a lighter, or barge of burthen, and furnished with cranes, *capsterns*, tackles, and other machinery necessary for careening ships of all sizes. These are very common in the principal parts of the Mediterranean, but are rarely used in the northern parts of Europe.

POOP, *dunette*, (*puppis*, Lat.) the highest and aftmost deck of a ship. See the article DECK.

POOP-ROYAL, *dunette sur dunette*, a short deck, or platform, placed over the aftmost part of the poop in the largest of the French and Spanish men of war, and serving as a cabin for their masters and pilots. This is usually called the top-gallant-poop by our shipwrights.

POOPING, the shock of a high and heavy sea, upon the stern or quarter of a ship, when she *scuds* before the wind in a tempest. This circumstance is extremely dangerous to the vessel, which is thereby

exposed to the risk of having her whole stern beat inwards, by which she would be immediately laid open to the entrance of the sea, and of course, foundered or torn to pieces.

PORT, a harbour or haven on the sea-coast. See the article HARBOUR.

PORT is also a name given, on some occasions, to the larboard, or left-side of the ship, as in the following instances:

The ship heels to PORT, *i. e.* stoops or inclines to the larboard side.

Top the yard to PORT, the order to make the larboard extremity of a yard higher than the other. See TOPPING.

PORT *the helm*! the order to put the helm over to the larboard-side of the vessel.

In all these senses this phrase appears intended to prevent any mistakes happening from the similarity of sounds in the words starboard and larboard, particularly when they relate to the helm, where a misapprehension might be attended with very dangerous consequences.

PORTS, *sabords*, the embrasures or openings in the side of a ship of war, wherein the artillery is ranged in battery upon the decks above and below.

The ports are formed of a sufficient extent to point and fire the cannon, without injuring the ship's side by the recoil; and as it serves no end to enlarge them beyond what is necessary for that purpose, the shipwrights have established certain dimensions, by which they are cut in proportion to the size of the cannon.

The ports are shut in at sea by a sort of hanging-doors, called the *port-lids*, *mantelets*; which are fastened by hinges to their upper-edges, so as to let down when the cannon are drawn into the ship. By

this means the water is prevented from entering the lower-decks in a turbulent sea. The lower and upper edges of the ports are always parallel to the deck, so that the guns, when levelled in their carriages, are all equally high above the lower extremity of the ports which is called the port-cells. The ports are exhibited, throughout the ship's whole length, by H. in the ELEVATION, plate I. They are also represented upon a larger scale in plate IV. fig. 10. and plate VIII. fig. 3. The gun-room-ports, in the ship's counter, are expressed by H. fig. 1. plate X. See also the articles DECK and CANNON.

POWDER-CHESTS, certain small boxes, charged with powder and a quantity of old nails, or splinters of iron, and fastened occasionally on the decks and sides of a ship, in order to be discharged on an enemy who attempts to seize her by boarding. See that article.

These cases are usually from 12 to 18 inches in length, and about 8 or 10 in breadth, having their outer or upper-part terminating in an edge. They are nailed to several places of the *quarter*, the quarter-deck and bulk-head of the waist, having a train of powder which communicates with the inner apartments of the ship, so as to be fired at pleasure to annoy the enemy. They are particularly used in merchant-ships, which are furnished with close quarters to oppose the boarders. See CLOSE-QUARTERS.

PRAM, or PRAME, a sort of lighter, used in Holland and the ports of the Baltic sea, to carry the cargo of a merchant-ship *along-side*, in order to lade her: or to bring it ashore to be lodged in the store-houses after being discharged out of the vessel.

PRATIC, *pratique*, a term used in the European ports of the Mediterranean sea, implying free

intercourse or communication with the natives of the country, after a limited quarantine has been performed, in consequence of a voyage to Barbary or Turkey.

PREVENTER, an additional rope, employed at times to support any other, when the latter suffers an unusual strain, particularly in a strong gale of wind; as the

PREVENTER-BRACE, a temporary brace, fixed occasionally to succour the main or fore-yard of a ship, but particularly the latter, when it is charged with a greater effort than usual, and which, it is apprehended, the common standing braces would not be able to support. See BRACE.

Preventer-shrouds, and *Preventer-stays*, are applied, in the same manner, to serve the same purposes; and may be easily understood by referring to the articles SHROUD and STAY.

PRICKING *the chart*, *pointer*, the act of tracing a ship's course upon a a marine chart, by the help of a scale and compasses, so as to discover her present situation.

PRICKING *the sails*, the act of stitching two cloths of a sail together along the space, comprehended between the two edges, or selvages, that overlay each other. Or, it is the sowing a middle-seam between the two seams which are employed to unite every cloth of a sail to the next adjoining. This operation is rarely performed till the sails have been worn for a considerable time, so that the twine, with which they were originally sewed, is become very feeble and incapable of resisting the efforts of a strong gale of wind.

PRIMING, the train of powder which is laid from the opening of the touch-hole, along the cavity of the pan, in order to fire the piece: also the operation of

laying this train. See the articles CANNON and EXERCISE.

PRIMING-WIRE, or PRIMING-IRON, a sort of iron-needle, employed to penetrate the touch-hole of a cannon, when it is loaded, in order to discover whether the powder contained therein is thoroughly dry, and fit for immediate service.

PRIVATEER, a vessel of war, armed and equipped by particular merchants, and furnished with a military commission by the admiralty, or the officers who superintend the marine department of a country, to cruize against the enemy, and take, sink, or burn their shipping, or otherwise annoy them as opportunity offers. These vessels are generally governed on the same plan with his majesty's ships, although they are guilty of many scandalous depredations, which are very rarely practised by the latter.

PRIZE, a vessel taken from the enemy by a ship of war, privateer, or armed merchantman[44].

PRIZING, the application of a lever to move any weighty body, as a cask, anchor, cannon, &c.

PROTEST, an instrument, drawn up in writing, and attested before a justice of peace, by the master and a part of the ship's crew after the expiration of a voyage, describing the severity of the said voyage, occasioned by tempestuous weather, heavy seas, an insufficient crew, or any other circumstances by which the ship has suffered, or may suffer, either in her hull, masts, rigging, or cargo. It is chiefly intended to shew, that such damages or misfortunes did not happen through any neglect or ill conduct of the master or his officers.

PROW, *proue* (*pros*, Lat.) a name given by seamen to the beak, or pointed cut-water of a polacre, xebeck, or galley. The upper-part of the prow, in

those vessels, is usually furnished with a grating-platform for the convenience of the seamen who walk out to perform whatever is necessary about the sails or rigging on the bowsprit.

PUDDENING, *bourrelet*, a thick wreath, or circle of cordage, tapering from the middle towards the ends, and fastened about the main-mast and fore-mast of a ship, to prevent their yards from falling down, when the ropes by which they are usually suspended are shot away in battle.

The puddening, which is represented by fig. 1. plate VIII. is generally formed in the following manner: A small piece of rope, whose length is twice the diameter of the mast, is spliced together at the two ends, and being thus doubled and extended, a *thimble* is seized into each of the extremities. After this a large quantity of parcelling is firmly wound about its surface in such a manner as to make it gradually larger from the two ends towards the middle. It is afterwards, once or twice, *served* with spun-yarn throughout its whole length, to bind the parcelling more closely, and render it firmer and more compact; and the whole is completed by *pointing* it on the surface. Being then fitted with a laniard at one of the eyes, it is fixed about the mast by passing the laniard alternately through both eyes or thimbles on the fore side of the mast. See also DOLPHIN.

PULLING, a name given by sailors to the act of rowing with the oars.

PUMP, a well-known machine, used to discharge the water from the ship's bottom into the sea.

The common pump is so generally understood, that it hardly requires any description. It is a long wooden tube, whose lower end rests upon the ship's bottom, between the timbers, in an apartment called

the *well*, inclosed for this purpose near the middle of the ship's length.

This pump is managed by means of the brake, and the two boxes, or pistons. Near the middle of the tube, in the chamber of the pump, is fixed the lower-box, which is furnished with a staple, by which it may at any time be hooked and drawn up, in order to examine it. To the upper-box is fixed a long bar of iron, called the spear, whose upper-end is fastened to the end of the brake, by means of an iron bolt passing through both. At a small distance from this bolt the brake is confined by another bolt between two cheeks, or ears, fixed perpendicularly on the top of the pump. Thus the brake acts upon the spear as a lever, whose fulcrum is the bolt between the two cheeks, and discharges the water by means of the valves, or clappers, fixed on the upper and lower boxes.

These sort of pumps, however, are very rarely used in ships of war, unless of the smallest size. The most useful machine of this kind, in large ships, is the chain-pump, which is universally used in the navy. This is no other than a long chain, equipped with a sufficient number of valves, at proper distances, which passes downward through a wooden tube, and returns upward in the same manner on the other side. It is managed by a *roller* or *winch*, whereon several men may be employed at once; and thus it discharges, in a limited time, a much greater quantity of water than the common pump, and that with less fatigue and inconvenience to the labourers.

This machine is nevertheless exposed to several disagreable accidents by the nature of its construction. The chain is of too complicated a fabric, and the sprocket-wheels employed to wind it up from the ship's bottom, are deficient in a very

material circumstance, *viz.* some contrivance to prevent the chain from sliding or jerking back upon the surface of the wheel, which frequently happens when the valves are charged with a considerable weight of water, or when the pump is violently worked. The links are evidently too short, and the immechanical manner in which they are connected, exposes them to a great friction in passing round the wheels. Hence they are sometimes apt to break or burst asunder in very dangerous situations, when it is extremely difficult or impracticable to repair the chain.

The consideration of the known inconveniences of the above machine has given rise to the invention of several others which should better answer the purpose. They have been offered to the public one after another with pompous recommendations by their respective projectors, who have never failed to report their effects as considerably superior to that of the chain-pump with which they have been tried. It is however much to be lamented, that in these sort of trials there is not always a scrupulous attention to what may be called mechanical justice. The artist who wishes to introduce a new piece of mechanism, has generally sufficient address to compare its effects with one of the former machines which is crazy or out of repair. A report of this kind indeed favours strongly of the evidence of a false witness, but this finesse is not always discovered. The persons appointed to superintend the comparative effects of the different pumps, have not always a competent knowledge of hydraulics to detect these artifices, or to remark with precision the defects and advantages of those machines as opposed to each other. Thus the several inventions proposed to supplant the chain-pump have hitherto proved ineffectual, and are now

no longer remembered.

Of late, however, some considerable improvements have been made on the naval chain-pump, by Mr. Cole, under the direction of Capt. Bentinck. The chain of this machine is more simple and mechanical, and much less exposed to damage. It is exactly similar to that of the fire engine, and appears to have been first applied to the pump by Mr. Mylne, to exhaust the water from the caissons at Black-fryars bridge. It has thence been transferred to the marine by Capt. Bentinck, after having received some material additions to answer that service. The principal superiority of this pump to the former is, 1. That the chain is more simple and more easily worked, and of course less exposed to injuries by friction. 2. That the chain is secured upon the wheel, and thereby prevented from jerking back when charged with a column of water. 3. That it may be easily taken up and repaired when broken, or choaked with ballast, &c. 4. That it discharges a much greater quantity of water with an inferior number of men.

The latter part of this account is inserted after the last article in W.

PUNT, a sort of flat-bottomed boat, whose floor resembles the platform of a floating-stage. It is used by the naval artificers, either in *calking*, *breaming*, or repairing the bottom of a ship.

PURCHASE, a name given by sailors to any sort of mechanical power employed in raising or removing heavy bodies, or in fixing or extending the ship's rigging. Such are the tackles, windlasses, capsterns, screws, and handspikes.

PURSER, an officer, appointed by the lords of the admiralty, to take charge of the provisions of a ship

of war, and to see that they are carefully distributed to the officers and crew, according to the instructions which he has received from the commissioners of the navy for that purpose.

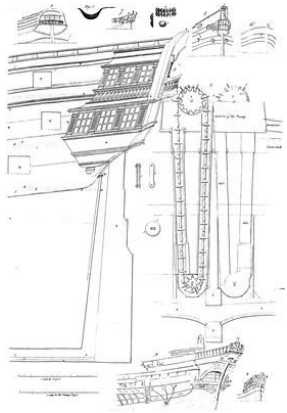


Plate viii to face QUARTER

Q.

QUADRANT, an instrument used to take the altitude of the sun or stars at sea, in order to determine the latitude of the place; or the sun's azimuth, so as to ascertain the magnetical variation.

These instruments are variously constructed, and by consequence the apparatus of each kind is somewhat different from those of the others, according to the improvements they have at different times received from several ingenious artists.

As all the different kinds of quadrants are circumstantially described, either in printed directions to use them, or in other books, a particular account of them here might reasonably be esteemed superfluous. It suffices to say that the most useful, as well as the most general, for taking observations at sea is the octant, originally invented by Sir Isaac Newton, and since that time improved and brought into practice by Mess. Godfrey and Hadley. It may not however be unnecessary to remark, that the back-observation, which, in many situations, is certainly more accurate and useful than that which is taken in front, is almost totally neglected by our observers, under pretence of its being more uncertain, or more liable to error: but really because it is somewhat more difficult to learn. We may venture to affirm however, that no artist, who thoroughly understands the operation, will ever advance so absurd an objection, unless we should doubt the testimony of a multitude of experiments.

QUARANTINE, the state of the persons who are restrained within the limits of a ship, or lazaretto; or otherwise prevented from having a free communication with the inhabitants of any country, till the expiration of an appointed time, during which they are repeatedly examined with regard to their health. It is chiefly intended to prevent the importation of the plague, from the countries under the dominion of the Turks.

QUARTER *of a ship*, *hanche*, that part of a ship's side which lies towards the stern, or which is comprehended between the aftmost end of the main *chains* and the sides of the stern, where it is terminated by the quarter-pieces.

Although the lines by which the quarter and bow of a ship, with respect to her length, are only

imaginary, yet experience appears sufficiently to have ascertained their limits: so that if we were to divide the ship's sides into five equal portions, the names of each space would be readily enough expressed. Thus the first, from the stern, would be the quarter; the second, abaft the midships; the third, the midships; the fourth, before the midships; and the fifth, the bow. Whether these divisions, which in reality are somewhat arbitrary, are altogether improper, may be readily discovered by referring to the mutual situation or approach of two adjacent vessels. The enemy boarded us on the larboard-side! Whereabouts? Abaft the midships, before the midships, &c.

Plate VIII. fig. 3. represents a geometrical elevation of the quarter of a 74 gun ship, as corresponding with the other figures of a ship of the same rate, delineated upon the same plate. See the articles HEAD, MIDSHIP-FRAME, and STERN.

In this figure, all the parts are distinguished by the same letters as those in the plane of elevation, plate I. wherein the quarter is continued into the side, upon a smaller scale.

Explanation of fig. 3. plate VIII.

A the keel, with *a* the false keel beneath it.

B the stern-post.

D D the quarter-gallery, with its ballustrades and windows.

E F the quarter-pieces, which limit and form the outlines of the stern.

F the taffarel, or upper pieces of the stern.

F G the profile of the stern, with its galleries.

H the gun-ports of the lower-deck.

h the gun-ports of the upper and quarter-decks.

I the after-part of the mizen-channel.

K the wing-transom.

K G the lower counter.

L B the station of the deck-transom.

L Q the after-part of the main-wale.

D R the after-part of the channel-wale, parallel to the main-wale,

S U the sheer-rail, parallel to both wales.

T *t* the rudder.

A *t* F the rake of the stern.

P *i i* the drift-rails.

T U the after-part of the load *water-line*.

k k l the curve of the several decks corresponding to those represented in the head.

As the marks, by which vessels of different constructions are distinguished from each other, are generally more conspicuous on the stern, or quarter, than any other part, we have represented, in plate VIII. some of the quarters, which assume the most different shapes, and form the greatest contrast with each other.

Fig. 4. shews the stern and quarter of a Dutch flight.

Fig. 5. the stern and quarter of a cat.

Fig. 8. is the stern and quarter of a common galley.

Fig. 9. exhibits the quarter of a first-rate galley, otherwise called a galleasse.

Fig. 6. the quarter of a Dutch dogger, or galliot.

Fig. 7. represents the stern and quarter of a sloop of war.

The quarters of all other ships have a near affinity to those above exhibited. Thus all ships of the line, and East-Indiamen, are formed with a quarter little differing from the principal figure in this plate. Xebecs have quarters nearly resembling those of

galeasses, only somewhat higher. Hag-boats and pinks approach the figure of *cats*, the former being a little broader in the stern, and the latter a little narrower; and the sterns and quarters of cats seem to be derived from those of fly-boats. The sterns of Dutch doggers and galliots are indeed singular, and like those of no other modern vessel: they have nevertheless a great resemblance to the ships of the antient Grecians, as represented in medals and other monuments of antiquity.

On the QUARTER, may be defined an arch of the horizon, contained between the line prolonged from the ship's stern and any distant object, as land, ships, &c. Thus if the ship's keel lies on an east and west line, the stern being westward, any distant object perceived in the north-west or south-west, is said to be on the larboard or starboard quarter. See the article BEARING.

QUARTER-BILL, a roll, or list, containing the different stations, to which all the officers and crew of the ship are quartered, in the time of battle, and the names of all the persons appointed to those stations.

QUARTER-CLOTHS, *bastingage*, long pieces of painted canvas, extended on the outside of the quarter-netting from the upper-part of the gallery to the *gangway*. They are generally decorated with martial instruments, or allegorical figures.

QUARTER-GALLERY, a sort of small balcony, with or without ballustrades, on the quarter of a ship, as represented by fig. 1. plate VIII. The gallery on the quarter generally communicates with that on the stern, by means of a door passing from one to the other.

QUARTER-GUNNER, an inferior officer under the direction of the gunner of a ship of war, whom he is

to assist in every branch of his duty; as keeping the guns and their carriages in proper order, and duly furnished with whatever is necessary; filling the powder into cartridges; scaling the guns, and keeping them always in a condition to be ready for service. The number of quarter-gunners in any ship is always in proportion to the number of her artillery, one quarter-gunner being allowed to every four cannon.

QUARTER-MASTER, an inferior officer, appointed by the master of a ship of war to assist the *mates* in their several duties; as stowing the ballast and provisions in the hold, *coiling* the cables on their platforms, overlooking the steerage of the ship, and keeping the time by the watch-glasses.

QUARTER-NETTING, a sort of net-work, extended along the rails on the upper-part of a ship's quarter. In a ship of war these are always double, being supported by iron cranes, placed at proper distances. The interval is sometimes filled with cork, or old sails, but chiefly with the hammocs of the sailors, so as to form a parapet to prevent the execution of the enemy's small arms in battle. See the article ENGAGEMENT.

QUARTER-RAILS, are narrow-moulded planks, generally of fir, reaching from the top of the stern to the gangway. They are supported by stanchions, and serve as a fence to the quarter-deck, to prevent the men from tumbling into the sea by the rolling of the ship, particularly in small vessels.

QUARTERS, a name given, at sea, to the several stations where the officers and crew of a ship of war are posted in action. See the article ENGAGEMENT.

The number of men appointed to manage the artillery is always in proportion to the nature of the guns, and the number and condition of the ship's crew. They are, in general, as follow, when the ship

is well manned, so as to fight both sides at once occasionally:

Nature of the gun.

Pounder.	**No. of men.**
To a 42	15
32	13
24	11
18	9
12	7
9	6
6	5
4	4
3	3

This number, to which is often added a boy to bring powder to every gun, may be occasionally reduced, and the guns nevertheless well managed. The number of men appointed to the small arms, on board his majesty's ships and sloops of war, by order of the admiralty, are,

Rate of the ship.	**No. of men to the small arms.**
1st	150
2d	120
3d of 80 guns	100
— of 70 guns	80
4th of 60 guns	70
4th of 50 guns	60
5th	50
6th	40

Sloops of war 30

The lieutenants are usually stationed to command the different batteries, and direct their efforts against the enemy. The master superintends the movements of the ship, and whatever relates to the sails. The boatswain, and a sufficient number of men, are stationed to repair the damaged rigging; and the gunner and carpenter, wherever necessary, according to their respective offices. See also the articles CANNON and EXERCISE.

The marines are generally quartered on the poop and forecastle, or gangway, under the direction of their officers; although, on some occasions, they assist at the great guns, particularly in distant cannonading.

QUARTERS! is also an exclamation to implore mercy from a victorious enemy.

QUICK-SAND, a loose quaking sand, into which a ship sinks by her own weight, as soon as the water retreats from her bottom.

QUICK-WORK, *œuvres-vives*, a general name given to all that part of a ship, which is under the surface of the water when she is laden fit for a sea-voyage. It is also applied, occasionally, to that part of the side which is above the sheer-rail, and which is usually painted with trophies, &c. on the outside.

QUILTING, (*kulcht*, Dutch) the operation of weaving a sort of coat, or texture, formed of the *strands* of rope, about the outside of any vessel, to contain water, &c. as a jar, cask, bottle, &c.

QUOIN, a sort of wedge, employed to raise the cannon to a proper level, that it may be more truly directed to the object.

QUOINS are also employed to wedge off the casks of wine, oil, spirituous liquors, &c. from each other, that their bilges may not rub against each other so as

to occasion a leak, by the agitation of the ship, at sea.

R.

RABBIT, *rablure*, (*rabatre*, Fr.) a deep groove, or channel, cut in a piece of timber longitudinally, to receive the edge of a plank, or the ends of a number of planks, which are to be securely fastened therein. The depth of this channel is equal to the thickness of the plank, so that when the end of the latter is let into the rabbit, it will be level with the outside of the piece. Thus the ends of the lower planks of a ship's bottom terminate upon the stem afore, and the stern-post abaft, with whose sides their surfaces are even. The surface of the garboard streak, whose edge is let into the keel, is, in the same manner, level with the side of the keel at the extremities of the vessel.

RACKING, the fastening two opposite parts of a tackle together, so as that any weighty body suspended thereby, shall not fall down, although the rope, which forms the tackle, should be loosened by accident or neglect.

This expedient is chiefly practised when the boats are hung up to the ship's side, during the night time, in an open road or bay, lest the rope of the tackle should be untied by the inattention of some of the crew; by which accident the boat might be considerably damaged, and probably lost, or dashed in pieces.

RAFT, *radeau*, a sort of float, formed by an

assemblage of various planks, or pieces of timber, fastened together side by side, so as to be conveyed more commodiously, to any short distance in a harbour or road, than if they were separate. The timber and plank, with which merchant-ships are laden, in the different parts of the Baltic sea, are attached together in this manner, in order to float them off to the shipping.

RAFT-PORT, a square hole, cut through the buttocks of some ships, immediately under the counter, to receive the planks or pieces of timber which are brought to lade her for transportation; and which, on account of their great length, could not be received aboard otherwise.

RAG-BOLT, an iron pin, having several barbs, as explained in the article IRON-WORK, and represented in fig. 2, plate II.

RAILS, are narrow planks, generally of fir, upon which there is a moulding stuck. They are for ornament, and are nailed across the stern, above the wing-transom and counters, &c. They are likewise nailed upon several planks along the side; one in particular is called the sheer-rail, which limits the height of the side from the forecastle to the quarter-deck, and runs aft to the stern, and forward to the cat-head; the wales are nearly parallel to this. *Murray's Ship-Building.*

The reader will understand this article better by referring to the figures of the rails, as represented in plates I, IV, VII, and VIII. and their explanations, in NAVAL ARCHITECTURE, &c.

RAILS *of the head*, certain curved pieces of timber, extending from the bows on each side to the continuation of the ship's stem, to support the *knee of the head*, and the ornamental figure fixed thereon. The form of these rails is represented at large in the

figure referred to from the article HEAD, plate IV.

To RAISE, to elevate any distant object at sea, by a gradual approach towards it from the place whence it was formerly observed. This effect is known to be occasioned by the convexity of the surface of the sea, which previously intercepted the view, when directed towards the lower parts of the said object. This term is opposed to LAYING, which see.

RAISING *a purchase*, the act of disposing certain instruments, or machines, in such a manner, as that, by their mutual effects, they may produce a mechanical force sufficient to overcome the weight, or resistance of the object to which this machinery is applied.

RAKE, the projection of the upper parts of a ship at the height of the stem, and stern, beyond the extremities of the keel. Thus if a plummet be hung from the top of a ship's stern, so as to be level with the continuation of the keel, the distance between the after end of the keel and the plummet will be the length of the rake abaft, or the rake of the stern.

RAKING *a ship*, the act of cannonading a ship on the stern, or head, so as that the balls shall scour the whole length of her decks; which is one of the most dangerous incidents that can happen in a naval action. This is frequently called raking fore and aft, being the same with what is called *enfilading* by engineers.

RANGE, a sufficient length of the cable, drawn up on the deck, before the anchor is cast loose from the bow, to let it sink to the bottom, without being interrupted, that the flukes may be forced the deeper into the ground, by the additional weight which the anchor acquires in sinking. For this reason the range, which is drawn up out of the tier, ought to be equal in length, to the depth of the water where the ship

anchors. See ANCHOR and CABLE-TIER.

RANGE, is also the distance to which a bomb or cannon-ball is thrown from a piece of artillery, by the explosion of gun-powder. See the articles CANNON and MORTAR.

The flight of a shot is distinguished, by artillery people, into two different ranges, of which the first is called the point-blank; and the second, the random-shot. To these also may be added the *ricochet*, or rolling and bounding-shot.

Whatever has been observed, in other parts of this work, with regard to the flight of a shot from a piece of artillery, is on the presumption that it describes a right line in its passage to the object. This, however, is not strictly true; because by its weight it inclines to the earth every instant of its motion: but as its velocity is very great when first discharged from the cannon, the weight does not sensibly affect the direction in the first instant of its motion. Thus the line it describes, as represented in plate III. extending from fig. 16. to the ship under sail, is apparently straight, and the extent of this line is called the *point-blank* range of the piece; which accordingly may be defined the extent of the apparent right line, described by a ball discharged from a cannon.

This range is much less than the greatest range, or *random-shot*; but the piece cannot be levelled, or, as it is generally expressed, *pointed* at an object intended to be battered, if that object is not within the distance of the point-blank range; for beyond that, the stroke is very uncertain.

A piece is said to fire at random-shot, when the breech rests upon the bed of the carriage, so that the ball is carried to the greatest possible distance. But as, in this method of firing, the ball cannot be directed to any determinate object, it is rarely used

in the sea-service, and only when the shot cannot fail of doing great execution in the place whereon it falls.

Besides the two ranges above described, there is the *ricochet*[45], invented by the Marshal de Vauban.

To fire a piece by way of the ricochet, the cannon is only charged with a quantity of powder sufficient to carry the shot along the face of the works attacked. The shot, thus discharged, goes rolling and bounding, killing, maiming, or destroying all it meets in its course, and creates much more disorder by going thus slowly, than if thrown from the piece with greater violence.

When ricochet firing is used, the pieces are elevated from 3 to 6 degrees, and no more; because if the elevation is greater, the shot will only drop into the work, without bounding from one place to another. They are to be loaded with a small charge, and directed in such a manner as just to go over the parapet[46].

It was the opinion of engineers formerly, that by charging the pieces high, the ball was thrown to a greater distance. Hence the pieces were charged with two thirds, or even the whole weight of the shot, in order to impel it with greater velocity; but it has been discovered since, that the half, or one third of the weight of the ball, is the fittest charge for the piece[47].

If the whole quantity of powder, employed to charge the cannon, could take fire at the same instant, it is apparent that the velocity, communicated to the shot, would increase in proportion to the additional quantity of powder. But though the time of its inflammation is very short, it may yet be conceived as divided into many instants. In the first instant, the powder begins to dilate and impel the shot forward; and if it has force enough to

expel it from the piece before the whole charge is inflamed, that part which is left to take fire afterwards will produce no effect at all on the shot. A charge of extraordinary force does not therefore accelerate the velocity of the bullet: and hence it follows that the piece ought to be charged with no more powder, than will take fire whilst the ball is passing through the chace of the cannon.

It may not be amiss to observe here, that the range of cannon is greater in the morning and at night, than at noon; and in cold, than in hot weather. The reason is, that at these times the air being less heated, gives less way to the dilatation of the powder, which being by this means confined, as it were, to a smaller sphere of action, must have a stronger effect in proportion[48].

"When the lengths of cannon are proportional to the height of the charge, the shot will be discharged with the same velocity, whatever the calibre may be; and since the ratios of the velocities of shots, issuing from pieces of different lengths, loaded with different charges of powder, will be of great use in the construction of cannon, we have collected them in the following table, where the numbers at the top express the length of the pieces by the diameter of their shots. That is, the first is 12 diameters; the second 15, and so on. The first perpendicular column expresses the charges, in respect to the weight of the shots: thus, ¼, ⅓, ½, ⅔ imply that the weight of the charge is ¼, ⅓, ½, ⅔ of the weight of the shot. The other numbers, in the same horizontal lines, express the distance in feet moved over by the velocities of the shot, uniformly continued in a second of time.

A Table of Velocities.

	12	15	18	21	24	27	30	3

¼	1043	1052	1058	1063	1066	1068	1071	1(
⅓	1186	1200	1210	1217	1222	1224	1229	12
½	1406	1434	1452	1465	1475	1482	1488	14
⅔	1568	1613	1641	1662	1677	1688	1698	17

"We made use of the diameter of a 9 pound shot, which being 4 inches, is more convenient in the calculation; and this diameter expresses the height of the charge when it is a quarter of the weight of the shot, and the rest in proportion.

"Several remarks may be made upon this table, which are of great importance in the construction of cannon. First, when the charge is but a quarter of the shot's weight, the difference between the velocities, when the length is 12 and 15 diameters, is but 9 feet in a second; and the differences between the other velocities decrease as the length increases.

"Hence, as the difference between the velocities when the piece is 15 and 36 diameters long, is but 22 feet in a second, it is easily perceived, that when the pieces are charged with one quarter of the shot's weight, the length from 12 to 15 diameters is the best.

"Secondly, When the charge is one third of the shot's weight, the difference of the velocities, when the piece is 12, 15, and 18 diameters long, are 14, 10 seconds; and from thence decrease more and more, as the length of the piece increases: so the length, from 15 to 18 diameters seems to be the best, every thing being considered.

"Thirdly, and lastly, it appears, from the same manner of reasoning, that when the charge is one-half of the shot's weight, the length ought to be from 18 to 21 diameters; and when the charge is two thirds of the shot's weight, the length ought to be from 21 to 24 diameters." *Muller's Artillery.*

As one of the effects of the bomb results from its

weight, the range of mortars is extremely different from that of cannon, because the former is not pointed at a certain object, like the latter, but inclined to the horizon at a certain angle; so that the bomb, being thrown up obliquely, much in the same direction as a tennis-ball struck by the racket, may fall upon the place intended. Hence it appears that the mortar has no point-blank range, or at least that no use is made of it.

The mortar, being fixed in a situation obliquely with the horizon, so as that the line *a c*, which passes through the middle of it longitudinally, being continued, would make an angle *b a d* with the horizon *a b*; a bomb, discharged in the direction of this continued line, would deviate from it every instant of its motion by its weight, which inclines it downwards, and by this means it would describe a curve-line, as *a e b*, called a *parabola*[49].

The line *a b*, fig. 19. plate VI. is called the extent of the range, or the amplitude of the parabola; and the line *a d*, the elevation of the mortar.

To make a bomb fall on a given place, two things are to be considered; viz. the elevation of the mortar; and the quantity of powder used to charge it; both of which may be ascertained as follows: A bomb discharged from a mortar, pointed vertically, will describe a line nearly perpendicular to the horizon: I say nearly, because the mortar will always have some little motion, which will destroy the exact perpendicularity of the bomb's flight; but abstracted from this, a bomb, discharged vertically, would fall again into the mortar[50].

If the mortar be afterwards inclined more and more towards the horizon, the bomb will fall still farther and farther distant from the mortar, till the elevation rests at 45°; and the more the mortar is

pointed under this angle, the more will the range of the bomb be diminished: all of which is strictly demonstrated by geometry. But the following is a very simple manner of conceiving it, without having recourse to that science.

A bomb, discharged in the direction of a line, nearly perpendicular to the horizon, will fall at a little distance from the bomb-vessel. This requires no proof. A bomb, thrown according to a line that makes a very acute angle with the horizon, will presently come to the ground by its weight, and by consequence will not, any more than the other, fall at a considerable distance from the mortar.

Hence it is easy to conceive, that in order to fall at the greatest distance from the mortar, the bomb must be fired according to an elevation at the greatest possible distance, as well from a vertical, as from an horizontal line. This elevation divides in two equal parts the angle formed by the vertical and horizontal lines, which being of 90 degrees, or what is called a right angle, a bomb will be thrown to the greatest distance, in the direction of a line making an angle of 45 degrees. For above this angle the range will diminish, because the bomb approaches the vertical line; and under the same elevation it will also decrease, because the flight of the bomb approaches the horizontal line.

Hence also it appears that there are two angles, according to which a mortar may be inclined to make the bomb fall on the same place; these are the angles, equally distant from the line, which cuts the quadrant into two equal parts: so that if, for example, a mortar is elevated at 30˚, the bomb will fall at the same distance as if it had been elevated at 60˚, each of these angles being 15˚ distant on this, and that side of the quadrant; that is, from the angle

of 45 degrees.

The second thing to be considered, is, to know the exact charge of powder necessary to throw a bomb to a given distance.

If the bomb, being fired at an elevation of 45°, falls short of the place intended, the charge of powder must be increased. If it reaches the place, or goes beyond it, it is evident that the charge is sufficient. If the bomb, at an elevation under 45°, fall short of the place intended, with a given charge, the mortar must be more elevated: if, on the contrary, it falls too far off, it must be more inclined to the horizon: and by these essays the proper degree of inclination may be easily and speedily discovered.

If the mortar then is raised above 45°, it must be more inclined, so as to make a more acute angle with the horizon, to increase the range of the bomb; and, on the contrary, raised nearer a perpendicular, to diminish it: all of which are consequences drawn from what has been said on this subject.

It must be observed, first, that the greatest distance to which a bomb can be thrown, with the strongest charge, is little more than about 1800, or 2000 fathoms.

Secondly, that though a mortar may be elevated indifferently, either so much above or below 45° as to carry a bomb to a given distance, yet when any building is to be destroyed, it should be raised above 45°, because the shell, rising to a greater height when fired according to a greater angle, falls with greater force, and by consequence will do more damage to the place on which it is thrown. But when the business is to fire on a body of men, the mortar must be pointed below 45°, that the bomb may not have force enough to enter far into the ground, and that the splinters in the explosion may do more

execution.

Practice for Sea-Mortars.

Nature of the Mortar.							
13 Inch. Powder.		10 Inch. Powder.		Flight in Seconds.	Ranges in Yards.	Length of Compositio in Fuses.	
lb.	oz.	lb.	oz.			Inches	Pa
3	0			12	612	2	
4	0	1	12	14	832	3	
		2	4	15	958	3	
5	0	2	6	16	1088	3	
5	8	2	8	17	1299	3	
		3	2	18	1377	2	
7	0	3	8	19	1534	4	
		4	0	20	1700	4	
8	12	4	8	21	1874	4	
9	0	5	8	22	2057	4	
12	0			23	2248		
14				24	2448		
16				25	2656		
18		8	2	26	2873	5	
20	0	8	10	27	3098	5	
22	0	9	8	28	3332	6	
24	8	11	4	29	3574	6	
28	0	12	0	30	3821	6	
31	8			31	4085	6	

The ranges of mortars, at the several elevations

below, are in proportion to one another, viz.

45	40	35	30	25	20	15	10	5
100	98	94	86	76	64	50	34	17

Example. Knowing the range of a shell at 45 to be 890 yards, required the range at 30 with the same powder; say, as 100 : 86 : : 890 : 765.4; and if you have a shell's range at 30, and would know how far it will go at 45 with the same quantity of powder, rule as 86 : 100 : : 765.4 : 890.

N. B. These propositions only hold good when the powder is equal.

RATES, the orders or classes into which the ships of war are divided, according to their force and magnitude.

It has already been observed, in the article NAVY, that this regulation, which limits the rates of men of war to the smallest number possible, seems to have been dictated by considerations of political œconomy, or of that of the simplicity of the service in the royal *dock-yards*. The British fleet is accordingly distributed into six rates, exclusive of the inferior vessels that usually attend on naval armaments; as sloops of war, armed ships, bomb-ketches, fire-ships and cutters, or schooners commanded by lieutenants.

Ships of the first rate mount 100 cannon, having 42 pounders on the lower deck, 24 pounders on the middle deck, 12 pounders on the upper deck, and 6 pounders on the quarter deck and forecastle. They are manned with 850 men, including their officers, seamen, marines, and servants.

In general, the ships of every rate, besides the captain, have the master, the boatswain, the gunner, the chaplain, the purser, the surgeon, and the carpenter; all of whom, except the chaplain, have

their mates or assistants, in which are comprehended the sail-maker, the master at arms, the armorer, the captain's clerk, the gunsmith, &c.

The number of other officers are always in proportion to the rate of the ship. Thus a first rate has six lieutenants, six master's mates, twenty-four midshipmen, and five surgeon's mates, who are considered as gentlemen; besides the following petty officers: quarter-masters, and their mates, fourteen; boatswains mates and yeomen, eight; gunners mates and assistants, six; quarter-gunners, twenty-five; carpenters mates, two, besides fourteen assistants; with one steward, and steward's mate to the purser.

If the dimensions of all ships of the same rate were equal, it would be the simplest and most perspicuous method to collect them into one point of view in a table; but as there is no invariable rule for the general dimensions, it must suffice to remark those of some particular ships in each rate; for which purpose we have selected some of the latest construction.

The Victory, which is the last built of our first rates, is 222 feet 6 inches in length, from the head to the stern; the length of her keel, 151 feet 3 inches; that of her gun-deck, or lower deck, 186 feet; her extreme breadth is 51 feet 10 inches; her depth in the *hold*, 21 feet 6 inches; her burthen 2162 tons; and her poop reaches 6 feet before the mizen-mast.

Ships of the second rate carry 90 guns upon three decks, of which those on the lower battery are 32 pounders; those on the middle, 18 pounders; on the upper-deck, 12 pounders; and those on the quarter-deck, 6 pounders, which usually amount to four or six. Their complement of men is 750, in which there are six lieutenants, four master's mates, twenty-four midshipmen, and four surgeon's mates, fourteen

quarter-masters and their mates, eight boatswain's mates and yeomen, six gunner's mates and yeomen, with twenty-two quarter-gunners, two carpenter's mates, with ten assistants, and one steward and steward's mate.

Ships of the third rate carry from 64 to 80 cannon, which are 32, 18, and 9 pounders. The 80–gun ships however begin to grow out of repute, and to give way to those of 74, 70, &c. which have only two whole batteries; whereas the former have three, with 28 guns planted on each, the cannon of their upper-deck being the same as those on the quarter-deck and fore-castle of the latter, which are 9 pounders. The complement in a 74 is 650, and in a 64, 500 men; having, in peace, 4 lieutenants, but in war, 5; and when an admiral is aboard, 6. They have 3 master's mates, 16 midshipmen, 3 surgeon's mates, 10 quarter-masters and their mates, 6 boatswain's mates and yeomen, 4 gunner's mates and yeomen, with 18 quarter-gunners, 1 carpenter's mate, with 8 assistants, and 1 steward and steward's mate under the purser.

Ships of the fourth rate mount from 60 to 50 guns, upon two decks, and the quarter-deck. The lower tier is composed of 24 pounders, the upper tier of 12 pounders, and the cannon on the quarter-deck and fore-castle are 6 pounders. The complement of a 50 gun ship is 350 men, in which there are three lieutenants, 2 master's mates, 10 midshipmen, 2 surgeon's mates, 8 quarter-masters and their mates, 4 boatswain's mates and yeomen, 1 gunner's mate and 1 yeoman, with 12 quarter-gunners, 1 carpenter's mate and 6 assistants, and a steward and steward's mate.

All vessels of war, under the fourth rate, are usually comprehended under the general name of

frigates, and never appear in the line of battle. They are divided into the 5th and 6th rates, the former mounting from 40 to 32 guns, and the latter from 28 to 20. The largest of the fifth rate have two decks of cannon, the lower battery being of 18 pounders, and that of the upper-deck of 9 pounders; but those of 36 and 32 guns have only one complete deck of guns, mounting 12 pounders, besides the quarter-deck and fore-castle, which carry 6 pounders. The complement of a ship of 44 guns, is 280 men and that of a frigate of 36 guns, 240 men. The first has 3, and the second 2 lieutenants; and both have 2 master's mates, 6 midshipmen, 2 surgeon's mates, 6 quarter-masters and their mates, 2 boatswain's mates and 1 yeoman, 1 gunner's mate and 1 yeoman, with 10 or 11 quarter-gunners, and 1 purser's steward.

Frigates of the 6th rate carry 9 pounders, those of 28 guns having 3 pounders on their quarter-deck, with 200 men for their complement; and those of 24, 160 men; the former has 2 lieutenants, the latter, 1; and both have 2 master's mates, 4 midshipmen, 1 surgeon's mate, 4 quarter-masters and their mates, 1 boatswain's mate and 1 yeoman, 1 gunner's mate and 1 yeoman, with 6 or 7 quarter-gunners, and 1 purser's steward.

The sloops of war carry from 18 to 8 cannon, the largest of which have 6 pounders; and the smallest, viz. those of 8 and 10 guns, 4 pounders. Their officers are generally the same as in the 6th rates, with little variation; and their complements of men are from 120 to 60, in proportion to their force or magnitude.

N. B. Bomb-vessels are on the same establishment as sloops; but fire-ships and hospital-ships are on that of fifth rates.

Having already exhibited the dimensions of the

largest first rate in our navy, we have, in the following table, collected those of the inferior rates:

Rates.		Guns.	Length of the keel.		Length of the lower deck.		F
			Feet.	Inch.	Feet.	Inch.	
2d rate,	Barfleur,	90	144	¾	177	6	
3d rate,	Arrogant,	74	138		168	3	
	Europa,	64	139		159		
4th rate,	Salisbury,	50	120	8	146		
5th rate,	Phœnix,	44	116	11	140	9	
	Venus,	36	106	3	128	4½	
6th rate,	Carysfort,	28	97	3½	118	4	
	Dolphin,	24	93	4	113		
Sloop,	Nautilus,	16	80	7⅝	98		

Nothing more evidently manifests the great improvement of the marine art, and the degree of perfection to which it has arrived in England, than the facility of managing our first rates; which were formerly esteemed incapable of government, unless in the most favourable weather of the summer. In testimony of this observation we may, with great propriety, produce the example of the Royal George, which, during the whole course of the late war, was

known to be as easily navigated, and as capable of service, as any of the inferior ships of the *line*, and that frequently in the most tempestuous seasons of the year. The ingenious M. Du Hamel, who is eminently distinguished for his knowledge of marine affairs, has indeed judiciously objected to the defects and bad qualities of such large ships[51]. It is nevertheless hardly possible for any Englishman, who was witness to the defeat of M. Conflans, by the victorious Sir Edward Hawke, on the ever-memorable 20th of November, without dissenting a while from that gentleman's opinion. In reality, a fact, confirmed by repeated experience, must unavoidably triumph over all theoretical conclusions.

Ships of the second rate, and those of the third, which have three decks, carry their sails remarkably well, and labour very little at sea. They are excellent in a general action, or in cannonading a fortress. Those of the third rate, which have two tiers, are fit for the line of battle, to lead the convoys and squadrons of ships of war in action, and in general, to suit the different exigencies of the naval service.

The fourth rates may be employed on the same occasions as the third rates, and may be also destined amongst the foreign colonies, or on expeditions of great distance; since these vessels are usually excellent for keeping and sustaining the sea.

Vessels of the fifth rate are too weak to suffer the shock of a line of battle; but they may be destined to lead the convoys of merchant-ships, to protect the commerce in the colonies, to cruize in different stations, to accompany squadrons, or be sent express with necessary intelligence and orders. The same may be observed of the sixth rates.

The frigates, which mount from 28 to 38 guns upon one deck, with the quarter-deck, are extremely

proper for cruizing against privateers, or for short expeditions, being light, long, and usually excellent sailers.

RATTLINGS, *enflechures*, certain small lines which traverse the *shrouds* of a ship horizontally, at regular distances from the deck, upwards, and forming a variety of ladders, whereby to climb to any of the mast-heads, or descend from them. Hence the term is apparently derived from *rath*, an obsolete word, signifying an hill.

In order to prevent the rattling from slipping down by the weight of the sailors, they are firmly attached by a knot, called a *clove-hitch*, to all the shrouds, except the foremost or aftmost; where one of the ends, being fitted with an eye-splice, is previously fastened with twine or packthread.

REACH, (*ræcan*, Sax.) the line, or distance, comprehended between any two points or stations on the banks of a river, wherein the current flows in a streight uninterrupted course.

REAR, (*arriere*, Fr.) a name given to the last division of a squadron, or the last squadron of a fleet, and which is accordingly commanded by the third officer of the said fleet or squadron. See the article DIVISION.

REEF, *ris*, (*reef*, Dutch) a certain portion of a sail, comprehended between the top or bottom, and a row of eyelet-holes parallel thereto.

The intention of the reef is to reduce the surface of the sail in proportion to the increase of the wind; for which reason there are several reefs parallel to each other in the superior sails, whereby they may be still farther diminished, in order to correspond with the several degrees of the gale. Thus the top-sails of ships are usually furnished with three reefs, *l m n*, fig. 1. plate IX. parallel to the yard; and there are always

three or four reefs, parallel to the bottom on those main-sails and fore-sails, which are extended upon booms: a circumstance common to many of the small vessels.

REEF also implies a chain of rocks, lying near the surface of the water.

REEF-BAND, a piece of canvas, sewed across the sail, to strengthen it in the place where the eyelet-holes of the reefs are formed.

REEFING, the operation of reducing a sail, by taking in one or more of the reefs, which is either performed by lines, *points*, or *knittles*.

Thus the top-sails are always, and the courses generally, reefed with points, which are flat braided pieces of cordage, whose lengths are nearly double the circumference of the yard. These being inserted in the eyelet-holes, are fixed in the sail by means of two knots in the middle, one of which is before, and the other behind the reef-band.

In order to reef the top-sails with more facility and expedition, they are lowered down and made to *shiver* in the wind, which considerably relaxes their tension. The extremities of the reef are then drawn up to the *yard-arms* by an assemblage of pullies communicating with the deck, termed the *reef-tackle*; and they are securely fastened to the yard-arms by small cords, called *earings*. The space of sail, comprehended in the reef, is then laid smoothly over the yard, in several folds, or doubles: and the whole is completed by tying the points about the yard, so as to bind the reef close up to it.

The courses of large ships are either reefed with points or small cords, which are thence called *reef-lines*. In the latter case the line is passed spirally through the eyelet-holes of the reef, and over the head of the sail alternately, and afterwards strained

as tight as possible. It must be observed, however, that the reef-line is sometimes passed round the yard, and sometimes only round the head of the sail; and each of these methods have their advocates, with arguments more or less convincing. But if it should appear essential to prevent the friction by which a sail is galled between the line and the yard; and as the rope-bands are sufficient to sustain the effort of the sail, it is certainly much better to pass the line only round the sail, provided that the turns are inserted through the *roband-legs*; a circumstance which is carefully practised by every skilful sailor.

The same reason may be alledged, with equal propriety, in favour of tying the points of the courses in the same manner; that is to say, the after-end of the point should be thrust forward between the head of the sail and the yard; and the fore-leg of the said point should come aft over the head of the sail, and also under the yard: and thus crossed over the head of the sail, the point should be extended, and the two ends brought over the yard, and tied on the upper side of it as strait as possible.

When a sail is reefed at the bottom, it is done by *knittles*, which being thrust through the eyelet-holes thereof, are tied firmly about the space of canvas of which the reef is composed, and knotted on the lower side of the bolt-rope. These knittles are accordingly removed as soon as the reef is let out.

Besides the manner above described, there are other methods of reducing a sail to the storm, as explained in the articles GOOSE-WING and BALANCE.

REEF-TACKLE, a rope which passes from the deck to a *block* at the topmast-head, and thence to another block at the topsail-yard-arm, where it communicates with another rope, called its *pendant*, that runs downwards through a hole in the yard, and is

afterwards attached to a *cringle*, a little below the lowest reef, as exhibited by fig. 1. plate IX. where *b* is the reef-tackle, and *i* the pendant thereof. It is used, as we have already observed, to pull the skirts of the reefs close up to the extremities of the topsail-yards, in order to lighten the sail, the weight of which would otherwise render it very difficult to perform this operation.

REEL *of the log*. See the article LOG.

To REEVE, is to pass the end of a rope through any hole, as the channel of a block, the cavity of a thimble, cleat, ring-bolt, &c.

RECKONING. See DEAD-RECKONING.

REFITTING, is generally understood to imply the repairing any damages, which a ship may have sustained in her sails or rigging, by battle or tempestuous weather; but more particularly by the former. See ENGAGEMENT and REPAIR.

REIGNING-WINDS, a name given to the winds which usually prevail on any particular coast or region, the knowledge of which is essentially necessary to every pilot who is charged with the navigation in those seas.

RELIEVING-TACKLES, two strong tackles, used to prevent a ship from overturning on the *careen*, and to assist in bringing her upright after that operation is compleated.

The relieving-tackles are furnished with two strong *guys*, (*attrapes*) or *pendants*, by which their efforts are communicated, under the ship's bottom, to the opposite side, where the ends of the guys are attached to the lower gun-ports. The other ends of the tackles are hooked to the wharf, or *pontoon*, by which the vessel is careened. Thus if the ship is first to be laid down on the larboard-side, which is nearest the wharf, the relieving-tackles are passed

under her bottom from the said wharf, and attached to the starboard-side, by which they will restrain her from falling lower than is necessary. See *Righting*.

RELIEVING-TACKLE, is also a name sometimes given to the train-tackles of a gun-carriage. See CANNON and EXERCISE.

RENDERING, as a sea-term, is generally understood to be the effect of yielding, or giving way, without resistance, to the efforts of some mechanical power. It is usually expressed of a complicated tackle, *laniard*, or *lashing*, when the effect of the power applied is communicated with facility to all the parts, without being interrupted in its passage. It is therefore used in contra-distinction to sticking or jamming.

RENDEVOUS, the port, or place of destination, where the several ships of a fleet or squadron are appointed to rejoin the whole, in case of a separation, occasioned by tempestuous weather, or other unforeseen accident.

REPAIR, *radoub*, the operation of amending any injuries, or supplying any deficiencies, which a ship may have received by age, battle, tempestuous weather, &c.

The repair is necessarily greater or smaller, in proportion to the loss which the vessel has sustained. Accordingly a suitable number of the *timbers*, *beams*, or *planks*, or a sufficient part of either, are removed, and new pieces fixed in their places. The whole is completed by *breaming*, *calking*, and *paying* the body with a new composition of stuff. See DOCKING.

REPRISE, a ship which is retaken from the enemy, soon after the first capture; or at least before she has arrived in any neutral or hostile port.

If a vessel, thus retaken, has been twenty-four hours in the possession of the enemy, it is deemed a

lawful prize; but if it be retaken within that time, it is to be restored to the proprietor, with every thing therein, upon his allowing one-third to the vessel who made the reprise. Also if the reprise has been abandoned by the enemy, either in a tempest, or from any other cause, before it has been led into any port, it is to be restored to the proprietor.

RETREAT, the order or disposition in which a fleet of French men of war decline engagement, or fly from a pursuing enemy[52].

RHOMB-LINE, a line prolonged from any point of the compass on a nautical chart, except the four cardinal points.

RIBBANDS, *lisses*, (from *rib* and *bend*) in naval architecture, long narrow flexible pieces of timber, nailed upon the outside of the ribs, from the *stem* the *stern-post*, so as to envelop the ship lengthways, and appear on her side and bottom like the meridians on the surface of the globe.

The ribbands, being judiciously arranged with regard to their height and distance from each other, and forming regular sweeps about the ship's body, will compose a kind of frame, whose interior surface will determine the curve of all the intermediate, or filling-timbers, which are stationed between the principal ones. As the figure of the ship's bottom approaches to that of a conoid, and the ribbands having a limited breadth, it is apparent, that they cannot be applied to this convex surface without forming a double curve, which will be partly vertical and partly horizontal; so that the vertical curve will increase by approaching the stem, and still more by drawing near the stern-post. It is also evident, that by deviating from the middle line of the ship's length, as they approach the extreme breadth at the *midship-frame*, the ribbands will also form an

horizontal curve. The lowest of these, which is terminated upon the stem and stern-post, at the height of the *rising-line of the floor*, and answers to the upper part of the floor-timber upon the midship-frame, is called the *floor*-ribband. That which coincides with the *wing-transom*, at the height of the lower-deck upon the midship-frame, is termed the *breadth*-ribband: all the rest, which are placed between these two, are called intermediate ribbands.

From this double curve it results, that the ribbands will appear in different points of view, when delineated upon different planes of the same ship. To conceive this, let us suppose the skeleton of a ship upon the stocks, as in plate IV. fig. 11. and plate X. fig. 2. with the ribbands represented by dotted lines upon her bottom, If a spectator is placed opposite to the stem or stern-post, on a line prolonged from the keel, he will only view the projection of the ribbands on the plane of the midship-frame, in which the horizontal curve is very little perceived; he will discover part of the vertical curve, which rises continually from the extreme breadth towards the stem and stern, so that they must be drawn upon the plane of projection as oblique lines, which terminate upon the midship-frame at the point where the ribband touches it, and upon the stem and stern-post at the point where their ends are lodged.

If the spectator were to change his position, and perceive the projection of the ribbands upon a plane, supposed to be elevated upon the length of the keel, he would also discover their vertical curve, as it is sometimes expressed in the sheer-draught, without distinguishing the horizontal one.

But if we imagine the eye of the spectator placed considerably above the ship, on a line perpendicular to the middle of the keel, he will then discover the

projection of the ribbands upon the plane of the ground beneath the ship, and view the horizontal curve, (see the *horizontal plane*, plate I.) without perceiving the perpendicular one.

In order to give the reader as distinct an idea as possible of the ribbands, we have, besides the above representations, exhibited a perspective view of them in the frame or skeleton of a small vessel, referred to, from the article TIMBER.

RIBS *of a ship*, a figurative expression for the timbers. See that article.

RIBS *of a parrel*. See PARREL.

RIDERS, a sort of interior ribs, fixed occasionally in a ship's hold opposite to some of the principal timbers, and reaching from the kelson to the beams of the lower-deck, and sometimes higher, in order to strengthen her frame. They are bolted to the other timbers, to support them when it is apprehended the ship is not sufficiently strong in the part where they are fixed; which is generally amidships.

The riders have also their floor-pieces and futtocks, and sometimes their top-pieces, all of which are scarfed to each other in the same manner as in the timbers.

The riders ought to be stationed so as to lie between two ports of the lower deck, and to correspond with the timbers to which they are attached, in such a manner, as that the scarfs of the riders may be clear of those of the timbers. They are scored upon the kelson, clamps, and thick-stuff of the bottom. They are secured by bolts, which are driven from without, so as to penetrate the outside planks, the timbers, the clamps, and the riders; on the inside of which last they are fore-locked. See those articles.

These pieces are rarely used in merchant-ships, because they would be extremely inconvenient in the

hold, besides occupying too large a space thereof; neither are they always used in vessels of war, at least till after the ship is enfeebled by several cruizes at sea.

RIDGE, a long assemblage of rocks, lying near the surface of the sea, so as to intercept the passage of a ship under sail. See also REEF and SHALLOW.

RIDING, when expressed of a ship, is the state of being retained in a particular station, by means of one or more cables with their anchors, which are for this purpose sunk into the bottom of the sea, &c. in order to prevent the vessel from being driven at the mercy of the wind or current. See MOORING.

RIDING *athwart*, the position of a ship which lies across the direction of the wind and tide, when the former is so strong as to prevent her from falling into the current of the latter.

RIDING *between the wind and tide*, the situation of a vessel at anchor, when, the wind and tide act upon her in direct opposition; in such a manner as to destroy the effort of each other upon her hull; so that she is in a manner balanced between their reciprocal force, and rides without the least strain on her cables.

When a ship does not labour heavily, or feel a great strain when anchored in an open road or bay, she is said to ride easy. On the contrary, when she pitches violently into the sea, so as to strain her cables, masts, or hull, it is called riding hard, and the vessel is termed a bad roader.

A ship is rarely said to ride when she is fastened at both the ends, as in a harbour or river, that situation being comprehended in the article MOORING.

RIGGING, a general name given to all the ropes employed to support the masts; and to extend or reduce the sails, or arrange them to the disposition of

the wind.

The former, which are used to sustain the masts, remain usually in a fixed position, and are called *standing* rigging; such are the *shrouds*, *stays*, and *back-stays*. The latter, whose office is to manage the sails, by communicating with various blocks, or pullies, situated in different places of the *masts*, *yards*, *shrouds*, &c. are comprehended in the general term of *running*-rigging. Such are the *braces*, *sheets*, *haliards*, *clue-lines*, *brails*, &c.

In rigging a mast, the first thing usually fixed upon its head, is a circular wreath of rope, called the *grommet*, or collar, which is firmly beat down upon the top of the *hounds*. The intent of this is to prevent the shrouds from being fretted or worn by the *tressel-trees*, or shoulders of the mast; after this are laid on the two *pendants*, from whose lower ends the main, or fore-tackles are suspended; and next, the *shrouds* of the starboard and larboard side, in pairs, alternately. The whole is covered by the *stays*, which are the largest ropes of the rigging.

When a yard is to be rigged, a grommet is also driven first on each of its extremities: next to this are fitted-on the *horses*, the *braces*; and, lastly, the *lifts*, or *top-sail sheet*-blocks: all of which are explained in their proper places.

The principal objects to be considered in rigging a ship appear to be strength, convenience, and simplicity; or the properties of affording sufficient security to the masts, yards, and sails; of arranging the whole machinery in the most advantageous manner, to sustain the masts, and facilitate the management of the sails; and of avoiding perplexity, and rejecting whatever is superfluous or unnecessary. The perfection of this art then consists in retaining all those qualities, and in preserving a judicious

medium between them.

RIGGING-OUT *a boom*, the operation of running out a pole upon the end of a yard, or bowsprit, to extend the foot of a sail. These booms are confined in those places by double rings, formed like a figure of 8, one part of which is fastened to the respective yard-arm, or bowsprit-end, and the other receives the boom, which is occasionally rigged out, or drawn in through it. The rings used in this service are termed *boom-irons*.

RIGHTING, *relever*, the act of restoring a ship to her upright position, after she has been laid on a *careen*, by the mechanical powers usually applied in that operation.

This is generally the natural effect of casting loose the careening pullies by which she had been drawn down. It is however necessary sometimes to apply mechanical powers to right the ship in such a situation. The principal of these are the relieving-tackles. See that article.

A ship is also said to right at sea when she rises, with her masts erected, after having been prest down on one side by the effort of her sails, or a heavy squall of wind.

RIGHTING, when expressed of the helm, implies the replacing it in the middle of the ship, after having produced the required effect, of wheeling her to the right or left, as much as appeared necessary.

RIM, or BRIM, a name given to the circular edge of any of the *tops*. See that article.

RING-BOLT, *cheville à boucle*, an iron bolt, with an eye at one end, wherein is fitted a circular ring, as expressed in fig. 3. and 4. plate II. The ring bolts are for several uses, but particularly to hook the *tackles*, by which the cannon of a ship are managed and secured: accordingly there is one fixed in the deck

opposite to every cannon, represented by Z, plate III. DECK: and they are, for the same purpose, fixed in the edges of the gun-ports, as expressed in the MIDSHIP-FRAME, plate VII. They are driven through the plank and the corresponding beam, or timber, and retained in this position by a small pin thrust through a hole in the small end, as appears in fig. 39, plate II.

RING-ROPES, short pieces of rope, tied occasionally to the ring-bolts of the deck, to fasten the cable more securely when the ship rides in a tempest, or turbulent sea, or rapid current. They are, however, more particularly necessary in veering away the cable gradually in those circumstances, in order to *freshen the hause*; as, without this precaution, it would be extremely difficult to check the cable, which, being then charged with a great effort, might be drawn violently out of the ship at random.

RING-TAIL, a small triangular sail, extended on a little mast, which is occasionally erected for that purpose on the top of a ship's stern. The lower part of this sail is stretched out by a boom, which projects from the stern horizontally. This sail is only used in light and favourable winds, particularly in the Atlantic ocean.

RING-TAIL is also a name given to a sort of *studding-sail*, hoisted beyond the after-edge, or skirt of those main-sails which are extended by a *boom* and gaff; as in all *sloops*, *brigs*, and *schooners*: this ring-tail is accordingly of the same depth with that part of the main-sail upon which it borders. See SAIL.

RIPPLING, a broken and interrupted noise, produced by a current on or near the sea-coast.

RISING-LINE, a name given by shipwrights to an incurvated line, which is drawn on the plane of elevation, to determine the height of the ends of all

the *floor-timbers* throughout the ship's length, and which accordingly ascertains the figure of the bottom, with regard to sharpness and flatness.

ROAD, (*rade*, Fr.) a bay, or place of anchorage, at some distance from the shore, on the sea-coast, whither ships or vessels occasionally repair to receive intelligence, orders, or necessary supplies; or to wait for a fair wind, &c.

The excellence of a road consists chiefly in its being protected from the reigning winds, and the swell of the sea; in having a good *anchoring-ground*, and being at a competent distance from the shore. Those which are not sufficiently enclosed are termed open roads.

ROADER, a vessel riding at anchor in a road, bay, or river. If a vessel under sail strikes against any roader, and damages her in passing, the former is obliged by law to make good the damages sustained by the latter.

The roaders attentively observe to anchor, or moor, at a competent distance from each other; and that those which arrive last shall not moor in the tract of the shipping which anchored before, so as to intercept their passage when they are ready to depart.

ROBANDS, or ROPE-BANDS. See ROPE-BAND.

ROGUES-YARN, a name given to a rope-yarn, of a particular construction, which is placed, in the middle of every *strand*, in all cables and cordage in the king's service. It differs from all the rest, as being untarred, and twisted in a contrary manner, by which it is easily discovered. The use of this contrivance is to examine whether any cordage, supposed to be stolen or embezzled, has been formed for the king's service.

ROLLER, a cylindrical piece of timber, fixed either

horizontally or perpendicularly above a ship's deck, so as to revolve about an axis. It is used to prevent the *cables*, *hausers*, &c. from being chafed by the friction which their surfaces would otherwise encounter, from bearing against that part of the ship, where the roller is placed, whilst they are drawn into the ship, &c. by mechanical powers.

ROLLERS, are also moveable pieces of wood, of the same figure, which are occasionally placed under planks, or long pieces of timber, in order to move them with greater facility either in the *dock*-yards, or in lading and delivering merchant-ships.

ROLLING, the motion by which a ship rocks from side-to side like a cradle, occasioned by the agitation of the waves.

ROLLING, therefore, is a sort of revolution about an imaginary axis, passing through the center of gravity of a ship: so that the nearer the center of gravity is to the keel, the more violent will be the rolling-motion; because the center about which the vibrations are made, is placed so low in the bottom, that the resistance made by the keel to the volume of water which it displaces in rolling, bears very little proportion to the force of the vibration above the center of gravity, the radius of which extends as high as the mast-heads.

But if the center of gravity is placed higher above the keel, the radius of vibration will not only be diminished; but an additional force to oppose the motion of rolling will be communicated to that part of the ship's bottom which is below the center of gravity.

So far as relates to the effect of rolling, when produced by the quality or stowage of the ballast, and to the manner by which it may be prevented, *viz.* a change of the quantity or disposition of the ballast,

we shall endeavour to explain under the article TRIM. It may, however, be necessary to remark, that the construction of the ship's bottom may also contribute to diminish this movement considerably.

To illustrate this by an example, let us suppose the section of a ship perpendicular to the keel to be exactly circular, plate VIII. fig. 8. it is evident, that if this be agitated in the water, it will have nothing to sustain it, because the rolling or rotation about its center displaces no more water than when it remains upright: consequently the rolling motion must be very great in a high sea. But if a plank is fixed below it edgeways, or perpendicular to the surface, as low as *e*, throughout the whole length of the ship, it is plain that the plank e will displace a volume of water to the right, when the ship is inclined to the left, which will retard her motion; and this obstruction will always act contrary to her *heeling* or inclination to one side, and greatly diminish the vibration or rolling; although it will add very little to her stiffness: For, admitting the ship to incline to one side, as in fig. 8. the plank *d e* would produce a very weak effort to bring her upright. But the depth of the keel, the rising of the floors, and the dead wood fore and aft, as in fig. 9. plate VIII. will answer the same purpose as the plank *d e*.

Many fatal disasters have happened to ships, arising from a violent rolling; as the loss of the masts, loosening of the cannon, and straining violently on the decks and sides, so as to weaken the ship to a great degree. See BALLAST, LABOURING, and PITCHING.

ROLLING-TACKLE, a pulley or purchase fastened to that part of a sail-yard which is to the windward of the mast, in order to confine the yard close down to the leeward, when the sail is furled.

It is used to prevent the yard from having a great friction against the mast in a high sea, which would be equally pernicious to both.

ROPES, *cordes*, (*rap*, Sax. *reep*, Dutch) a general name given to all sorts of cordage, above one inch in circumference, used in the rigging a ship. See CABLE, HAUSER, TOWLINE, and WARP.

ROPES are either cable-laid or hauser-laid: the former are composed of nine *strands*, viz. three great strands, each of which is composed of three smaller strands; and the latter is made with three strands, each of which contains a certain number of rope-yarns, in proportion to the size of the rope required.

ROPE-BANDS, *rabans*, pronounced roebins, certain pieces of small rope, or braided cordage, used to tie the upper edges of the great sails to their respective yards. They are inserted through the eyelet-holes in the head of the sail, being generally of a sufficient length to pass two or three times about the said yard.

ROPE-YARN, *fil de caret*, the smallest and simplest part of any rope, being one of the threads of which a *strand* is composed; so that the size of the latter, and of the rope into which it is twisted, are determined by the number of rope-yarns.

ROVER, a pirate or free-booter. See PIRATE.

ROUGH-TREE, a name given in merchant-ships to any mast, yard, or boom, placed as a rail or fence above the ship's side, from the quarter-deck to the fore-castle. It is, however, with more propriety, applied to any mast, &c. which remains rough and unfinished.

ROUND-HOUSE, a name given, in East-Indiamen, and other large merchant-ships, to a cabin or apartment built in the after part of the quarterdeck, and having the poop for its roof. This apartment is usually called the coach in our ships of war.

ROUNDING, certain old ropes wound firmly and closely about that part of a cable which lies in the *hause*, or under the ship's *bow*, or athwart the stem. It is used to prevent the surface of the cable from being chafed or fretted in those places. See the articles KAICLING and SERVICE.

ROUNDING-IN generally implies the act of pulling upon any rope which passes through one or more blocks, in a direction nearly horizontal; as, round-in the weather-braces! &c. It is apparently derived from the circular motion of the rope about the *sheave* or pulley through which it passes.

ROUNDING-UP is used nearly in the same sense, only that it is expressed of a *tackle* which hangs in a perpendicular position, without sustaining or hoisting any weighty body: it is then the operation of pulling the blocks closer to each other, by means of the rope which passes through them, to compose the tackle; and is therefore opposed to *over-hauling*, by which the blocks are drawn farther asunder.

ROUSSING, the act of pulling together upon a cable, hauser, &c. without the assistance of *tackles*, *capsterns*, or other mechanical powers. It is particularly used in the exercise of removing a ship from one place to another, by means of ropes and anchors. See the article WARPING.

To ROW, *ramer*, (*rowan*, Sax.) to impel a boat or vessel along the surface of the water by oars, which are managed in a direction nearly horizontal. See OAR.

ROW-GALLEY. See the article GALLEY.

ROW-LOCKS, those parts of the *gunwale*, or upper edge of a boat's side, whereon the oar rests in the exercise of rowing. In the sides of the smallest vessels of war, a number of little square holes, called row-ports, are cut for this purpose, parallel to the surface

of the water.

ROWERS, *rameurs*, a name given to the persons by whom the oars are managed.

ROWING-GUARD. See GUARD-BOAT.

ROYAL, *boulingue*, a name given to the highest sail which is extended in any ship. It is spread immediately above the top-gallant-sail, to whose yardarms the lower corners of it are attached. This sail is never used but in light and favourable breezes.

RUDDER. See the article HELM.

RUN, the aftmost or hindmost part of a ship's bottom, where it grows extremely narrow, as the floor approaches the stern-post.

RUNG-HEADS, *fleurs*, a name sometimes given by shipwrights to the upper ends of the floor-timbers, which are otherwise more properly called floor-heads. See NAVAL ARCHITECTURE.

RUNNER, *itague*, a thick rope used to increase the mechanical powers of a *tackle*. See that article.

The runner *a*, fig. 10. plate VIII. passes through a large hook-block, as *c*, and has usually a hook *b* attached to one of its ends, and one of the tackle-blocks to the other; and in applying it, the hook, as well as the lower block of the corresponding tackle, is fixed to the object intended to be removed.

RUNNING-OUT *a warp*, the act of carrying the end of a rope out from the ship, in a boat, and fastening it to some distant place, to remove the ship towards the said place, or keep her steddy whilst her anchors are lifted, &c.

RUNNING-RIGGING, all that part of a ship's rigging which passes through the blocks, to dilate, contract, or traverse the sails. See the article RIGGING.

S.

SADDLE, a small *cleat* or wooden block, hollowed on the upper and lower side, and nailed on the lower *yard-arms*, to retain the studding-sail-*booms* in a firm and steddy position. For this purpose the cavity on the lower part of the saddle conforms to the cylindrical surface of the yard to which it is attached: and in like manner the hollow, on the upper side, answers to the figure of the boom, and serves as a channel whereby it may be run out or in, along the yard, as occasion requires.

SAGGING *to leeward*, the movement by which a ship makes a considerable *lee-way*, or is driven far to leeward of the course whereon she apparently sails. It is generally expressed of heavy-sailing vessels, as opposed to keeping well to windward, or, in the sea-phrase, holding a good wind.

SAIC, a sort of Grecian ketch, which has no top-gallant-sail or mizen-top-sail. See KETCH.

SAIL, *voile*, (*segl*, Sax. *seyhel*, *seyl* Dutch) an assemblage of several breadths of canvas, or other texture, sewed together, and extended on, or between the *masts*, to receive the wind, and carry the vessel along the water.

The edges of the *cloths*, or pieces, of which a sail is composed, are generally sewed together with a double seam: and the whole is skirted round at the edges with a cord, called the *bolt-rope*.

Although the form of sails is extremely different, they are all nevertheless triangular or quadrilateral figures or, in other words, their surfaces are contained either between three or four sides.

The former of these are sometimes spread by a *yard*, as *lateen*-sails; and otherwise by a *stay*, as *stay*-

sails; or by a mast, as shoulder-of-mutton-sails: in all which cases the foremost *leech* or edge is attached to the said yard, mast, or stay, throughout its whole length. The latter, or those which are four-sided, are either extended by yards, as the principal sails of a ship; or by yards and booms, as the *studding*-sails, *drivers*, *ring-tails*, and all those sails which are set occasionally; or by *gaffs* and booms, as the *main-sails* of *sloops* and *brigantines*.

The principal sails of a ship (fig. 1. plate IX.) are the courses or lower sails *a*, the *top-sails b*, which are next in order above the courses; and the top-gallant-sails *c*, which are expanded above the top-sails.

The courses are the main-sail, fore-sail, and mizen, main-stay-sail, fore-stay-sail and mizen-stay-sail; but more particularly the three first. *N. B.* The main-stay-sail is rarely used except in small vessels.

In all quadrangular sails the upper edge is called the head; the sides or skirts are called leeches; and the bottom or lower edge is termed the foot. If the head is parallel to the foot, the two lower corners are denominated *clues*, and the upper corners earings.

In all triangular sails, and in those four-sided sails wherein the head is not parallel to the foot, the foremost corner at the foot is called the tack; and the after lower-corner the clue; the foremost perpendicular or sloping edge is called the *fore* leech, and the hindmost the *after* leech.

The heads of all four-sided sails, and the fore-leeches of lateen sails, are attached to their respective yard or gaff by a number of small cords called robands; and the extremities are tied to the yard-arms, or to the peek of the gaff, by *earings*.

The stay-sails are extended upon stays between the masts, whereon they are drawn up or down occasionally, as a curtain slides upon its rod, and

their lower parts are stretched out by a tack and sheet. The clues of a top-sail are drawn out to the extremities of the lower yard, by two large ropes called the top-sail sheets; and the clues of the top-gallant-sails are in like manner extended upon the top-sail yard-arms, as exhibited by plate IX. fig. 1.

The studding-sails are set beyond the leeches or skirts of the main-sail and fore-sail, or of the top-sails or top-gallant-sails of a ship. Their upper and lower edges are accordingly extended by poles run out beyond the extremities of the yards for this purpose. Those sails however are only set in favourable winds and moderate weather.

All sails derive their name from the mast, yard, or stay upon which they are extended. Thus the principal sail extended upon the main-mast is called the main-sail, *grande voile*, *d*, fig. 2. plate IX.; the next above, which stands upon the main-top-mast, is termed the main top-sail, *grand hunier*, *e*; and the highest, which is spread across the main-top-gallant-mast, is named the main-top-gallant-sail, *grand perroquet*, *f*.

In the same manner there is the fore-sail, *misaine*, *g*; the fore-top-sail, *petit hunier*, *h*; and the fore-top-gallant-sail, *petit perroquet*, *i*; the mizen, *artimon*, *k*; the mizen top-sail, *perroquet d'artimon*, *l*; and mizen top-gallant-sail *m*. Thus also there is the main stay-sail *o*; main-top-mast stay-sail *p*; and main-top-gallant stay-sail *q*; with a middle stay-sail which stands between the two last. *N. B.* All these stay-sails are between the main and fore masts.

The stay-sails (*voiles d'etai*) between the main-mast and mizen-mast are the mizen stay-sail *r*; and the mizen top-mast stay-sail *s*; and sometimes a mizen top-gallant stay-sail above the latter.

The stay-sails between the fore-mast and the

bowsprit are the fore stay-sail *t*; the fore top-mast stay-sail *u*; and the jib, *foc*, *x*. There is besides two square sails extended by yards under the bowsprit, one of which is called the sprit-sail, *civadiere*, *y*; and the other the sprit-sail top-sail *z*, *perroquet de beaupré*. For the French names of all the stay-sails, see the French term ETAI, and the phrases following it.

The studding-sails (*bonnettes en étui*) being extended upon the different yards of the main-mast and fore-mast, are likewise named according to their stations, the lower, top-mast, or top-gallant studding sails.

The ropes by which the lower yards of a ship are hoisted up to their proper height on the masts, are called the *jears*. In all other sails the ropes employed for this purpose are called *haliards*.

The principal sails are then expanded by haliards, sheets, and bowlines, except the courses, which are always stretched out below by a *tack* and sheet. See BOWLINE, CLOSE-HAULED, *&c.* They are drawn up together, or trussed up, by *bunt-lines*, *clue-lines*, *d d*, fig. 1.; *leech-lines*, *e e*; *reef-tackles*, *f f*; *slab-line*, *g*; and *spilling-lines*. As the bunt-lines and leech-lines pass on the other side of the sail, they are expressed by dotted lines in the figure. See those articles.

The courses, top-sails, and top-gallant sails, are wheeled about the mast, so as to suit the various directions of the wind, by *braces*. The higher studding-sails, and in general all the stay-sails, are drawn down, so as to be furled, or taken in, by down-hauls. See BRACE, TRIM, and DOWN-HAUL.

SAIL is also a name applied to any vessel beheld at a distance under sail.

To set SAIL, *faire voile*, is to unfurl and expand the sails, upon their respective yards and stays, in order

to begin the action of sailing.

To make SAIL, is to spread an additional quantity of sail, so as to increase the ship's velocity.

To shorten SAIL, is to reduce or take in part of the sails, with an intention to diminish the ship's velocity.

To strike SAIL, is to *lower* it suddenly. This is particularly used in *saluting* or doing homage to a superior force, or to one whom the law of nations acknowledges as superior in certain regions. Thus all foreign vessels strike to an English man of war in the British seas. See SALUTE.

SAILING, the movement by which a vessel is wafted along the surface of the water, by the action of the wind upon her sails.

When a ship changes her state of rest into that of motion, as in advancing out of a harbour, or from her station at anchor, she acquires her motion very gradually, as a body which arrives not at a certain velocity till after an infinite repetition of the action of its weight.

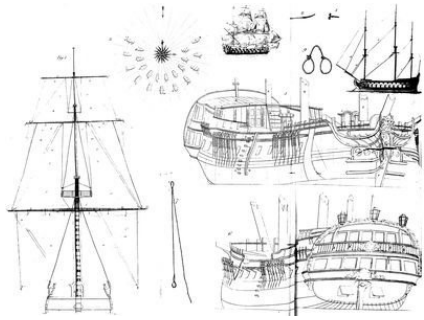


Plate. ix.

The first impression of the wind greatly affects the velocity, because the resistance of the water might destroy it, since the velocity being but small at first, the resistance of the water which depends on it will be very feeble: but as the ship increases her motion, the force of the wind on the sails will be diminished; whereas on the contrary the resistance of the water on the *bow* will accumulate, in proportion to the velocity with which the vessel advances. Thus the repetition of the degrees of force which the action of the sails adds to the motion of the ship, is perpetually decreasing; whilst on the contrary the new degrees added to the effort of resistance on the bow are always augmenting. The velocity is then accelerated in proportion as the quantity added is greater than that which is subtracted: but when the two powers become equal, when the impression of the wind on the sails has lost so much of its force, as only to act in proportion to the opposite impulse of resistance on the bow, the ship will then acquire no additional velocity, but continue to sail with a constant uniform motion. The great weight of the ship may indeed prevent her from acquiring her

greatest velocity; but when she has attained it, she will advance by her own intrinsic motion, without gaining any new degree of velocity, or lessening what she has acquired. She moves then by her own proper force *in vacuo*, without being afterwards subject either to the effort of the wind on the sails, or to the resistance of the water on the bow. If at any time the impulsion of the water on the bow should destroy any part of the velocity, the effort of the wind on the sails will revive it, so that the motion will continue the same. It must however be observed, that this state will only subsist when these two powers act upon each other in direct opposition; otherwise they will mutually destroy one another. The whole theory of working ships depends on this counter-action, and the perfect equality which should subsist between the effort of the wind and the impulsion of the water. *Bouguer*, *Traité du navire*.

The effect of sailing is produced by a judicious arrangement of the sails to the direction of the wind. Accordingly the various modes of sailing are derived from the different degrees and situations of the wind with regard to the course of the vessel.

To illustrate this observation by examples, the plan of a number of ships proceeding on various courses are represented by fig. 3. plate IX. which exhibits the thirty-two points of the compass, of which C is the center: the direction of the wind, which is northerly, being expressed by the arrow.

It has been observed in the article CLOSE-HAULED, that a ship in that situation will sail nearly within six points of the wind. Thus the ships B and *y* are close-hauled, the former being on the larboard *tack*, steering E. N. E. and the latter on the starboard tack sailing W. N. W. with their yards *a b* braced obliquely, as suitable to that manner of sailing. The

line of battle on the larboard tack would accordingly be expressed by C B, and on the starboard by C *y*.

When a ship is neither close-hauled, nor steering afore the wind, she is in general said to be sailing *large*. The relation of the wind to her course is precisely determined by the number of points between the latter and the course *close-hauled*. Thus the ships *c* and *x* have the wind one point large, the former steering E. *b* N. and the latter W. *b* N. The yards remain almost in the same position as in B and *y*: the bowlines and *sheets* of the sails being only a little slackened.

The ships *d* and *u* have the wind two points large, the one steering east and the other west. In this manner of sailing, however, the wind is more particularly said to be upon the *beam*, *perpendiculaire du vent*, as being at right angles with the keel, and coinciding with the position of the ship's beams. The yards are now more across the ship, the bowlines are cast off, and the sheets more relaxed; so that the effort of the wind being applied nearer to the line of the ship's course, her velocity is greatly augmented.

In *e* and *t* the ships have the wind three points large, or one point *abaft* the beam, the course of the former being E. *b* S. and that of the latter

W. *b* S. The sheets are still more flowing; the angle which the yards make with the keel farther diminished; and the course accelerated in proportion.

The ships *f* and *s* the first of which steers E. S. E. and the second W.S. W. have the wind four points large, or two points abaft the beam. In *g* and *r* the wind is five points large, or three points abaft the beam, the former sailing S. E. *b* E. and the latter S. W. *b* W. In both these situations the sheets are still farther slackened, and the yards laid yet more athwart the ship's length, in proportion as the wind

approaches the *quarter*.

The ships *h* and *q*, steering S. E. and S. W. have the wind six points large, or more properly on the quarter; which is considered as the most favourable manner of sailing, because all the sails co-operate to increase the ship's velocity: whereas, when the wind is right aft, as in the ship *m*, it is evident, that the wind, in its passage to the foremost sails, will be intercepted by those which are farther aft. When the wind is on the quarter, the fore-tack is brought to the cat-head; and the main-tack being cast off, the weather-clue of the mainsail is hoisted up to the yard, in order to let the wind pass freely to the foresail; and the yards are disposed so as to make an angle of about two points, or nearly 22°, with the keel.

The ships *i* and *p*, of which the former sails S. E. *b* S. and the latter S. W, *b* S. are said to have the wind three points on the larboard or starboard quarter: and those expressed by *k* and *o*, two points; as steering S. S. E. and S. S. W. in both which positions the yards make nearly an angle of 16°, or about a point and an half, with the ship's length.

When the wind is one point on the quarter, as in the ships *l* and *n*, whose courses are S. *b* E. and S. *b* W. the situation of the yards and sails is very little different from the last mentioned; the angle which they make with the keel being somewhat less than a point, and the stay-sails being rendered of very little service. The ship *m* sails right afore the wind, or with the wind right aft. In this position the yards are laid at right angles with the ship's length: the stay-sails, being entirely useless, are hauled down: and the mainsail is drawn up in the brails, that the fore-sail may operate: a measure which considerably facilitates the steerage, or effort of the helm. As the

wind is then intercepted, by the main top-sail and main top-gallant-sail, in its passage to the fore top-sail and fore top-gallant-sail, these latter are by consequence entirely *becalmed*, and might therefore be furled, to prevent their being fretted by flapping against the mast, but that their effort contributes greatly to prevent the ship from *broaching-to*, when she deviates from her course to the right or left thereof.

Thus all the different methods of sailing may be divided into four, viz. close hauled, large, quartering, and afore the wind; all which relate to the direction of the wind with regard to the ship's course, and the arrangement of the sails. See also *Drift* and *Leeway*.

Order of SAILING, the general disposition of a fleet of ships when proceeding on a voyage or expedition.

It has already been observed in the article FLEET, that the most convenient order of sailing, for a squadron of ships, is in three parallel columns, so as to form the line of battle with greater facility and expedition. In this disposition, the station of each ship is previously appointed by the commander in chief; and the ranks or columns are as near to each other as regularity, and a regard for their common security, will admit. This distance, which ought to be carefully observed in tacking, may be regulated by the movements of some of the ships in the column farthest to windward, which should accordingly govern the operations of the whole squadron. See TACKING.

SAILING also implies a particular mode of navigation, formed on the principles, and regulated by the laws of trigonometry. Hence we say, plain sailing, mercator's, middle-latitude, parallel and great circle sailing. See the article NAVIGATION.

SAILOR, *matelot*, a seafaring man: a person trained

in the exercise of fixing the machinery of a ship, and managing her, either at sea, or in a road, or harbour.

SAIL-YARD. See the article YARD.

SALVAGE, a third part of the value of anything recovered from the enemy, after having remained in his possession twenty-four hours; or of any thing dragged up from the bottom of the sea. It is paid by the first proprietors to the persons who have so recovered it, or else detained legally by the latter.

SALUTE, *salut*, (from *saluto*, Lat.) a testimony of deference or homage rendered by the ships of one nation to another; or by ships of the same nation to a superior or equal.

This ceremony is variously performed, according to the circumstances, rank, or situation of the parties. It consists in firing a certain number of cannon, or vollies of small arms; of striking the colours or top-sails; or of one or more general shouts of the whole ship's crew, mounted on the masts or rigging for that purpose.

The principal regulations with regard to salutes in the royal navy are as follow.

'When a flag-officer salutes the admiral and commander in chief of the fleet, he is to give him fifteen guns; but when captains salute him, they are to give him seventeen guns. The admiral or commander in chief of the fleet is to return two guns less to flag-officers, and four less to captains. Flag-officers saluting their superior or senior officer, are to give him thirteen guns. Flag-officers are to return an equal number of guns to flag-officers bearing their flags on the same mast, and two guns less to the rest, as also to captains.

'When a captain salutes an admiral of the white or blue, he is to give him fifteen guns; but to vice and rear admirals, thirteen guns. When a flag-officer is

saluted by two or more of his Majesty's ships, he is not to return the salute till all have finished, and then to do it with such a reasonable number of guns as he shall judge proper.

'In case of the meeting of two squadrons, the two chiefs only are to exchange salutes. And if single ships meet a squadron consisting of more than one flag, the principal flag only is to be saluted. No salutes shall be repeated by the same ships, unless there has been a separation of six months at least.

'None of his Majesty's ships of war, commanded only by captains, shall give or receive salutes from one another, in whatsoever part of the world they meet.

'A flag-officer commanding in chief shall be saluted, upon his first hoisting of his flag, by all the ships present, with such a number of guns as is allowed by the first, third, or fifth articles.

'When any of his Majesty's ships shall meet with any ship or ships belonging to any foreign prince or state, within his Majesty's seas, (which extend to Cape Finisterre) it is expected, that the said foreign ships do strike their top-sail, and take in their flag, in acknowledgment of his Majesty's sovereignty in those seas: and if any shall refuse or offer to resist, it is enjoined to all flag-officers and commanders to use their utmost endeavours to compel them thereto, and not suffer any dishonour to be done to his Majesty. And if any of his Majesty's subjects shall so much forget their duty, as to omit striking their top-sail in passing by his Majesty's ships, the name of the ship and master, and from whence, and whither bound, together with affidavits of the fact, are to be sent up to the secretary of the admiralty, in order to their being proceeded against in the admiralty-court. And it is to be observed, that in his Majesty's seas, his

Majesty's ships are in no wise to strike to any; and that in other parts, no ship of his Majesty's is to strike her flag or topsail to any foreigner, unless such foreign ship shall have first struck, or at the same time strike her flag or top-sail to his Majesty's ship.

'The flag-officers and commanders of his Majesty's ships are to be careful to maintain his Majesty's honour upon all occasions, giving protection to his subjects, and endeavouring, what in them lies, to secure and encourage them in their lawful commerce; and they are not to injure, in any manner, the subjects of his Majesty's friends and allies.

'If a foreign admiral meets with any of his Majesty's ships, and salutes them, he shall receive gun for gun. If he be a vice-admiral, the admiral shall answer with two guns less. If a rear-admiral, the admiral and vice-admiral shall return two less. But if the ship be commanded by a captain only, the flag-officers shall give two guns less, and captains an equal number.

'When any of his Majesty's ships come to an anchor in a foreign port or road, within cannon-shot of its forts, the captain may salute the place with such a number of guns as have been customary, upon good assurance of having the like number returned, but not otherwise. But if the ship bears a flag, the flag-officer shall first carefully inform himself how flags of like rank, belonging to other crowned heads, have given or returned salutes, and to insist upon the same terms of respect.

'It is allowed to the commanders of his Majesty's ships in foreign parts, to salute the persons of any admirals, commanders in chief, or captains of ships of war of foreign nations, and foreign noblemen or strangers of quality, as also the factories of the king's

subjects, coming on board to visit the ship; and the number of guns is left to the commander, as shall be suitable to the occasion, and the quality of the persons visiting; but he is nevertheless to remain accountable for any excesses in the abuse of this liberty. If the ship visited be in company with other ships of war, the captain is not to make use of the civilities allowed in the preceding article, but with leave and consent of the commander in chief, or the senior captain.

'Merchant-ships, whether foreigners, or belonging to his Majesty's subjects, saluting the admiral of the fleet, shall be answered by six guns less; when they salute any other flag-ships, they shall be answered by four guns less; and if they salute men of war commanded by captains, they shall be answered by two guns less. If several merchant-ships salute in company, no return is to be made, till all have finished, and then by such a number of guns as shall be thought proper; but though the merchant-ships should answer, there shall be no second return.——

'None of his Majesty's ships of war shall salute any of his Majesty's forts or castles in Great Britain or Ireland, on any pretence whatsoever.' *Regulations and Instructions for the Sea-service.*

SAMSONS-POST, *piedroit*, a sort of pillar erected in a ship's hold, between the lower deck and the *kelson*, under the edge of a hatchway, and furnished with several notches that serve as steps to mount or descend, as occasion requires.

This post being firmly driven into its place, not only serves to support the beam, and fortify the vessel in that place, but also to prevent the cargo or materials contained in the hold from shifting to the opposite side, by the rolling of the ship in a turbulent and heavy sea.

SAUCER. See the article CAPSTERN.

SCALING *the guns*, *soufler*, the act of cleaning the inside of a ship's cannon, by the explosion of a small quantity of powder; which effectually blows out any dirt or scales of iron which may adhere to the interior surface.

SCANTING, *addoner*, the variation of the wind by which it becomes unfavourable to a ship's course, after having been *fair* or *large*. It is distinguished from a foul wind, as in the former, a ship is still enabled to sail on her course, although her progress is considerably retarded; but in the latter she is obliged to deviate from the line of her course, as explained in the article TACKING.

SCANTLING, the dimensions of any piece of timber with regard to its breadth and thickness.

SCARF, *empature*, (*scherven*, Dutch) a particular method of uniting two pieces of timber together by the extremities.

When two pieces of timber are joined together, so that the end of one goes over the end of the other, being tapered so that the one may be let into the other, and become even, they are said to be scarfed: such are the keel-pieces. But when the ends of the two pieces are cut square, and put together, they are said to *butt* to one another; and when another piece is laid upon, and fastened to both, as is the case in all the frame-timbers, this is called scarfing the timbers; and half the piece which fastens the two timbers together is reckoned the length of the scarf. *Murray's Ship-building.*

SCHOONER, a small vessel with two masts, whose main-sail and fore-sail are suspended from *gaffs* reaching from the mast towards the stern; and stretched out below by booms, whose foremost ends are hooked to an iron, which clasps the mast so as to

turn therein as upon an axis, when the after ends are swung from one side of the vessel to the other.

SCOOP, *écoupe*, a little hollowed piece of wood, employed to throw water out of a boat into the sea, which is usually called bailing the boat.

SCRAPING, the act of shaving off the dirty surface of the plank, in a ship's side or decks, particularly after a voyage, or when the *seams* have been covered with a new composition of melted pitch or rosin. The instrument with which this is performed is accordingly called a scraper, and is represented in fig. 4. plate IX.

After the sides of a ship are sufficiently scraped, they are varnished over with turpentine, or a mixture of tar and oil, or such materials; which preserves the planks from being rent or split by the sun and wind, and gives the ship a more gay and spendid appearance on the water.

SCUDDING, (*Skutta*, Swedish) the movement by which a ship is carried precipitately before a tempest.

As a ship flies with amazing rapidity through the water, whenever this expedient is put in practice, it is never attempted in a contrary wind, unless when her condition renders her incapable of sustaining the mutual effort of the wind and waves any longer on her side, without being exposed to the most imminent danger. See the article TRYING.

A ship either scuds with a sail extended on her fore mast, or, if the storm is excessive, without any sail, which in the sea-phrase is called scudding under *bare poles*, *aller à sec*. In sloops and schooners, and other small vessels, the sail employed for this purpose is called the square-sail, *voile de fortune*. In large ships, it is either the foresail, at large, *reefed*, or with its *goose-wings* extended, according to the degree of the

tempest; or it is the fore top-sail close-reefed, and lowered on the *cap*: which last is particularly used when the sea runs so high as to *becalm* the foresail occasionally; a circumstance which exposes the ship to the danger of *broaching-to*.

The principal hazards incident to scudding are generally, a *pooping* sea; the difficulty of steering, which exposes the vessel perpetually to the risk of broaching-to; and the want of sufficient sea-room. A sea striking the ship violently on the stern may dash it inwards, by which she must inevitably *founder*. In broaching-to suddenly, she is threatened with being immediately overturned; and, for want of sea-room, she is endangered by shipwreck on a lee-shore; a circumstance too dreadful to require explanation!

SCUPPERS, *dalots*, (*schoepen*, Dutch, *to draw off*) certain channels cut through the water-ways and sides of a ship, at proper distances, and lined with plated lead, in order to carry the water off from the deck into the sea.

The scuppers of the lower deck of a ship of war are usually furnished with a leathern pipe, called the scupper-hoase, which hangs downward from the mouth or opening of the scupper. The intent of this is to prevent the water from entering when the ship inclines under a weight of sail.

SCUTTLE, (*écoutille*, Fr.) a small hatchway cut for some particular purpose through a ship's deck, or through the coverings of her hatchways, and being furnished with a lid which firmly encloses it whenever necessary. See DECK and HATCHWAY.

SCUTTLING, the act of cutting large holes through the bottom or sides of a ship, either when she is *stranded* or overset, and continues to float on the surface. The design of this expedient is usually to take out the whole or a part of the cargo, provisions,

stores, &c. with all possible expedition.

SEA, *mer*, (*sœ*, Sax. *zee*, Dutch) is known to be a great congregation of waters, which is either universal or local; as surrounding the whole earth, or flowing on the coast of some particular country.

This term, however, is variously applied by sailors, to a single wave; to the agitation produced by a multitude of waves in a tempest; or to their particular progress or direction. Thus they say, a heavy sea broke over our *quarter*, or we *shipped* a heavy sea; there is a great sea in the *offing*; the sea sets to the southward. Hence a ship is said to head the sea, when her course is opposed to the *setting* or direction of the surges.

A long sea implies an uniform and steddy motion of long and extensive waves; on the contrary, a short sea is when they run irregularly, broken, and interrupted; so as frequently to burst over a vessel's side or quarter.

SEA-BOAT, *vaisseau beau de mer*, a vessel that bears the sea firmly, without labouring heavily, or straining her masts and rigging.

SEA-COAST, the shore of any country; or that part which is washed by the sea.

SEA-FARING, the occupation of a mariner or sailor.

SEAMAN, *homme de mer*, a mariner or person trained in the exercise of fixing the machinery of a ship, and applying it to the purposes of navigation.

The principal articles required in a common sailor to intitle him to the full wages, are, that he can steer, sound, and manage the sails, by extending, *reefing*, and furling them, as occasion requires. When he is expert at these exercises, his skill in all other matters relative to his employment is taken for granted.

SEA-MARK, a point or conspicuous place distinguished at sea.

Sea-marks are of various kinds, as steeples, promontories, piles of ruins, groupes of trees, &c. and are very necessary to direct vessels on the coast of their situation. See also BEACON and BUOY.

SEA-ROOM, *belle derive*, implies a sufficient distance from the coast, as well as from any rocks or shallows, whereby a ship may drive or scud without danger of shipwreck.

SEA-WEEDS, *sarts*, a sort of herbs or tangles floating on the surface of the sea, or washed upon the sea-coast. See the French term MER, and the phrases which follow in order.

SEAMS, *coutures*, the intervals between the edges of the planks in the decks and sides of a ship; or the places where the planks join together. These are always filled with a quantity of *oakum*, and covered with hot pitch, to prevent the entrance of the water. See the article CALKING.

SEIZING, *amarrer*, the operation of fastening any two ropes, or different parts of one rope together, with a small line or cord: also the cord (*ammarage*) which fastens them.

SELVAGEE, a sort of hank or skein of rope-yarn tied together at several distances. It is used to fasten round any rope, as a shroud or stay, so that a tackle may be hooked in it, to extend the said shroud or stay, which is called setting it up.

SENDING, the act of pitching precipitately into the hollow or interval, between two waves.

SENNIT, *garcettes*, (from *seven* and *knit*) a sort of flat braided cordage, formed by platting five or seven rope-yarns together.

SERVING, *fourrer*, winding any thing round a rope, to prevent it from being rubbed. The materials used for this purpose, and which are accordingly called *service*, *fourrure*, are generally small lines, leather,

plat canvas, &c.

SETTEE, *scitie*, a ship of two masts, equipped with triangular sails, commonly called lateen sails. These vessels are peculiar to the Mediterranean sea, and are generally navigated by Italians, Greeks, or Mahometans.

SETTING, the act of observing the situation of any distant object by the compass, in order to discover the angle which it makes with the nearest meridian; as, at seven in the evening, we set the Tower of Arabia near the port of Alexandria, and it bore S. S. E. distant four leagues by estimation. See BEARING.

SETTING also denotes the direction of the wind, current, or sea, but particularly the two latter: as, the tide which sets to the south, is opposed to a swelling sea setting to the north-west.

SETTING, when applied to the sails, is the loosening and expanding them, so as to move a ship along the water, after she had been for some time at rest; or to accelerate her velocity when she is already moving, and perhaps give a new direction to her motion. It is used in contradistinction to taking-in the sails, as loosing or heaving-out is opposed to furling or stowing them.

SETTING-UP, the act of extending the *shrouds*, *stays*, and *back-stays*, to secure the masts, by the application of mechanical powers, as tackles, &c. See DEAD-EYE, LANIARD, &c.

SETTLED, lowered in the water; as, we have settled the land, or sunk it lower, by sailing farther out to seaward. This phrase is usually opposed to raising; the former being occasioned by departing from the object understood, and the latter by approaching it: however, the sense is more commonly expressed *laying*.

SEWED, the situation of a ship which rests upon

the ground till the depth of water sufficient to float her is diminished by the reflux of the tide. Thus if a ship runs aground on the tide of ebb, and it be required to know if she has sewed, the water-line or mark on her side, stem, or stern-post, where the surface of the water reaches when she is afloat, is examined, and this mark being found above the water, she is said to be sewed by as much as is the difference.

SHAKES, *ébaroui*, a name given by shipwrights to the cracks or rents in a plank, occasioned by the sun or weather.

SHANK, the beam or shaft of an *anchor*. See that article.

SHANK-PAINTER, a short rope and chain which hangs the shank and flukes of the anchor up to the ship's side, as the *stopper* fastens the ring and stock to the cathead.

To SHAPE *the course*, *commander à la route*, to direct or appoint the track of a ship, in order to prosecute a voyage.

SHARP. See BOTTOM.

SHEATHING, *doublage*, a sort of casing or covering laid on the outside of a ship's bottom, to protect the planks from the pernicious effects of the worms: particularly in hot climates, as between the tropics.

Sheathing either consists of a number of boards or deals of fir, or of sheets of lead or copper; which last is a very late invention, having been only experienced on a few of his Majesty's frigates: it seems, however, to answer the purpose much better than the fir-planks. When the sheathing is performed with boards, there is a quantity of hair and tar inserted between the outside of the bottom and the inner surface of the boards.

SHEAVE, *rouet*, (*schijf*, Dutch) a solid cylindrical

wheel, fixed in a channel, and moveable about an axis, as being used to raise or increase the mechanical powers applied to remove any body.

The sheaves are either fixed in blocks, or in channels cut through the masts, caps, cat-heads, or sides of a ship. See those articles.

SHEEP-SHANK: a sort of knot or hitch cast on a rope, to shorten it as occasion requires: particularly to increase the sweep or length of a tackle by contracting its *runner*. By this contrivance the body to which the tackle is applied may be hoisted much higher, or removed much farther, in a shorter time.

Thus if any weighty body is to be hoisted into a ship, and it be found that the blocks of the tackle meet before the object can reach the top of the side, it will be necessary to lower it again, or hang it by some other method, till the *runner* of the tackle is sheep-shanked, by which the blocks will again be separated to a competent distance.

SHEER, *relevement*, the longitudinal curve of a ship's deck or sides.

SHEERING, in navigation, the act of deviating or straying from the line of the course, either to the right or left, so as to form a crooked and irregular path through the water. It is commonly occasioned by the ship's being difficult to steer, but very often from the negligence or incapacity of the helmsman. Hence, to *sheer off* is to remove at a greater distance.

SHEERS, *machine à mater*, an engine used to hoist-in or displace the lower masts of a ship. See the article MAST.

The sheers employed for this purpose in the royal navy are described under the article *hulk*. In merchant-ships this machine is composed of two masts or props, erected in the same vessel wherein the mast is to be planted, or from whence it is to be

removed. The lower ends of these props rest on the opposite sides of the deck, and their upper parts are fastened across, so as that a *tackle*, which depends from the intersection, may be almost perpendicularly above the station of the mast, to which the mechanical powers are applied. These sort of sheers are secured by stays, which extend forward and aft to the opposite extremities of the vessel.

SHEET, *écoute*, a rope fastened to one or both the lower corners of a sail, to extend and retain it in a particular station. See CLUE and SAIL.

When a ship sails with a lateral wind, the lower corner of the main and fore sail are fastened by a tack and a sheet; the former being to windward and the latter to leeward: the tack, however, is entirely disused with a stern-wind; whereas the sail is never spread without the assistance of one or both of the sheets.

The stay-sails and studding-sails have only one tack and one sheet each: the stay-sail-tacks are always fastened forward, and the sheet drawn *aft*; but the studding-sail-tack draws the outer clue of the sail to the extremity of the boom; whereas the sheet is employed, to extend the inmost.

To haul home the SHEET. See HOME.

SHEET-ANCHOR. See the article ANCHOR.

SHELL, in artillery. See MORTAR and RANGE.

SHELL *of a block*, the outer frame or case, wherein the *sheave* or wheel is contained, and traverses about its axis. See BLOCK.

SHELVES, *écueils*, (*schylf*, Sax.) a general name given to any dangerous shallows, sand-banks, or rocks lying immediately under the surface of the water, so as to intercept any ship in her passage, and expose her to destruction.

SHIFTED, *desarrimée*, the state of a ship's ballast or

cargo when it is shaken from one side to the other, either by the violence of her *rolling* in a turbulent sea, or by an extraordinary inclination to one side when under a great pressure of sail. This circumstance, however, rarely happens, unless to those cargoes which are stowed in *bulk*, as corn, salt, or such materials. See LADEN and TRIM.

SHIFTED, *sauté*, when expressed of the wind, implies altered.

SHIFTER, *detrempeur*, a person appointed to assist the ship's cook, particularly in washing, steeping, and shifting the salt provisions.

SHIFTING *a tackle*, the act of removing the blocks of a tackle to a greater distance from each other, on the object to which they are applied, in order to give a greater scope or extent to their purchase. This operation is otherwise called fleeting. See that article.

SHIFTING *the helm*, *rencontrer*, is the alteration of its position, by pushing it towards the opposite side of the ship. See HELM.

SHIFTING *the voyal*, *depasser*, changing its position on the capstern from the right to the left, and *vice versa*.

SHIP, *vaisseau*, (*scip*, Sax.) a general name given by seamen to the first rank of vessels which are navigated on the ocean.

Amongst people who are unacquainted with marine distinctions, this term is of very vague and indiscriminate acceptation: and indeed sailors themselves, submitting occasionally to the influence of custom, receive it according to this general idea. In the sea-language, however, it is more particularly applied to a vessel furnished with three masts, each of which is composed of a lower mast, top-mast, and top-gallant-mast, with the usual machinery thereto

belonging.

The design of this work being professedly to treat of the construction, mechanism, furniture, movements, and military operations of a ship, we may properly consider the present article as a general recapitulation of the whole subject.

The plans, elevations, and sections used in the construction of a ship; the principal pieces of which she is composed, and the qualities requisite to answer the several purposes of navigation, are described, or referred to, in *Naval* ARCHITECTURE: and the application of this theory to practice is treated in the article *Ship*-BUILDING.

The machinery and furniture with which she is equipped are variously diffused throughout this work, and naturally spring from one another, like a multitude of branches from one general trunk. See MAST, SAIL, YARD, RIGGING, ANCHOR, &c.

The qualities by which she is enabled to encounter a tempestuous sea are treated in the article BALLAST and TRIM; and her several movements therein are explained under NAVIGATION, DRIFT, SAILING, TACKING, LEEWAY, PITCHING, and ROLLING.

Considered as a moveable fortress or citadel, her military operations are copiously described in CANNON, CANNONADE, ENGAGEMENT, LINE, and RANGE; and as her efforts are occasionally like those of a mine, or bombardment, the reader is also referred to the articles FIRE-SHIP and MORTAR.

The vessels which are usually comprehended under the general name of ship, besides those of the line of battle, are galleons, frigates, hag-boats, cats, barks, pinks, and fly-boats; all of which are defined in their proper places, except the hag-boat, that only differs from a frigate-built ship in the figure of the stern, which has a great resemblance to that of the

cat, as being in a middle degree between the former and the latter. See also the article QUARTER.

Ships of war are properly equipped with artillery, ammunition, and all the necessary martial weapons and instruments for attack or defence. They are distinguished from each other by their several ranks or classes. See RATE.

SHIP *of the line* is usually applied to all men of war mounting sixty guns and upwards. Of late, however, our fifty-gun ships have been formed sufficiently strong to carry the same metal as those of sixty, and accordingly may fall into the line in cases of necessity. See LINE.

The ships of seventy-four cannon, and thereabouts, are generally esteemed the most useful in the line of battle, and indeed in almost every other purpose of war. It has therefore been judged conformable to our design, to represent different views and sections of a ship of this class. Thus plate IV. exhibits the head, together with the *bow* or fore part. Plate VII. shews a transverse section through the broadest part, with the profile of her upper and lower deck batteries. Plate III. contains an horizontal section at the lower deck, together with the plan of the battery planted on one side thereof, and all the pieces by which the deck is supported on the other. The quarter, and all the after part of the ship, is exhibited in plate VIII. and the elevation of the stern in plate X. all of which are on the same scale, *viz.* one fourth of an inch to a foot, except the deck, which is one eighth of an inch to a foot.

We have also, on a smaller scale, expressed an elevation or side-view of a sixty-gun ship, in plate I. with the head thereof in plate IV. fig. 11. and the stern in plate X. fig. 2. both of which are viewed upon a line on the continuation of the keel.

Armed SHIP. See ARMED SHIP.

Hospital-SHIP, a vessel fitted up to attend on a fleet of men of war, and receive their sick or wounded; for which purpose her decks should be high, and her ports sufficiently large. Her cables ought also to run upon the upper deck, to the end that the beds or cradles may be more commodiously placed between decks, and admit a free passage of the air, to disperse that which is offensive or corrupted.

Leeward SHIP. See LEEWARD.

Merchant-SHIP, a vessel employed in commerce, to carry commodities of various sorts from one port to another.

The largest merchant-ships are those employed by the different European companies of merchants who trade to the East Indies. They are in general somewhat larger than our forty-gun ships: they are mounted with twenty cannon on their upper deck, which are nine pounders, and six on their quarter-deck, which are six pounders. Plate IX. fig. 5. represents a view of one of these vessels on the larboard bow, where *a* is the ensign-staff, A the mizen-mast, B the main-mast, C the fore-mast, K the *poop*, L L an awning of wood extending across the after part of the quarter-deck, M poop-ladder, N O steps of the gangway, P head of the capstern on the quarter-deck, Q R the skeeds on the gangway, *r* the belfry on the forecastle, *s* the timber-heads, *y* the cut-water, with a lion-head fixed upon it. The other parts of this ship represented in the figure are referred to from the explanations of the head, plate IV. and the quarter in plate VIII.

Fig. 6. plate IX. exhibits a quarter view of a foreign-built East-Indiaman, with a *square tuck*, or perpendicular counter, and having three poop-lanthorns fixed on her *taffarel*.

Private SHIP *of war*. See PRIVATEER.

Store-SHIP, a vessel employed to carry artillery or naval stores for the use of a fleet, fortress, or garrison.

Transport-SHIP is generally used to conduct troops from one place to another.

Weatherly-SHIP. See WEATHERLY SHIP.

In the different kinds of ships, referred to above, and distinguished from each other by their size or figure, we have only considered those which are most common in European nations, where the marine art has received the greatest improvements. So far is apparently consistent with the views of utility. To give a circumstantial account of the various species of ships employed in different nations, besides being an almost endless task, would be of little service, except to gratify an useless curiosity. See VESSEL.

To SHIP, is either used actively, as, to embark any person, or put any thing aboard-ship; or passively, to receive any thing into a ship; as, we shipped a heavy sea at three o'clock in the morning.

To SHIP, also implies to fix any thing in its place; as, to ship the oars, *i. e.* to fix them in their row-locks. To ship the swivel-guns, is to fix them in their sockets, &c.

SHIP-SHAPE, according to the fashion of a ship, or in the manner of an expert sailor; as, the mast is not rigged ship-shape; trim your sails ship-shape.

SHIPPING, a multitude of vessels. The harbour is crouded with shipping.

SHOAL, a term synonimous with *shallow*. See that article.

SHOE *of the anchor*, *soulier*, a small block of wood, convex on the back, and having a small hole, sufficient to contain the point of the anchor-fluke, on

the fore side. It is used to prevent the anchor from tearing or wounding the planks on the ship's *bow*, when ascending or descending; for which purpose the shoe slides up and down along the bow, between the fluke of the anchor and the planks, as being press'd close to the latter by the weight of the former.

To SHOE *an anchor*, *brider*, is to cover the flukes with a broad triangular piece of plank, whose area or superficies is much larger than that of the flukes. It is intended to give the anchor a stronger and surer hold of the bottom in very soft and oozy ground.

SHORE, a general name for the sea-coast of any country.

SHORE is also a prop or large *stanchion* fixed under a ship's sides or bottom, to support her when laid aground or on the stocks, &c.

Bold SHORE, a coast which is steep and abrupt, so as to admit the closest approach of shipping without exposing them to the danger of being stranded.

To SHORTEN, expressed of a ship's sails, is used in opposition to *make*. See that article, as also SAIL.

SHOT, a missive weapon, discharged by the force of inflamed powder from a fire-arm in battle.

The shot used in the sea-service is of various kinds, as bullets, bar-shot, chain-shot, case-shot, and grape-shot; all of which are used in the royal navy. There is besides other shot, of a more pernicious kind, used by privateers, and other piratical rovers: such are *langrage* star-shot, fire-arrows, &c.

The first and most simple is the round-shot, which is a ball or globe of iron, whose weight is in proportion to the size of the cannon, or to the diameter of its bore.

The double-headed, or bar-shot, fig. 11. plate VII. are balls cut into two equal parts, and joined

together by a kind of iron bar. In the French service the middle is sometimes filled with a composition, and the whole covered with linen dipped in brimstone; the cannon in firing also inflames the combustibles or composition of this ball, which sets fire to the sails of the vessel. One of the heads of this ball has an hole to receive a fuse, which, communicating with the charge of the cannon, sets fire to the bullet[54].

The chain-shot, fig. 12. consists of two balls chained together, being principally designed to destroy the masts and rigging, which they are better fitted to perform than the single bullets.

Grape-shot is a combination of balls, fig. 13. put into a thick canvas bag, and corded strongly together, so as to form a sort of cylinder, whose diameter is equal to that of the ball which is adapted to the cannon. This shot is represented by fig. 13. on a larger scale, at the bottom of the plate.

Case-shot, fig. 14. is formed by putting a great quantity of musket-bullets into a cylindrical tin-box called a canister. They are principally used by the French to scour the decks of the enemy.

Diameter of Iron Shot used in the sea-service, according to their weight.

Wt	Diamet.
lb.	Inch. Parts.

1½	2	20
3	2	77
4	3	5
6	3	49
9	4	00
12	4	40
18	5	4
24	5	50
32	6	60
42	6	68

Construc

Pounders.	Thickness of Bottoms.		Spindles.			
			Length.		Diamet.	
	Inch.	Parts.	Inch.	Parts.	Inch.	Parts
42	0	60	9	16	0	57
32	0	55	8	32	0	55
24	0	48	7	27	0	70
18	0	44	6	61	0	64
12	0	38	5	77	0	55
9	0	36	5	38	0	41
6	0	30	4	58	0	44
4	0	27	4	16	0	27
3	0	22	3	63	0	35
1½	0	19	2	88	0	27
1	0	17	2	62	0	17
0½	0	14	2	25	0	12

Fire-arrows are described in the notes under the

article ENGAGEMENT, and *Langrage* under that word.

Star-shot consists of four pieces of iron, whose bases, when separate, form the quadrant of a circle; so that the whole being joined, forms a cylinder equal to the shot of the cannon. Each of those pieces is furnished with an iron bar, the extremity of which is attached to a sort of link, as keys are strung upon a ring. Being discharged from the gun, the four branches or arms extend every way from the link in the center. These also are chiefly intended to destroy the sails or rigging, but their flight and execution is very precarious at any tolerable distance.

SHROUDS, *haubans*, (*scrud*, Sax.) a range of large ropes extended from the mast-heads to the right and left side of the ship, to support the masts, and enable them to carry sail, &c.

The shrouds are always divided into pairs or couples: that is to say, one piece of rope is doubled, fig. 7. plate IX. and the two parts fastened together at a small distance from the middle *a*, so as to leave a sort of noose or collars *a b* to fix upon the mast-head. This collar being fixed in its place, viz. close down upon the *tressel-trees k* fig. 2. plate VI. a pair of shrouds depend from it, whose lower ends ought to reach down to the deck. The lower ends of these shrouds are *set up* or extended to the *channel* I. fig. 2. plate VI. on the outside of the ship, by the application of mechanical powers, as explained in the articles *dead-eye* and *laniard*.

The shrouds as well as the sails are denominated from the masts to which they belong. Thus they are the main, fore, and mizen shrouds, the main top-mast, fore top-mast, or mizen top-mast shrouds, and the main top-gallant, fore top-gallant, or mizen top-gallant shrouds.

The number of shrouds by which a mast is

sustained, as well as the size of rope of which they are formed, is always in proportion to the size of the mast, and the weight of sail it is intended to carry.

The two foremost shrouds on the starboard and larboard side of the ship are always fitted first upon the mast-head; and then the second on the starboard and the second on the larboard, and so on till the whole number is fixed. The intention of this arrangement is to *brace* the *yards* with greater facility when the sails are close-hauled, which could not be performed without great difficulty if the foremost shrouds were last fitted on the mast-head, because the angle which they would make with the mast would then be greatly increased. See also *Swifter*.

The topmast-shrouds are extended from the topmast-heads to the edges of the tops, as expressed by fig. 3, pl. VI. and fig. 1. pl. IX. The lower dead-eye *q*, employed for this purpose, is fitted with an iron band, called the foot-hook plate, which passes thro' a hole in the edge of the top, and communicates with a rope called the foot-hook shroud, whose lower end is attached to the shrouds of the lower mast, in the station *l*. The upper ends of the foot-hook shrouds are furnished with an iron hook *n*, which enters a hole in the lower end of the foot-hook plate, so that when the top-mast shrouds are extended to secure the mast, the foot-hook shrouds necessarily acquire an equal tension by means of the foot-hook plate, which, passing through the top, transmits the effort of the mechanical powers, to the foot-hook shrouds below.

The shrouds of the top-gallant masts are extended to the cross-trees, as represented by *m*, fig. 1. plate IX. See also fig. 5. plate VI.

SIDE, *coté*, a name given to the flanks of a ship, or in general to all that part which is presented to the

view between the *stem* and *stern*, in a direction nearly perpendicular to the horizon.

The figure of the side is formed by that of the timbers upon which it is constructed. It is covered with planks, extending from one end of the ship to the other; it is also reinforced in different places by *beams*, *clamps*, *knees*, *riders*, and *standards*. See those articles.

The side is terminated above by the gunnel, and below by the lower edge of the main wale, which separates it from the bottom: it is inclosed by the stern abaft, and by the bow forward.

SIGNALS, (*signal*, Fr.) certain alarms or notices used to communicate intelligence to a distant object at sea.

Signals are made by firing artillery, and displaying colours, lanthorns, or fire-works: and these are combined by multiplication and repetition. Thus, like the words of a language, they become arbitrary expressions, to which we have previously annexed particular ideas: and hence they are the general sources of intelligence throughout a naval armament, &c. See ADMIRAL and ENGAGEMENT.

Signals ought to be distinct, with simplicity. They are simple, when every instruction is expressed by a particular token, in order to avoid any mistakes arising from the double purport of one signal. They are distinct, when issued without precipitation; when sufficient time is allowed to observe and obey them; and when they are exposed in a conspicuous place, so as to be readily perceived at a distance.

All signals may be reduced into three different kinds, *viz.* Those which are made by the sound of particular instruments, as the trumpet, horn, or fife; to which may be added, striking the bell, or beating the drum. Those which are made by displaying

pendants, *ensigns*, and *flags* of different colours; or by lowering or altering the position of the sails: And, finally, those which are executed by rockets of different kinds; by firing cannon, or small arms; by artificial fire-works; and by lanthorns.

Firing of great guns will serve equally in the day or night, or in a fog; to make or confirm signals; or to raise the attention of the hearers to a future order. This method, however, is attended with some inconveniencies, and should not be used indiscriminately. Too great a repetition of the cannon is apt to introduce mistakes and confusion, as well as to discover the tract of the squadron. The report and flight of the rockets is liable to the same objection, when at a short distance from the enemy.

It is then, by the combination of signals, previously known, that the admiral conveys orders to his fleet; every *squadron*, every *division*, and every ship of which has its particular signal. The instruction may therefore occasionally be given to the whole fleet, or to any of its squadrons; to any division of those squadrons, or to any ship of those divisions.

Hence the signal of command may at the same time be displayed for three divisions, and for three ships of each division; or for three ships in each squadron, and for only nine ships in the whole fleet. For, the general signal of the fleet being shewn, if a particular pendant be also thrown out from some remarkable place on the same mast with the general signal, it will communicate intelligence to nine ships that wear the same pendant.

The preparatory signal given by the admiral to the whole, or any part of his fleet, is immediately answered by those to whom it is directed; by shewing the same signal, to testify that they are ready to put his orders in execution. Having

observed their answer, he will shew the signal which is to direct their operations: as,

To chace, to form the *line*, to begin the engagement, to board, to double upon the enemy, to rally or return to action, to discontinue the fight, to retreat and save themselves. The dexterity of *working* the ships in a fleet depends on the precise moment of executing these orders; and on the general harmony of their movements: a circumstance which evinces the utility of a signal of preparation.

As the extent of the line of battle, and the fire and smoke of the action, or other circumstances in navigation, will frequently prevent the admiral's signals from being seen throughout the fleet, they are always repeated by the officers next in command; by ships appointed to repeat signals; and, finally, by the ship or ships for which they are intended.

The ships that repeat the signals, besides the chiefs of squadrons or divisions, are usually frigates lying to windward or to *leeward* of the line. They should be extremely vigilant to observe and repeat the signals, whether they are to transmit the orders of the commander in chief, or his seconds, to any part of the fleet; or to report the fortunate or distressful situation of any part thereof. By this means all the ships from the van to the rear will, unless disabled, be ready at a moment's warning to put the admiral's designs in execution.

To preserve order in the repetition of signals, and to favour their communication, without embarassment, from the commander in chief, to the ship for which they are calculated, the commanders of the squadrons repeat after the admiral; the chiefs of the divisions, according to their order in the line, after the commanders of the squadrons; and the particular ships after the chiefs of the divisions; and

those, in return, after the particular ships, *vice versa*, when the object is to convey any intelligence from the latter to the admiral.

Besides the signals above mentioned, there are others for different ranks of officers; as for captains, lieutenants, masters, *&c.* or for any of those officers of a peculiar ship. See DIVISION and SQUADRON.

SKEET, a sort of long scoop commonly used to wet the decks and sides of a ship in hot weather, in order to keep them cool, and to prevent them from splitting by the heat of the sun. This practice is accordingly performed in general every morning and evening before sun-rise and after sun-set.

This instrument, fig. 8. plate IX. is also employed in small vessels to wet the sails, to render them more steady and efficacious in light breezes.

SKIDS, or SKEEDS, are long compassing pieces of timber, formed so as to answer the vertical curve of a ship's side. See Q, R, fig. 5. plate IX. They are notched below so as to fit closely upon the wales; and as they are intended to preserve the planks of the side, when any weighty body is hoisted or lowered, they extend from the main wale to the top of the side; and they are retained in this position by bolts or spike-nails.

SKIFF, *esquife* (*scaffa*, Lat.) a small boat resembling a yawl. See the article BOAT.

SLAB-LINE, *cargue à vue*, a small cord passing up behind a ship's mainsail or fore-sail, and being *reeved* through a block, fig. 1. plate IX. attached to the lower part of the yard, is thence transmitted in two branches to the foot of the sail, to which it is fastened. It is used to truss up the sail as occasion requires; but more particularly for the conveniency of the pilot or steersman, that they may look forward beneath it, as the ship advances.

SLACK-WATER, the interval between the flux and reflux of the tide; or between the last of the ebb and the first of the flood, during which the current is interrupted; and the water apparently remains in a state of rest.

SLATCH, is generally applied to the period of a transitory breeze of wind, or the length of its duration.

SLEEPERS, a name formerly given by shipwrights to the *thick-stuff* placed longitudinally in a ship's hold, opposite to the several *scarfs* of the timbers. It is now properly applied to the knees, which connect the *transoms* to the after-timbers on the ship's *quarter*.

SLINGS, *elingue* (*slingan*, Sax.) a rope whose ends are fixed in such a manner to its other part, as to encircle a cask, bale, or case, and suspend it whilst hoisting or lowering. Of these there are various sorts, according to the weight or figure of the object to which they are applied. Those which are most frequently used in lading and delivering ships are represented in fig. 9. plate IX. being nearly in the form of a pair of spectacles, the *tackle* being hooked to the middle part *a*, whilst *b* and *c* are fixed on the opposite quarters of the cask, &c.

SLIP, a place lying with a gradual descent on the banks of a river convenient for ship-building.

SLOOP, a small vessel furnished with one mast, the main-sail of which is attached to a *gaff* above, to the mast on its foremost edge, and to a long boom below; by which it is occasionally shifted to either quarter. See VESSEL.

SLOOP OF WAR, a name given to the smallest vessels of war, except cutters. They are either rigged as ships or as snows. See COMMAND, HORSE, and RATE.

To SLUE, is to turn any cylindrical or conical piece of timber about its axis, without removing it. This term is generally expressed of the movement by which a mast or boom is turned about, in its *cap* or *boom-iron*.

SMACK, a small vessel commonly rigged as a *sloop* or *hoy*, used in the coasting or fishing trade; or as a *tender* in the King's service.

SNATCH-BLOCK, *galoche*, a block having an opening in one of its sides, wherein to fix the *bight* of rope occasionally. See BLOCK.

SNOTTER. See the article SPRIT.

SNOW, *senau*, is generally the largest of all two-masted vessels employed by Europeans, and the most convenient for navigation.

The sails and rigging on the main-mast and fore-mast of a snow, are exactly similar to those on the same masts in a ship; only that there is a small mast behind the main-mast of the former, which carries a sail nearly resembling the *mizen* of a ship. The foot of this mast is fixed in a block of wood on the quarter-deck abaft the main-mast; and the head of it is attached to the afterpart of the main-*top*. The sail, which is called the try-sail, is extended from its mast towards the stern of the vessel.

When the *sloops* of war are rigged as snows, they are furnished with a *horse*, which answers the purpose of the trysail-mast, the fore part of the sail being attached by rings to the said horse, in different parts of its height.

SOLE, a name sometimes given to the lower side of a gun-port, which however is more properly called the port-sell.

SOUNDING, (*sonder*, Fr.) the operation of trying the depth of the water, and the quality of the ground, by means of a plummet, *plomb de sonde*,

sunk from a ship to the bottom.

There are two plummets used for this purpose in navigation; one of which is called the hand-lead, weighing about 8 or 9 pound; and the other the deep-sea-lead, which weighs from 25 to 30 pound, and both are shaped like the frustrum of a cone or pyramid. The former is used in shallow waters, and the latter at a great distance from the shore; particularly on approaching the land, after a sea-voyage. Accordingly the lines employed for this purpose are called the deep-sea lead-line, and the hand lead-line.

The hand lead-line, which is usually 20 fathoms in length, is marked at every 2 or 3 fathoms; so that the depth of the water may be ascertained either in the day or night. At the depth of 2 and 3 fathoms, there are marks of black leather; at 5 fathom, there is a white rag; at 7, a red rag; at 10, black leather; at 13, black leather; at 15, a white rag; and at 17, a red ditto.

Sounding with the hand-lead, which is called heaving the lead by seamen, is generally performed by a man who stands in the main-*chains* to windward. Having the line all ready to run out, without interrupton, he holds it nearly at the distance of a fathom from the plummet, and having swung the latter backwards and forwards three or four times, in order to acquire the greater velocity, he swings it round his head, and thence, as far forward as is necessary; so that, by the lead's sinking whilst the ship advances, the line may be almost perpendicular when it reaches the bottom. The person sounding then proclaims the depth of the water in a kind of song resembling the cries of hawkers in a city. Thus, if the mark of 5 fathoms is close to the surface of the water, he calls 'By the

mark five!' and as there is no mark at 4, 6, 8, &c. he estimates those numbers, and calls, 'By the dip four,' &c. If he judges it to be a quarter, or an half more than any particular number, he calls, 'And a quarter five! and a half four,' &c. If he conceives the depth to be 3 quarters more than a particular number, he calls it a quarter less than the next: thus, at 4 fathom and ¾, he calls 'A quarter less five!' and so on.

The deep-sea-lead is marked with two knots at 20 fathom, 3 at 30, 4 at 40, and so on to the end. It is also marked with a single knot in the middle of each interval, as at 25, 35, 45 fathoms, &c. To use this lead more effectually at sea, or in deep water on the sea-coast, it is usual previously to *bring-to* the ship, in order to retard her course: the lead is then thrown as far as possible from the ship on the line of her drift, so that, as it sinks, the ship drives more perpendicularly over it. The pilot feeling the lead strike the bottom, readily discovers the depth of the water by the mark on the line nearest its surface. The bottom of the lead being also well rubbed over with tallow, retains the distinguishing marks of the bottom, as shells, ooze, gravel, &c. which naturally adheres to it.

The depth of the water, and the nature of the ground, which is called the soundings, are carefully marked in the log-book, as well to determine the distance of the place from the shore, as to correct the observations of former pilots. See COASTING and NAVIGATION.

SPAN, *pendour* (*spanna*, Ital.) a small line or cord, the middle of which is usually attached to a stay, from whence the two ends branch outwards to the right and left, and having either a *block* or *thimble* attached to their extremities. The intention of the span is accordingly to confine some rope which

passes through the corresponding block or thimble, as well to increase the effort of the said rope, as to prevent it from swinging at too great a distance from the centre of its action in stormy weather. Such are the spans occasionally used for the top-gallant *braces*, or the fore-top-gallant *bowlines*, &c.

SPAN-SHACKLE. See the article DAVIT.

SPARE, *rechange*, an epithet applied to any part of a ship's equipage, or furniture, that lies in reserve, to supply the place of such as may be lost, or rendered incapable of service. Hence we say, spare top-masts, spare sails, spare rigging, &c.

PUMP-SPEAR. See the article PUMP.

SPELL, the period wherein a sailor, or gang of sailors, is employed in a particular exercise, from which they are relieved as soon as the limited time expires. Such are the spells, to the hand-lead in sounding; to the pump; to look out on the mast-head, &c. and to steer the ship; which last, however, is generally called the *trick*. See STEERING.

Spell also implies the relief, or the return of duty to those services: Thus we say, spell the pump, spell the lead, &c.

To SPILL, to discharge the wind out of the cavity or belly of a sail when it is drawn up in the brails in order to *furl* or *reef* it. This is either performed by collecting the sail together, or by bracing its edge to the wind, so as to shiver or be laid aback.

SPILLING-LINES, certain ropes fixed occasionally to the main-sail and fore-sail of a ship, in tempestuous weather, for reefing or furling them more conveniently. They are passed through blocks above the yard, and thence leading down before the sail, come under its bottom, and return upwards behind it to the yard, where they are fastened; so that the sail, by their effort, is closely and

immoveably confined to the yard.

SPINDLE, a sort of iron-pin tapering at the upper end to a point. It is used to stick into the upper end of the top-gallant-mast, so as to carry a vane, which, turning thereon horizontally, will show the direction of the wind. It is usually crowned with a globular or conical piece of wood called the acorn, which prevents the vane from being blown off. See ACORN.

SPINDLE is also the lower end or foot of the capstern, which is shod with iron, and becomes the pivot or axis upon which it turns in the saucer. See the article CAPSTERN.

SPIRKETTING, that range of planks which lies between the water-ways and the lower edge of the gun-ports within the side of a ship of war.

To SPLICE, *episser* (*splitser* Dutch, *plico* Lat.) to join the two ends of a rope together, or to unite the end of a rope to any other part thereof.

There are several different methods of performing this operation, according to the services on which it is to be employed. Thus, there is the short-splice, the long-splice, the eye-splice, and the cunt-splice; all of which are calculated for different purposes.

The short-splice is made by untwisting the ends of two ropes, or the two ends of one rope, and, having placed each of the *strands* of one opposite to and in the interval between two *strands* of the other, to draw them close together; and then interweave the strands of one into the alternate strands of the other, by penetrating the latter with a *fid* or marline-spike, parallel to the axis or length of the rope. This splice is used on the cables, slings, block-strops, and in general all ropes which are not intended to run through blocks, or where the splice is not in danger of being loosened or separated.

The long-splice being fixed in three places,

occupies a greater extent of the rope; but by the division of the joinings, the bulk is also divided into different parts of its length. Hence it is much neater and smoother than the short-splice, and better adapted to run through the channel of a block, &c. for which use it is generally calculated.

The eye-splice being intended to make a sort of eye or circle at the end of a rope, the strands are untwisted, and their extremities thrust through the three strands in that part of the said rope, whereon the splice is to be formed, and thence passing over the surface of the second strand, they are again thrust through the third, which compleats the operation.

The cunt-splice is constructed in the same manner as the eye-splice, being no other than the ends of two lines fastened together at a short distance from each other, the extremities of either being interwoven into the *bight* of the other, so that the line becomes double in the extent of the splice. This is chiefly used in lead-lines, log-lines, and fishing-lines, where the short-splice would be liable to separation, as being frequently loosened by the water.

SPLIT, the state of a sail which is rent asunder by the violence of a tempest, or by sustaining a greater effort on one part of its surface than the rest.

SPLIT, when applied to a ship, is also the state of being stranded and bilged on a rock or shore.

SPOON-DRIFT, a sort of showery sprinkling of the sea-water, swept from the surface of the waves in a tempest, and flying according to the direction of the wind like a vapour.

SPOONING. By the explanation of this term in our dictionaries, it seems formerly to have signified that movement, in navigation, which is now called scudding. Be that as it may, there is at present no

such phrase in our sea-language.

SPRAY, the sprinkling of the sea, which is driven from the top of a wave in stormy weather. It differs from spoon-drift, as being only blown occasionally from the broken surface of a high wave, whereas the latter continues to fly horizontally along the sea, without intermission, during the excess of a tempest or hurricane.

SPRING, a crack or breach running transversely or obliquely through any part of a mast or yard, so as to render it unsafe to carry the usual quantity of sail thereon.

SPRING is also a rope passed out of one extremity of a ship and attached to a cable proceeding from the other, when she lies at anchor. It is usually performed to bring the ship's broad-side, or battery of cannon, to bear upon some distant object; as another ship, or a fortress on the coast, &c. When a ship rides by anchors which are only carried out of one end, she will swing upon the surface of the water like a weather-cock, according to the direction of the wind; unless when the wind is opposed by a current. Now, if instead of being fastened at one end, she is attached by ropes, which, proceeding from her head and stern towards the same source, sustain an equal effort of the wind, it is evident that her side will be presented to the wind; and that, by slackening one of those ropes, and keeping fast the other, her side will lie more or less obliquely to the wind, so as to be opposed to any distant object to the right or left.

Thus, if a ship rides with her head northerly, and it is required to cannonade a fortress lying on the south or south-east: a hauser is run out of the stern, and being carried forward, without her side, is attached to the cable, at a competent distance ahead of the ship: the hauser is then tightened by the *capstern* or

tackles, and the cable being slackened, the ship immediately turns her side towards the object intended to be battered.

SPRING is likewise a rope reaching diagonally from the stern of a ship to the head of another which lies *along-side* or a-breast of her, at a short distance. This is generally performed to make one of the ships *sheer* off, to a greater distance from the other; or to make merchant-ships lie uniformly in the same tier. Springs of this sort are therefore occasionally applied from a ship, to a wharf or key, for the same purposes.

To SPRING A LEAK. See the article LEAK.

SPRINGING THE LUFF. See LUFF.

SPRING-TIDE, the periodical excess of the elevation and depression of the TIDE. See that article.

SPRIT, (*spryttan*, Sax. to branch out) a small boom or pole which crosses the sail of a boat diagonally, from the mast, to the upper hindmost corner of the sail, which it is used to extend and elevate: the lower end of the sprit rests in a sort of wreath or collar called the *snotter*, which encircles the mast in that place. These sort of sails are accordingly called sprit-sails.

SPRITSAIL, *civadiere*, a sail attached to a yard which hangs under the bowsprit, as represented in fig. 2. *y*, plate IX. It is furnished with a large hole in each of its lower corners, to evacuate the water with which the cavity, or belly of it is frequently filled, by the surge of the sea when the ship pitches.

SPRITSAIL-TOPSAIL, *perroquet de beaupré*, a sail extended above the former, by a yard which hangs across the *gib-boom*. The lower corners of this sail are hauled *home* to the spritsail-yard-arms; after which the sail is drawn out towards the extremity of the boom, in light winds, as any other topsail-yard is

hoisted upon its mast.

Formerly the spritsail-topsails were set on a mast, which was erected perpendicularly on the end of the bowsprit: but this method has of late been justly rejected as inconvenient and dangerous to the bowsprit, although serviceable in light breezes,

SPUNGE. See the article CANNON.

SPUN-YARN, *bittord*, a small line or cord formed of two or three rope-yarns twisted together by a winch. The yarns of which it is usually made at sea, are drawn out of the strands of old cables or other ropes, and are knotted together and tarred. It is employed for several purposes; particularly to fasten one rope to another, to seize block-strops to the shrouds, and to *serve* ropes which are liable to be chafed by rubbing one against another, &c.

SPURS *of the beams*. See the article DECK, and the explanation of the figure annexed thereto.

SQUADRON, *escadre*, (*squadrone*, Ital.) either implies a detachment of ships employed on any particular expedition, or the third part of a naval armament. See the articles FLAG, CENTRE, FLEET, and DIVISION.

SQUALL, *raffale*, a sudden and violent blast of wind, usually occasioned by the interruption and reverberation of the wind from high mountains. These are very frequent in the Mediterranean; particularly that part of it which is known by the name of the Levant, as produced by the repulsion, and new direction which the wind meets with in its passage between the various islands of the Archipelago.

SQUARE, a term peculiarly appropriated to the yards and their sails, implying that they hang at right angles with the mast or keel; or that they are of greater extent than usual.

Thus, when the yards are so balanced by their *lifts*, as to hang at right angles with the mast, they are said to be square by the lifts: when they hang perpendicular to the ship's length, they are called square by the braces: but when they lie in a direction perpendicular to the plane of the keel, they are square by the lifts and braces; or, in other words, they hang directly across the ship, and parallel to the horizon.

The yards are said to be very square, when they are of extraordinary length; and the same epithet is then applied to their sails, which by consequence acquire an additional breadth.

SQUARE-RIGGED, an epithet applied to a ship whose yards are very long. It is also used in contradistinction to all vessels whose sails are extended by *stays* or *lateen-yards*; or by booms and gaffs; the usual situation of which is nearly in the plane of the keel; and hence

SQUARE-SAIL, *treou*, is a sail extended to a yard, which hangs parallel to the horizon, as distinguished from the other sails which are extended by *booms* and stays, placed obliquely. This sail is only used in fair winds, or to scud under in a tempest. In the former case, it is furnished with a large additional part called the bonnet, which is then attached to its bottom, and removed when it is necessary to *scud*. See that article.

STAFF, *baton*, a light pole erected in different parts of a ship, whereon to hoist and display the colours.

The principal of these is reared immediately over the stern, to display the *ensign*; another is fixed on the bowsprit, to extend the *jack*; three more are erected at the three mast-heads, or formed by their upper ends, to show the flag or pendant of the respective squadron or division to which the ship is

appropriated. See ENSIGN, MAST, JACK, and PENDANT.

STANCHION, a sort of small pillar of wood or iron used for various purposes in a ship; as to support the decks, the quarter-rails, the *nettings*, the *awnings*, &c.

The first of these are two ranges of small columns, fixed under the beams, throughout the ship's length *between-decks*; one range being on the starboard, and the other on the larboard side of the hatchways. They are chiefly intended to support the weight of the artillery.

STANCHIONS *of the nettings*, are either slender bars of iron, whose lower ends are fixed in iron sockets at proper distances; or square wooden pillars let into the upper part of the ship's side. See QUARTER-NETTING.

STANDARD, *courbe*, in ship-building, is no other than an inverted knee, which is placed above the deck instead of beneath it, and having its vertical branch pointed upwards from that which lies horizontally. The figure and position of one of these standards is expressed by the curve line *f*, which is dotted through the gun-carriage in the MIDSHIP-FRAME, plate VII. Such also are the standards of the bits and channels.

Royal STANDARD, *etendard royale*, a flag in which the imperial ensigns of Great Britain, and the arms of France and Ireland, together with the armorial bearings of Hanover, are united and quartered. It is never hoisted unless when the sovereign is personally aboard; at which time it is displayed at the main-top-mast-head.

STANDING, in navigation, the movement by which a ship advances towards a certain object, or departs from it: as the enemy stands in-shore: the English fleet are standing *off*: at day-break we discovered

three sail standing to the northward, &c.

STARBOARD, *tribord*, the right side of the ship when the eye of the spectator is directed forward. See LARBOARD.

STAY, (*etai*, Fr.) a large strong rope employed to support the mast on the fore part, by extending from its upper end towards the fore part of the ship, as the shrouds are extended to the right and left, and behind it. See MAST, RIGGING, and SHROUD.

The stay of the fore-mast *a*, fig. 10. plate IX. which is called the fore-stay, reaches from the mast-head towards the bowsprit-end: the main-stay *b*, extends over the fore-castle to the ship's stem; and the mizen-stay *c*, is stretched down to that part of the main-mast which lies immediately above the quarter-deck: the fore-top-mast-stay *d*, comes also to the end of the bowsprit, a little beyond the fore-stay: the main-top-mast-stay *e*, is attached to the head or *hounds* of the fore-mast; and the mizen-top-mast-stay comes also to the hounds of the main-mast: the fore-top-gallant-stay comes to the outer end of the jib-boom; and the main-top-gallant-stay is extended to the head of the fore-top-mast.

STAY-SAIL, a sort of triangular sail extended upon a stay. See SAIL.

STEDDY, the command given by the pilot, &c. to the helmsman, in a *fair* wind, to steer the ship according to the line, on which she advances at that instant, without deviating to the right or left. The helmsman accordingly answers, steddy; to shew his attention and obedience to the pilot's order.

STEERAGE, an apartment without the great *cabin* of a ship, from which it is separated by a thin partition. In large ships of war it is used as a hall through which it is necessary to pass to, arrive at, or depart from the great cabin. In merchant-ships it is

generally the habitation of the inferior officers and ship's crew. See also BIRTH.

STEERAGE is also used to express the effort of the helm; and hence

STEERAGE-WAY, is that degree of progressive motion communicated to a ship, by which she becomes susceptible of the effects of the helm to govern her course. See HELM and SAILING.

STEERING, *gouverner* (*steoran*, Sax.) may be defined the art of directing the ship's way by the movements of the helm; or of applying its efforts to regulate her course when she advances.

The perfection of steering consists in a vigilant attention to the motion of the ship's *head*, so as to check every deviation from the line of her course in the first instant of its motion; and in applying as little of the power of the helm as possible. By this she will run more uniformly in a streight path, as declining less to the right and left: whereas, if a greater effort of the helm is employed, it will produce a greater declination from the course, and not only increase the difficulty of steering, but also make a crooked and irregular tract through the water. See HELM.

The helmsman should diligently watch the movements of the head by the land, clouds, moon, or stars; because although the course is in general regulated by the compass, yet the vibrations of the needle are not so quickly perceived, as the sallies of the ship's head to the right or left, which, if not immediately restrained, will acquire additional velocity in every instant of their motion, and demand a more powerful impulse of the helm to reduce them; the application of which, will operate to turn her head as far on the contrary side of her course.

The phrases used in steering a ship vary according

to the relation of the wind to her course. Thus, if the wind is *fair*, or *large*, the phrases used by the pilot, or officer, who superintends the steerage, are *port*, *starboard*, and *steddy*. The first is intended to direct the ship's course farther to the right; the second is to guide her farther to the left; and the last, as explained under that word, is designed to keep her exactly in the line, whereon she advances, according to the course prescribed. The excess of the first and second movement is called hard-a-port, and hard-a-starboard; the former of which gives her the greatest possible inclination to the right, and the latter an equal tendency to the left.

If, on the contrary, the wind is *foul* or *scant*, the phrases are *luff*, *thus*, and *no nearer*; the first of which is the order to keep her close to the wind; the second, to retain her in her present situation; and the third, to keep her sails full. The effects of these movements are farther explained under the several terms; but more particularly under the article FULL AND BY.

In a ship of war, the exercise of steering the ship is usually divided amongst a number of the most expert sailors, who attend the helm in their turns; and are accordingly called *timoneers*, from the French term *timonier*, which signifies helmsman. The steerage is constantly supervised by the quarter-masters, who also attend the helm by rotation. In merchant-ships every seaman takes his turn in this service, being directed therein by the mate of the watch, or some other officer.

As the safety of a ship, and all contained therein, depend, in a great measure, on the steerage or effects of the helm, the apparatus by which it is managed should often be diligently examined by the proper officers. Indeed, a negligence in this important duty

appears almost unpardonable, when the fatal effects which may result from it are duly considered.

STEEVING, the elevation of a ship's bowsprit above the stem, or the angle which it makes with the horizon.

STEM, *etrave*, (*stammen*, Swed.) a circular piece of timber, into which the two sides of a ship are united at the fore end: the lower end of it is scarfed to the *keel*, and the *bowsprit* rests upon its upper end.

The stem is formed of one or two pieces, according to the size of the vessel; and as it terminates the ship forward, the ends of the *wales* and planks of the sides and bottom are let into a groove or channel, in the middle of its surface, from the top to the bottom: which operation is called *rabetting*. See that article.

The out side of the stem is usually marked with a scale, or division of feet, according to its perpendicular height from the keel. The intention of this, is to ascertain the draught of water at the fore part, when the ship is in preparation for a sea-voyage, &c.

The stem at its lower end is of equal breadth and thickness with the keel, but it grows proportionally broader and thicker towards its upper extremity. See *Naval* ARCHITECTURE and *Ship*-BUILDING.

STEMSON, *marsouin*, an arching piece of timber fixed within the apron to reinforce the scarf thereof, in the same manner as the apron supports the scarf of the stem. In large ships it is usually formed of two pieces, as represented by I. in plate I. PIECES OF THE HULL.

STEP, *carlingue*, a block of wood fixed on the decks or bottom of a ship, and having a hole in its upper side fitted to receive the heel of a mast or *capstern*.

The steps of the main and fore-masts of every ship rest upon the kelson, as appears in fig. 2. and 3. plate

VI. to which they are firmly secured by *knees*, bolts, or spike-nails. The step of the mizen-mast usually rests upon the lower deck. See also the article CAPSTERN.

STERN, *arcasse*, (*steor*, Sax.) the posterior face of a ship; or that part which is presented to the view of a spectator, placed on the continuation of the keel behind, as exhibited in plate X. fig. 1, 2, and 3; and in plate XI. fig. 1.

The stern, as represented in plate X. is terminated above by the *taffarel*, and below by the *counters*: It is limited on the sides by the quarter-pieces; and the intermediate space comprehends the galleries and windows of the different cabins.

EXPLANATION of fig. 1. plate X. which exhibits the Stern of

a seventy-four gun-ship.

A, the keel, with *a* the false keel beneath it.

A B, the stern-post.

C, the rail which determines the height of the counters.

D D, the upper and lower quarter-galleries, with their balustrades and windows.

E, the quarter-pieces: and P F P, the taffarel.

K G K, the lower counter, with H H, its gun-ports.

G, the rail which separates the lower counter from the second or upper counter; which last is included between G and C.

K K, the wing-transom.

L L, the deck-transom.

M, N, O, first, second, and third transoms; with *l*, *m*, *n*, *o*, four intermediate transoms.

O M L K P, the direction of the fashion-piece, whose upper part is expressed by the dotted lines K P.

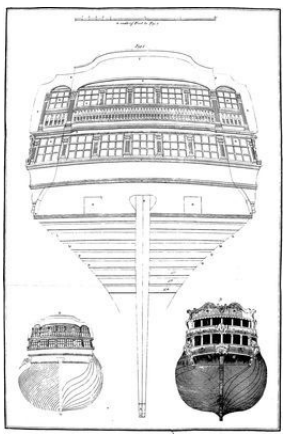
Q, the cove, a sort of arched canopy, serving as a roof to the stern-gallery.

R Q R, the screen bulk-head, or partition, containing the cabin windows.

R S S R, the balustrade of the stern gallery, with S S, the foot-pace-rail, which determines the height of its floor, or platform.

S C S, the ward-room windows.

T, the lower finishing of the quarter gallery.



To Face STERN
Plate x.

Fig. 2. exhibits a stern view of a 60 gun-ship, with the curve of the *frame-timbers* on one side, and the disposition of all the planks of the bottom on the other side.

Fig. 3. represents a stern view of a French man of war of 70 guns.

Plate XI. fig. 1. is a stern for a first or second rate: accordingly it is furnished with a middle apartment between the ward-room and the captain's cabin. This apartment is also furnished with galleries on the stern and quarter. The other parts of it are described in the explanation of fig. 1. in plate X. See also the article QUARTER.

STERN-FAST, a rope used to confine the stern of a ship or boat to any wharf or jetty-head, &c.

STERNMOST, usually implies that part of a fleet of ships which is in the rear, or farthest astern, as opposed to *head-most*.

STERN-POST, *etambot*, a long straight piece of timber erected on the extremity of the *keel*, to sustain the rudder, and terminate the ship behind.

This piece, which is expressed by B in the PIECES *of the* HULL, plate I. ought to be well secured and supported; because the ends of all the lower planks of the ship's bottom are fixed in a channel, cut on its surface; and the whole weight of the rudder is sustained by it.

The dimensions of the stern-post, or the proportional breadth and thickness, in the different parts of its height, are geometrically delineated in the *quarter* and stern of a 74 gun-ship, plate VIII. and X. being expressed in both by A B. It is usually marked like the *stem*, with a scale of feet from the keel upwards, in order to ascertain the draught of water, at that part of the vessel.

The difficulty of procuring a stern-post of sufficient breadth in one piece, has introduced the practice of fixing an additional piece behind it, which is strongly bolted to the former. The hinges, which support the rudder, are accordingly fixed to this latter, which is also tenanted into the keel, and denominated the back of the *post*, being expressed by E in the *pieces* of

the *hull*, referred to above. It is half the breadth of the stern-post, at the heel, but diminishes gradually towards the upper end, where it is one third narrower.

The stern-post is strongly attached to the keel by a knee, G, PIECES of the HULL, of which one branch extends along the keel, being *scarfed* and bolted to the *dead-wood*, and fore-locked under the keel; whilst the other branch inclines upwards, and corresponds with the inside, or fore part of the stern-post; to which it is also bolted in the same manner.

STERN-SHEETS, that part of a boat which is contained between the stern and the aftmost, or hindmost, seat of the *rowers*. It is generally furnished with benches, to accommodate the passengers. See the article BOAT.

STERN-WAY, the movement by which a ship retreats, or falls backward, with her stern foremost.

STEWARD, *maitre-valet*, an officer in a ship of war, appointed by the purser, to distribute the different species of provisions to the officers and crew; for which purpose he is furnished with a mate, and proper assistants.

STIFF, the quality by which a ship is enabled to carry a sufficient quantity of sail, without hazard of oversetting. See the articles BALLAST and TRIM.

STINK-POT, *pot à feu*, an earthen jar, or shell, charged with powder, grenadoes, and other materials of an offensive and suffocating smell. It is frequently used by privateers, in the western ocean, in the attack of an enemy, whom he designs to board; for which purpose it is furnished with a lighted fuse, at the opening or touch-hole. See BOARDING.

STIRRUPS. See the article HORSE.

STOCKS, a frame erected on the shore of a river, or harbour, whereon to build shipping. It generally

consists of a number of wooden blocks, ranged parallel to each other, at convenient distances, and with a gradual declivity towards the water. See LANCHING.

STOPPERS, *bosses*, certain short pieces of rope, which are usually *knotted* at one, or both ends, according to the purpose for which they are calculated. They are either used to suspend any weighty body, or to retain a cable, *shroud*, &c. in a fixed position.

Thus, the anchors, when first hoisted up from the ground, are hung to the cat-head, by a stopper attached to the latter, which passing through the anchor-ring, is afterwards fastened to the timber-head, *n*, fig. 10. plate IV. and the same rope serves to fasten it on the *bow* at sea; or to suspend it by the ring when it is to be sunk from the ship to the bottom.

The stoppers of the cables have a large knot, and a *laniard*, at one end, and are fastened to a ring-bolt in the deck, by the other. They are attached to the cable, by the laniard, which is fastened securely round both by several turns passed behind the knot, or about the neck of the stopper; by which means the cable is restrained from running out of the ship, when she rides at anchor. See also BITS and RING-ROPE.

The stoppers of the shrouds have a knot and a laniard at each end. They are only used when the shrouds are cut asunder in battle, or disabled by tempestuous weather; at which time they are *lashed*, in the same manner as those of the cables, to the separated parts of the shroud, which are thereby reunited, so as to be fit for immediate service. This, however, is only a temporary expedient, applied when there is not time or opportunity to refit them,

by a more complete operation.

STORE-KEEPER, *garde-magasin*, an officer in the royal dock-yards, invested with the charge of the principal naval stores; as the sails, anchors, cordage, &c.

STORE-ROOM, *soute*, an apartment, or place of reserve, of which there are several in a ship, to contain the provisions, or stores of a ship, together with those of her officers, during a sea-voyage.

STOWAGE, *arrimage*, the general disposition of the several materials contained in a ship's hold, with regard to their figure, magnitude, or solidity.

In the stowage of different articles, as ballast, casks, cases, bales, and boxes, there are several general rules to be observed, according to the circumstances or qualities of those materials. The casks, which contain any liquid, are, according to the sea phrase, to be *bung-up* and *bilge-free*, i. e. closely wedged up, in an horizontal position, and resting on their quarters: so that the bilges, where they are thickest, being entirely free all round, cannot rub against each other, by the motion of the vessel. Dry goods, or such as may be damaged by the water, are to be carefully inclosed in casks, bales, cases, or wrappers; and wedged off from the bottom and sides of the ship, as well as from the bows, masts, and pump-well. Due attention must likewise be had to their disposition, with regard to each other, and to the trim and centre of gravity of the ship; so that the heaviest may always be nearest the keel, and the lightest gradually above them. See BALLAST, TRIM, and ROLLING.

STRAIT, *etroite*, a narrow channel, or arm of the sea, contained between two opposite shores; as the straits of Gibraltar; the straits of Sunda; the straits of Dover, &c.

STRAKES, or STREAKS, the uniform ranges of planks on the bottom and sides of a ship; or the continuation of planks joined to the end of each other, and reaching from the *stem*, which limits the vessel forward, to the *stern-post*, and fashion-*pieces*, which terminate her length abaft. The lowest of these, which is called the *garboard-streak*, is let into the keel below, and into the stem and stern-post. See those articles.

STRAND, *touron*, one of the twists, or divisions, of which a rope is composed. See the articles ROPE and CABLE.

STRAND also implies the sea-beach: hence a ship is said to be stranded when she has run a-ground on the sea-shore.

STRETCHER, *banquet*, a sort of staff fixed athwart the bottom of a boat, for the rower to place his feet against, in order to communicate a greater effort to his oar.

STRETCHING, *in navigation*, is generally understood to imply the progression of a ship under a great surface of sail, when *close-hauled*. The difference between this phrase and *standing*, is apparently in the quantity of sail, which, in the latter, may be very moderate; but in stretching, generally signifies excess: as, we saw the enemy at day-break stretching to the southward, under a crowd of sail, &c.

To STRIKE, *in navigation*, to run ashore, or to beat upon the ground in passing over a bank or shallow.

To STRIKE also implies to lower or let down any thing; as an ensign, or topsail, in saluting; or, as the yards and topmasts in tempestuous weather. It is, however, more particularly used to express the lowering of the colours, in token of surrender, to a victorious enemy.

STRING *in ship-building*, the highest range of planks in a ship's ceiling; or that which lies between the *gunnel*, and the upper edge of the upper deck-ports, as expressed by T in the MIDSHIP-FRAME, plate VII.

To STRIP *the masts*, *defuner*, is to unrig a ship, or deprive the masts of their machinery and furniture; an exercise which is otherwise called dismantling.

STROKE, a single sweep of the oars in rowing. Hence they say, Row a long stroke! *longue rime!* which is intended to push the vessel forward more steddily. See the article OAR; as also the French term NAGER, and the phrases following it.

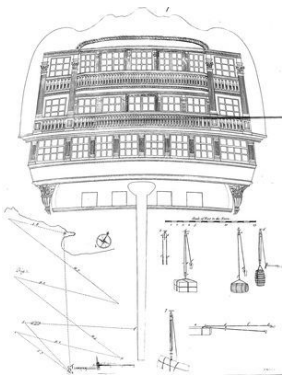


Plate xi.

Geometrical Elevation of the Stern of a 1st 2d Rate.

STROKESMAN, the person who rows the hindmost oar in a boat, and gives the stroke, which the rest are to follow; so that all the oars may operate together.

STROP, *etrope*, a piece of rope *spliced* into a circular wreath, and used to surround the body of a

block; so that the latter may be hung to any particular station about the *masts*, *yards*, or *rigging*. Thus, fig. 37. and 38. in plate II. represent two block-strops of different sorts. See BLOCK and EYE.

STROPS are also used occasionally to fasten upon any large rope, for the purpose of hooking a *tackle* to the eye, or double part of the strop; in order to extend, or pull with redoubled effort, upon the said rope; as in *setting-up* the rigging, where one hook of the tackle is fixed in a strop applied to the particular *shroud*, and the other to its laniard. See the article LANIARD.

STUDDING-SAILS, *bonettes en etui*, certain light sails extended, in moderate and steddy breezes, beyond the skirts of the principal sails, where they appear as wings upon the yard-arms.

The word may be traced from several derivations; as from *scud*, *stead*, or *steddy*. The small sails used by *sloops*, schooners, and tartanes, when scudding, are nearly of the same size and figure with the lower studding-sails; and the accidental application of the former, to the usual design of the latter, throws a probability on the derivation from *scud*; especially as being used in the small vessels of our ancestors, who were unacquainted with topmasts; and, of course, had no conception of topmast-studding-sails. An ingenious friend of the author, seems, with greater propriety, to derive it from steddy; because, when the wind is extremely feeble, the fluctuation of the sea, although almost imperceptible, is communicated to the ship, and thence to the principal sails; which, being shaken and slapped against the masts, will, by their weight, prevent, or at least considerably diminish, the operation of the wind. The studding-sails, on the contrary, being of a much lighter and thinner texture, more readily feel the effort of the

breeze, and continue inflated, so as to push the ship forward, and give her head-way. By this circumstance, she becomes susceptible of the power of the helm, and is accordingly retained in a steddy course; and hence those sails may originally have been called *steddying*-sails, afterwards corrupted into studding-sails. The last conjecture, which seems equally favourable, is drawn from the Saxon word *sted*, to help or assist; in which sense, those sails may be considered as auxiliar, being set occasionally to help the others, or assist the ship's course; and thence called steading, or stedding-sails. But the expression of *steering sails*, however adopted by many officers, is a most contemptible conceit, without either authority or reason to support it. The others are implicitly submitted to the reader's decision.

The topmast studding-sails, or those which are set on the out side of the topsails, are spread below by a boom, which, sliding out from the extremities of the main and fore-yards, as explained in the article SADDLE, pushes out their lower corners: and their upper edges, which are attached to a light pole, are hoisted up to the topsail-yard-arms. See also BOOM-IRON, in the article IRON-WORK.

The lower studding-sails, which are spread beyond the skirts or *leech* of the main-sail and fore-sail, are fixed nearly in the same manner; only that the boom, which extends their bottoms, is generally hooked to the *chains* by means of a *goose-neck*; or else swings off along with the sail, to which it is suspended; being kept steddy behind by a rope called the *guy*.

STUFF, *courrée*, any composition, or melted mass, used to smear or daub the masts, sides, or bottom of a ship. That which is chiefly used for the lower masts is simply turpentine, rosin, or varnish of pine: for the topmasts, tallow or butter: for the sides, turpentine,

varnish of pine, tar and oil, or tar mixed with oil and red oker: and for the bottom, a mixture of tallow, sulphur, and rosin, or tar: whale-oil and broken glass; or any part of these ingredients: and this application is called giving a new coat of stuff to the masts, sides, &c.

SUPERCARGO, an officer charged with the accounts of the cargo, and all other commercial affairs in a merchant-ship.

SUPPLY, a fresh recruit of provisions or stores sent to a ship or fleet.

SURF, the swell of the sea which breaks upon the shore, or any rock lying near the surface of the sea.

SURGE, the same with a wave; which see.

SURVEY, an examination made by several naval officers into the state or condition of the provisions, or stores, belonging to a ship, or fleet of men of war.

SURVEYORS *of the navy*, two officers, who sit at the navy-board, being invested with the charge of building and repairing his Majesty's ships, at the different dock-yards of the kingdom: for which purpose they are trained to the theory and practice of ship-building. It is also their office to know the state of the navy; to audit the accounts of all boatswains and carpenters serving therein; and to enquire into the condition of all naval stores, at home or abroad, in order to supply whatsoever may be deficient.

SWAB, *fauber*, (*swabb*, Swed.) a sort of mop formed of a large bunch of old rope-yarns, and used to clean the decks and cabins of a ship: hence the person, who uses it, is called the swabber.

SWEEPING, *draguer*, the act of dragging the bight, or loose part of a small rope, along the surface of the ground, in a harbour, or road, in order to hook and recover some anchor, wreck, or other material, sunk

at the bottom. It is performed by fastening the two ends of this rope to the sides of two boats which are abreast of each other, at some distance. To the middle of the rope are suspended two cannon-shot, or something which weighs heavy, in order to sink it to the ground; so that, as the boats advance, by rowing ahead, the rope drags along the bottom, to hook any anchor, &c. for which they are searching.

SWELL, *enflement*, generally denotes an heavy and continued agitation of the waves, according to a particular direction: as there is a great swell setting into the bay. It is, however, more particularly applied to the fluctuating motion of the sea, which remains after the expiration of a storm: as also, to that which breaks on the sea-shore; or upon rocks, or shallows.

SWIFTER, a rope used to confine the bars of the capstern in their sockets, whilst the men are heaving it about; for which purpose it is passed through holes in the extremities of the bars, so as to strain them firmly together like the spokes of a wheel; which is accordingly called swifting. See the article CAPSTERN.

SWIFTER is also a strong rope, sometimes used to encircle a boat longitudinally, as well as to strengthen and defend her sides, as to enable her the better to resist the impression of other boats which may run against her occasionally. It is usually fixed about a foot under the boat´s upper edge, or gunnel.

SWIFTERS are likewise two *shrouds* fixed on the starboard and larboard side of the lower masts, above all the other shrouds, as an additional security to the masts. The hoisters are never confined, like the other shrouds, by *Cat-harpings*. See that article.

To SWING, to turn round the anchors, or *moorings*, at the change of the wind, or tide: it is usually

expressed of a ship, either when she is moored by the head, or *riding* at a single anchor.

T.

TABLING, *bander*, a sort of broad hem formed on the skirts and bottoms of a ship's sails, to strengthen them in that part which is attached to the bolt-rope.

TACK, *couet*, a rope used to confine the foremost lower-corners of the *courses* and *stay-sails* in a fixed position, when the wind crosses the ship's course obliquely. The same name is also given to the rope employed to pull out the lower corner of a *studding-sail* or *driver* to the extremity of its boom.

The main-sail and fore-sail of a ship are furnished with a tack on each side, which is formed of a thick rope tapering to the end, and having a knot wrought upon the largest end, by which it is firmly retained in the clue of the sail. By this means one tack is always fastened to windward, at the same time that the *sheet* extends the sail to leeward. See CHESTREE.

TACK is also applied, by analogy, to that part of any sail to which the tack is usually fastened.

A ship is said to be on the starboard or larboard tack, when she is *close-hauled*, with the wind upon the starboard or larboard side; and in this sense the distance which she sails in that position is considered as the length of the tack; although this is more frequently called a BOARD. See that article.

To TACK, *virer vent devant*, to change the course from one board to another, or turn the ship about

from the starboard to the larboard tack, in a contrary wind. Thus the ship A, fig. 2. plate XI. being close-hauled on the larboard tack, and turning her prow suddenly to windward, receives the impression of the wind on her head-sails *a*, by which she falls off upon the line of the starboard tack *a*. Tacking is also used, in a more enlarged sense, to imply that manœuvre, in navigation, by which a ship makes an oblique progression to the windward, in a zigzag direction. This, however, is more usually called beating or turning to windward. See BEATING and TURNING.

Thus, suppose a ship A, fig. 2. plate XI. bound to a port B lying to windward, with the wind northerly, as expressed by the arrow. The sails *a*, *b*, *c*, being braced obliquely with the keel, the wind also falls upon their surfaces in an oblique direction, by which the ship is pushed to leeward, as explained in the article LEE-WAY. Hence, although she apparently sails W. N. W. upon the larboard tack, as expressed in the dotted line A *d*, and E. N. E. upon the other *d f*, yet if the lee-way is only one point, (and indeed it is seldom less in the smoothest water), the course will accordingly be W. *by* N. upon one tack, and E. *by* N. upon the other, as represented by the lines A *e*, and *e g*.

If the port A were directly to windward of the ship, it is evident that both tacks ought to be of equal length; or, in other words, that she ought to run the same distance upon each tack: but as the place of her destination lies obliquely to windward, she must run a greater distance upon one tack than the other; because the extremities of both *boards* should be equally distant from the line of her true course B A; so the larboard tack A *e*, crossing the course more obliquely than the other *e g*, will necessarily be much longer.

As the true course, or the direct distance from B to A, is only 12 leagues, it is evident, that with a favourable wind she could reach it in a few hours. On the contrary, her distance is considerably increased by the length of her boards, in a contrary wind; which, by its obliquity with her sails, operates also to retard her velocity. Thus her first board A *e*, on a W. *by* N. course, is equal to 5.7 leagues. The second tack *e g* is 9.2 leagues E. *by* N.: the third tack, parallel to A *e*, is 11.5: the fourth, parallel to *e g*, is 9.2: and the fifth, parallel to the first, 11.7 leagues. Finally, the sixth board is 4.8 leagues, parallel to the second, which brings her to the port B. By this scheme it appears that she has run more than four times the extent of the line A B, her primitive distance; and this in the most favourable circumstances of a contrary wind, viz. when the sea is smooth, and when she may carry her full topsails. For if the wind blows stronger, to render it necessary to *reef* the topsails, she will soon make two points of *lee-way*, and accordingly run east on one board, and west on the other. In this situation she will neither approach, nor recede from the place of her destination: but if the wind increases, the sea will also be enlarged; a circumstance that still farther augments the lee-way. Hence the vessel will gradually fall off from the port, in proportion to the augmentation of the wind and sea, which occasions a proportional increase of lee-way.

In order to explain the theory of tacking a ship, it may be necessary to premise a known axiom in natural philosophy, That every body will persevere in a state of rest, or of moving uniformly in a right line, unless it be compelled to change its state by forces impressed; and that the change of motion is proportional to the moving force impressed, and is

made according to the right line in which that force is exerted.

By this principle it is easy to conceive how a ship is compelled to turn into any direction, by the force of the wind acting upon her sails, in horizontal lines. For the sails may be so arranged as to receive the current of air, either directly, or more or less obliquely: hence the motion communicated to the sails must of necessity conspire with that of the wind upon their surfaces. To make the ship tack, or turn round with her head to the windward, it is therefore necessary, after she has received the first impression from the *helm*, that the head-sails should be so disposed as to diminish the effort of the wind, in the first instant of her motion, and that the whole force of the wind should be exerted on the *after*-sails, which operating on the ship's stern, carries it round like a weather-cock. But since the action of the after-sails, to turn the ship, will unavoidably cease when her head points to the windward, it then becomes necessary to use the head-sails, to prevent her from *falling-off*, and returning to her former situation. These are accordingly laid *aback* on the lee-side, to push the vessel's fore-part towards the opposite side, till she has fallen into the line of her course thereon, and fixed her sails to conform with that situation.

It has been observed above, that the first effort to turn the ship in tacking is communicated by the helm, which is then put to the lee-side. This circumstance being announced by the pilot, or commanding-officer, who then calls out, *Helm's a-lee!* the head-sails are immediately made to shiver in the wind, by casting loose their *sheets*, or *bowlines*. The pilot then calls, *Up tacks and sheets!* which is executed by loosening all the ropes which confine the corners of the lower sails, in order that they may

be more readily shifted to the other side. When the ship has turned her head directly to windward, as in *d*, fig. 2. plate XI. the pilot gives the order to turn about the sails on the main and mizen masts, by the exclamation, *Haul main-sail, haul!* the bowlines and braces are then instantly cast off on one side, and as expeditiously drawn in on the other side, so as to wheel the yards about their masts: the lower corner of the main-sail is, by means of its tack, pulled down to its station at the chestree; and all the after-sails are, at the same time, adjusted to stand upon the other board. Finally, when the ship has fallen off five or six points, as *h*, fig. 2. plate XI. the pilot cries, *Haul of all!* or, *Let go, and haul!* the sails on the fore-mast are wheeled about by their braces: and as the ship has then a tendency to fall off, she is checked by the effort of the helm, which for that purpose is put *hard a-lee*. The fore-tack, or the lower corner of the fore-sail, being fixed in its place, the bowlines are hauled; and the other sails, which have been neglected in the hurry of tacking, are properly arranged to the wind, which exercise is called trimming the sails. See LEE-WAY and SAILING.

TACKLE, *palan*, pronounced *taicle*, a machine formed by the communication of a rope with an assemblage of blocks, and known in mechanics by the name of pulley.

Tackles are used in a ship to raise, remove, or secure weighty bodies; to support the masts; or to extend the sails and rigging. They are either moveable, as communicating with a *runner*; or fixed, as being hooked in an immoveable station; and they are more or less complicated, in proportion to the effects which they are intended to produce.

If *a b d e*, fig. 3. plate XI be a single block, upon which are suspended the weights *f g*, then since the

nearest distance of the ropes *f g*, from the center of motion *c*, are *a c* equal to *d c*, the block will be reduced to the lever or balance *a d* with respect to its power: Since *a c* is then equal to *d c*, it is apparent that *f g* will always be in equilibrium. As no advantage therefore can be acquired, in raising a weight by an immoveable single block, it is only rendered useful by changing the direction of the moving power. This circumstance is extremely convenient to the labourers, and often absolutely necessary; particularly in raising bodies to a higher station; as from the hold to the upper decks, or from the deck to the masts or yards, &c. which would otherwise be difficult or impracticable to perform. See also the articles BLOCK and WHIP.

When a single block is moveable along with the body to which it is attached, fig. 4. plate XI. as the blocks of the *brace-pendants*, *reef-tackle pendants*, *jiggers*, &c. the momentum of the power is doubled; because it moves twice as fast as the weight, or body to which it is attached. For in the same time that any part of the rope *f*, moves upward from *f* to *g*, equal in length to the two equal ropes *d* and *c*, the block, and consequently the weight annexed, will be drawn through the space *e h*, whose length is equal to one of the ropes only.

When a tackle consists of two or more fixed and moveable blocks, wherein one rope communicates with the whole; if one end of the rope be fixed, as in fig. 5. 6. and 7. in order to proportion the weight to the resistance, the power applied must be to the weight, as one, to twice the number of *sheaves* in the moveable blocks: because, in the efforts of a tackle, the velocity of the moving power is, to the velocity of the rising or moving body, as twice the number of moveable sheaves to unity, as appears in fig. 5.

which consists of one fixed block *a*, and another moveable as *e*. For since one rope operates on all the sheaves from *g* to *f*, the part at *f*, lying beyond the fixed block, and called the *fall*, cannot be drawn down and lengthened, unless the two parts *d* and *c*, on each side of the moveable block, be at the same time equally drawn up and shortened. Hence it is evident, that the part *a f* will be lengthened twice as much as either *d* or *c* is shortened, because whatever is taken from each of those parts is added to the length of *a f*; but the point *f*, to which the power is applied, descends as fast as *a f* is lengthened and the point *e*, to which the weight is fastened, ascends as fast as *d* or *c* is shortened. If therefore, a weight suspended at *f*, be to a weight suspended at *e*, as one to two, they will balance each other, as being in the reciprocal ratio of their velocities.

Whatever has been observed with regard to the tackles above mentioned, is equally applicable to all others, and is in the same manner demonstrable, viz. that the velocity with which the mechanical force moves, in raising a weight, is to the velocity wherewith the weight rises, as twice the number of moveable sheaves to unity.

A tackle wherein both the blocks are moveable, and communicate with a runner, is represented by fig. 10. plate VIII. That part of the tackle which is fixed to one of the blocks, &c. is called the standing part; all the rest are called running parts; and that whereon the men pull when employing the tackle, is called the *fall*. The application of the tackle to mechanical purposes is termed *hoisting* or *bowssing*. See those articles.

Ground TACKLE. See GROUND TACKLE.

TACK-TACKLE, a small tackle used occasionally to pull down the tack of the principal sails of a ship to

their respective stations. There is also a tackle of this kind constantly fixed to the tacks of the main-sail in *brigs*, *sloops*, and *schooners*, for the same purpose. See the French term PALAN, and the phrases annexed thereto.

TAFFAREL, *couronnement*, the upper part of a ship's stern, being a curved piece of wood, expressed by F F, in fig. 1. plate X. and usually ornamented with sculpture.

TAIL, a name given by sailors to the extremities of a hurricane, wherein the violence is considerably exhausted.

TAIL-BLOCK, a small single block, having a short piece of rope attached to it, by which it may be fastened to any object at pleasure; either for convenience, or to increase the force applied to the said object, as explained in the first part of the article TACKLE.

TAKING-IN, the act of brailing-up and furling the sails at sea, particularly when the wind increases. It is generally used in opposition to *setting*. See also FURL and SHORTEN.

TALLYING, *border*, a phrase used by the common sailors, implying the act of pulling aft the *sheets*, or lower corners of the main-sail and fore-sail.

TAR, a sort of liquid gum, of a blackish hue, which distils from pines or fir-trees, either naturally or by incision; and being prepared by boiling, is used to pay the sides of ships and boats, and their rigging, in order to preserve them from the effects of the weather, by which they would otherwise soon become cracked, split, or rotten.

TAR is also a figurative expression for a sailor of any kind.

TAR-PAWLING, *prélart*, a broad piece of canvas well daubed with tar, and used to cover the hatchways of

a ship at sea, to prevent the penetration of the rain, or sea-water, which may occasionally rush over the decks. See BATTENS.

TARTAN, (*tartana*, Ital.) a small coasting vessel navigated in the Mediterranean sea, and having only one mast and a bowsprit, the principal sail, which is extremely large, being extended by a lateen-yard. See VESSEL.

TAUGHT, *roide*, (*dicht*, Dutch) the state of being extended or stretched out. It is usually applied to a rope or sail, in opposition to slack.

TAUNT, *foit*, an epithet used, in the sea-language, to signify high or tall. It is peculiarly expressed of the masts when they are of an extraordinary length, as *square* is applied to the yards on the same occasion.

TENDER, *patache*, a small vessel employed in the King's service, on various occasions; as, to receive volunteers and impressed men, and convey them to a distant place; to attend on ships of war or squadrons; and to carry intelligence or orders from one place to another, &c.

TENDING, the movement by which a ship turns or swings round her anchor in a tide-way, at the beginning of the flood or ebb. Thus, if the flood sets northerly, it is evident that the ship, unless when moored head and stern, will fall into the line of the current, turning her head to the southward. But as the reflux will for the same reason set to the southward, the ship will of necessity turn about at the change of the tide, and carry her head to the northward; and the transition from one situation to the other is called tending or swinging.

TENON, the end of a piece of timber cut smaller to enter into a mortise.

THIMBLE, *cosse*, a sort of iron ring, whose outer surface is hollowed throughout its whole

circumference, in order to contain, in the channel or cavity, a rope which is spliced about it, and by which it may be hung in any particular station. See plate XII. fig. 1. It is used to guide the direction of some running rope, which passes through it, from one place to another. See Span.

THOLES, (*tholet*, Fr.) certain small pins driven perpendicularly into the upper edge of a boat, as expressed by *e*, fig. 1, plate III. In the exercise of rowing, the oar is contained between the two tholes, in the space which is called the *row-lock*. Sometimes there is only one pin to each oar, as in the boats navigated on the Mediterranean sea. In that case the oar is hung upon the pin by means of a strop; and indeed this method is much more ancient than the former. See the article ROWING.

THROAT, a name given to the inner end of a *gaff*, or to that part which is next to the mast. It is opposed to *peek*, which implies the outer extremity of the said gaff, or that part of it which extends the sail behind. Hence the ropes employed to hoist up, and lower a gaff, being applied to those parts of it, are called the throat and peek haliards. See *Haliards*.

THUS! the order by which the pilot directs the helmsman to keep the ship in her present situation when sailing with a *scant* wind; so that she may not approach too near the direction of the wind, and thereby shiver her sails, nor fall to leeward, and run farther out of her course. See STEERING.

THWART, *banc*, the seat or bench of a boat whereon the rowers sit to manage the oars.

THWART-SHIPS, across the ship. See the article ATHWART.

TIDE, *marée*, (*tyd*, Sax.) a regular periodical current of the water, setting alternately in a flux and reflux, produced by the influence of the moon.

If the ocean were equally deep in every place, the ebbing and flowing of the tide would be universally regular and equal; but the shallowness of the water in many places, and the streightness of the channels, by which the tides may be considerably interrupted in some parts, and propagated in others, occasion a great diversity in their force and quantity. Hence, without an exact knowledge of all the circumstances of the several places where they happen to run, as of the position of the land, the breadth and depth of channels; it is impossible to account for this diversity.

The theory of the tides is concisely described by a great author, in these words: “That motion of the water called tides is a rising and falling of the sea: the cause of this is the attraction of the moon, whereby the part of water in the great ocean which is nearest the moon, being most strongly attracted, is raised higher than the rest; and the part opposite to it being least attracted, is also higher than the rest; and these two opposite elevations of the surface of the water in the great ocean, following the motion of the moon from est to west, and striking against the large coasts of the continents, from thence rebounds back again, and so makes floods and ebbs in narrows, seas, and rivers.” *Locke.*

With regard to the relative force of the tide on a ship floating therein, it is already explained in the article CURRENT.

TIER, *batterie*, a name given to the range of cannon mounted on one side of a ship’s deck. See the articles DECK and CANNON.

TIER *of the cable*, is a range of the *fakes* or windings of the cable, which are laid within one another in an horizontal position, so as that the last becomes the innermost. See COILING.

Cable-TIER is the hollow space in the middle of a cable, when it is *coiled*.

TIGHT, (*dicht*, Dutch) the quality whereby a vessel resists the penetration of any fluid, whether compressing its surface, or contained within it. Hence a ship is said to be tight, when her planks are so compact and solid as to prevent the entrance of the water in which she is immersed: and a cask is called tight, when the staves are so close that none of the liquid contained therein can issue through or between them. In both senses it is opposed to *leaky*, which see.

TILLER, *timon*, or *barre de gouvernail*, the bar or lever employed to turn the rudder in steering. See the article HELM.

TILT, *tendelet*, (*tyld*, Sax.) a small canopy or awning of canvas, or other cloth, extended over the stern-sheets of a boat, and supported by small pillars, or broad laths of flexible wood incurvated into arches. It is used to cover the passengers from the rain or sunshine. See BOAT.

TIMBERS, *couples*, the ribs of a ship, or the incurvated pieces of wood, branching outward from the keel in a vertical direction, so as to give strength, figure, and solidity to the whole fabric.

It has been observed in the article *Naval* ARCHITECTURE, that one timber is composed of several pieces united into one frame, which is accordingly called a frame of timbers by the artificers. These different pieces are exhibited in plate I. PIECES of the HULL, by U, V, and W. The head of the lower piece, called the *floor*-timber, being cut square, to join the heel of the next above it. To support the connection of the timber in that place, another assemblage of pieces are formed, and joined in the same manner; so that when both the

sets are fastened together, the joinings in one set will be nearly opposite to the middle of the pieces in the other. Hence it is evident, that the mould which serves for the lowest piece will conform to the under part of the corresponding piece above it: and thus the mould, appropriated to every division of a timber, will determine, or answer to the figure of the next adjoining thereto.

The timbers whose areas or *planes* are perpendicular to the *keel*, are called square timbers; and those which are placed obliquely on the keel, as at the extremities of a ship, are called cant-timbers. The foremost of those pieces on the ship's *bow*, are called the knuckle-timbers; and the hindmost on the quarter are called the fashion-pieces.

The outlines, or *bends* of the principal timbers of the ship are geometrically delineated in the plane of projection, plate I. as also in plate IV. fig. 11. and plate X. fig. 2.: and their particular stations in the ship's length are represented in the horizontal plane, and that of the elevation, plate I. In order to give a more comprehensive idea of their figures and dimensions, we have exhibited a perspective view of the carcase of a small vessel, in plate XII. fig. 2. consisting only of the *keel* A, the *stern-post* B, the *stem* C, the *transoms* K L M, and the *ribbands* F F.

TIMBER AND ROOM, or *room and space*, is the alliance betwixt the moulding edge of two adjoining timbers, which must always contain the breadth of two timbers; and sometimes two or three inches between them. It must be observed, that one mould serves for two timbers; the fore side of the one being supposed to unite with the after side of the other, and so make only one line; which is actually the case in all the frames, which in some ships are every third, and in others every fourth timber. The frames

are first put up, and fastened to the ribbands, and afterwards the others are put up, which are called fitting-timbers. *Murray's ship-building.*

TIMONEER, (*timonier*, Fr.) the helmsman, or person who manages the helm to direct the ship's course. See the article STEERING.

In a ship of war the quarter-masters and timoneers are usually chosen by the master, to *cun* and steer the ship; as also, to stow the provisions in the hold, coil the cables, regulate the watch, &c. See QUARTER-MASTER.

TOGETHER! *accord*, the order given to the men in the exercises of *heaving*, rowing, holding, &c. to act all in concert, or at the same instant.

TOGGEL, *cabillot*, a small wooden pin, about five or six inches in length, and usually tapering from the middle towards the extremities. It is used to fix transversely in the lower part of a tackle, in which it serves as an hook whereby to attach the tackle to a strop, slings, or any body whereon the effort of the tackle is to be employed.

There are also toggels of another kind, employed to fasten the top-gallant sheets to the *span*, which is knotted round the cap at the top-mast-head. For as the lifts of the topsail-yard are out of use when the topsail is hoisted, they are always converted into top-gallant sheets, to render the rigging at the mast-heads as light and simple as possible. Before the topsail-yards can be lowered so as to be sustained by their lifts, it therefore becomes necessary to transfer that part of the lift to the top-mast-head, that so the whole weight of the yard may be sustained by its mast-head, and no part thereof by the top-gallant-yard, which would otherwise be the case. This is performed by fixing the double part, or bight of the lift, within the eye of the span above mentioned, and

inserting the toggel through the former, so as to confine it to the latter, which operation is amongst sailors called putting the sheets in the *beckets*.

TOMPION, (*tampon*, Fr.) a sort of bung or cork used to stop the mouth of a cannon. At sea this is carefully encircled with tallow or putty, to prevent the penetration of the water into the bore, whereby the powder contained in the chamber might be damaged or rendered incapable of service.

TONNAGE. See the article BURTHEN.

TOP, *hune*, a sort of platform, surrounding the lower mast-head, from which it projects on all sides like a scaffold.

The principal intention of the top is to extend the top-mast shrouds, so as to form a greater angle with the mast, and thereby give additional support to the latter. It is sustained by certain timbers fixed across the *hounds* or shoulders of the mast, and called the tressel-trees and cross-trees, the former of which are expressed by *k*, fig. 1. plate VI. and the latter by *l, l*, fig. 2. The plan of the top is represented in fig. 6. where *g g* represents the holes through which the top-mast shrouds communicate with those of the lower mast, as explained in the article SHROUD.

Besides the use above mentioned, the top is otherwise extremely convenient to contain the materials necessary for extending the small sails, and for fixing or repairing the rigging and machinery, with more facility and expedition. In ships of war it is used as a kind of redoubt, and is accordingly fortified for attack or defence, being furnished with swivels, musketry, and other fire-arms; and guarded by a thick fence of corded *hammocs*. Finally, it is employed as a place for looking out, either in the day or night.

The frame of the top is either close-planked like a

platform, or open like a grating. The former kind, which is exhibited in fig. 6. plate VI. is generally stronger and more convenient; but the latter is much better in tempestuous weather, as presenting a smaller surface to the wind when the ship leans over to one side, and by consequence being less exposed to its efforts.

In all ships of war, and in the largest merchantmen, the top is fenced on the aft-side by a rail of about three feet high, stretching across, and supported by stanchions, between which a netting is usually constructed, as appears by fig. 2. plate VI. The outside of this netting is generally covered with red bayze or red painted canvas, which is extended from the rail down to the edge of the top, and called the top-armour. By this name it seems to have been considered as a sort of blind, behind which the men may conceal themselves from the aims of the enemy's fire-arms in time of action, whilst they are charging their own muskets, carabines, or swivels.

The dimensions of tops in the royal navy are as follow. The breadth of the top *athwart-ships*, *q q*, fig. 6. is one third of the length of its corresponding top-mast. The length of all tops, from the foremost to the after edge *p p*, is equal to three fourths of their breadth athwart; and the square hole in the middle is five inches to a foot of those dimensions. The tressel-trees and cross-trees extend nearly to the edge of the tops. See those articles.

TOP-BLOCK. See BLOCK and MAST.

TOP-CHAIN. See the article CHAIN.

TOP-LANTHORN, *fanal de hune*, a large lanthorn placed in the after part of the top, in any ship where an admiral or commodore is personally aboard. It is supported on each side by iron braces *r*, as expressed in fig. 3. plate VI.

TOP-MAST, *mât de hune*, the second division of a mast; or that part which stands between the upper and lower pieces. See the article MAST.

TOP-ROPE, *guinderesse*, a rope employed to *sway-up* a top-mast or top-gallant mast, in order to fix it in its place; or to lower it in tempestuous weather, or when it is no longer necessary. The rope used on this occasion for the top-masts is, on account of their great weight, furnished with an assemblage of pullies, at its lower end, called the *top-tackle*, to hoist or lower the mast with greater facility. The whole of this is particularly explained in the article MAST, and the plate therein referred to.

TOP-SAILS, certain large sails extended across the top-masts, by the top-sail-yard above, and by the yard attached to the lower mast beneath; being fastened to the former by *robands*, and to the latter by means of two great blocks fixed on its extremities, through which the topsail-sheets are inserted, passing from thence to two other blocks fixed on the inner part of the yard close by the mast: and from these latter the sheets lead downwards to the deck, where they may be slackened or extended at pleasure. See the article SAIL. *N. B.* The top-gallant sails are expanded above the topsail-yard, in the same manner as the latter are extended above the lower yard.

The several parts of the machinery by which the top-sails are managed, as the *bowlines*, *braces*, *haliards*, *lifts*, and *sheets*, being copiously defined in their proper places, it would be superfluous to repeat their explanations.

TOPPING, *apiquer*, the act of pulling one of the extremities of a yard higher than the other, by slackening one of the *lifts*, and pulling upon the opposite one, so as to place the yard at a greater or

lesser obliquity with the mast.

TOPPING-LIFT, *balancine de gui*, a large and strong tackle, employed to suspend or *top* the outer end of a gaff, or of the *boom* of a main-sail and fore-sail; such as are used in *brigs*, *sloops*, or *schooners*. See SQUARE.

TORNADO, *travade*, a violent squall or gust of wind rising suddenly from the shore, and afterwards veering round the compass like a hurricane. These are very frequent on the coasts of Guinea and South Barbary. See WIND.

TOUCHING, the state of a ship's sails when they first begin to shiver, with their edges in the direction of the wind. It is either occasioned by a sudden alteration of the ship's course, or by a change of the wind, in which it blows more obliquely along the surface of the sails, instead of falling into their cavities from behind, according to its usual direction. See FULL AND BY.

TOUCHING-AT, implies the circumstance of stopping, or anchoring occasionally, at some intermediate port, in the course of a voyage.

To TOW, *remorquer*, (*teon*, *teohan*, Sax.) to draw a ship forward in the water, by means of a rope attached to another vessel or boat, which advances by the effort of rowing or sailing.

Towing is either practised when a ship is disabled, and rendered incapable of carrying sail at sea; or when her sails are not fixed upon the masts, as in a harbour: or when they are deprived of their force of action by a cessation of the wind.

When a ship of war is dismasted, or otherwise disabled from carrying sail at sea, she is usually towed by a cable reaching from her bow to another ship a-head. In a harbour towing is practised by one or more boats, wherein all the force of the oars are exerted to make her advance.

TOW-LINE, a small hauser generally used to remove a ship from one part of an harbour or road to another, by means of anchors, capsterns, &c. as explained in the article WARPING. It is also employed occasionally to moor a small vessel in a harbour, conveniently sheltered from the wind and sea.

TOW-ROPE, a name given to any cable or other rope used in the exercise of towing.

TRACING-LINE, *martinet*, a small cord generally passing through a block or *thimble*, and used to hoist up any object to a higher station, in order to render it less inconvenient. Such are the tracing-lines of the *awnings*, and those of the *yard-tackles*, which, by hanging down in a cavity or bight, would be aukward and incommodious.

TRACK *of a ship*. See the article WAKE.

TRACKING, the act of pulling any vessel or floating body along the stream of a canal or river, by means of a rope extending from the vessel, &c. to the adjacent shore, and drawn along the banks of the river, by men or horses. Whence,

TRACK-SCOUT, a vessel employed to carry goods or passengers up and down the rivers or canals in Holland, and the countries bordering on the Baltic sea. It is usually tracked by a horse, who trots along the margin to a limited distance, after which he is relieved by another.

TRADE-WINDS, certain regular winds blowing within or near the tropics, and being either periodical or perpetual. Thus, in the Indian ocean, they blow alternately from different points of the compass, during a limited season; and, in the Atlantic ocean, continue almost without intermission in the same direction. They are accordingly called trade-winds, from their great utility in navigation and commerce. See MONSOON and WIND.

TRAIN. See the articles CANNON and FIRE-SHIP.

TRANSOMS, *barres d'arcasse*, (*transenna*, Lat.) certain beams or timbers extended across the *stern-post* of a ship, to fortify her after-part, and give it the figure most suitable to the service for which she is calculated.

Transoms are here defined *beams* or *timbers*, because they partake equally of the form and purpose of those pieces. Thus the deck-transom is the aftmost or hindmost beam of the lower deck, whereon all the deck-planks are rabetted: and all the transoms are fixed athwart the stern-post, in the same manner as the floor-timbers are laid upon the keel. As the floor-timbers also, with regard to their general form and arrangement, have a *rising*, by which, the bottom becomes narrower as it ascends towards the extremities; so the arms of the transoms, being gradually closer in proportion to their distance from the wing-transom downwards, give a similar figure to that part of the ship, which accordingly becomes extremely narrow, from the counter towards the keel; and this general figure or curve is called the *flight* of the transoms.

Although these pieces are therefore extremely different in their figures, according to the extent of the angles formed by their branches or horns, each of them has nevertheless a double curve, which is partly vertical, and partly horizontal, with regard to its situation in the ship. The former of these is called, by the artificers, the round-up, and the latter the *round-aft*.

As the transoms fill up the whole space comprehended between the head of the stern-post above, and the aftmost floor-timbers below, it is necessary to distinguish them by particular names. Thus the highest is called the wing-transom: the

next, the deck-transom; and afterwards follow the first, second, and third transoms; together with the intermediate ones, as represented in fig. 1. plate X. and described in the explanation thereof.

The vertical direction of the arms or angles of the transoms, with regard to the ship's length, are expressed in the plane of ELEVATION; and their horizontal curves are also delineated on the plane of Projection; both of which are represented under those terms in plate I. and described in the general explanation of the planes in the article *Naval* ARCHITECTURE.

The highest transoms are connected to the ship's quarter by knees, which are bolted to those pieces, and to the after-timbers. See the article SLEEPERS.

TRANSPORT. See the article SHIP.

TRANSPORTING, the act of removing a ship from one place to another, by the help of anchors and ropes. See WARPING.

TRAVELLER, *racambeau*, a sort of *thimble*, whose diameter is much longer, in proportion to the breadth of its surface, than the common ones, fig. 3. plate XII. It is furnished with a tail formed of a piece of rope, about three feet in length, one end of which encircles the ring, to which it is *spliced*. These machines are principally intended to facilitate the *hoisting* or *lowering* of the top-gallant-yards at sea: for which purpose two of them are fixed on each *back-stay*, whereon they slide upwards and downwards, like the ring of a curtain upon its rod: being thus attached to the extremities of the top-gallant-yard, they prevent it from swinging backwards and forwards, by the agitation of the ship, whilst the yard is hoisting or lowering at sea.

TRAVERSE, in navigation, implies a compound course, or an assemblage of various courses, lying at

different angles with the meridian. Thus fig. 2. plate XI. exhibits the traverses formed by a ship, when making an oblique progression against the direction of the wind, as explained in the article TACKING.

The true course and distance resulting from this diversity of courses is discovered by collecting the difference of latitude and departure of each course, and reducing the whole into one departure and one difference of latitude, according to the known rules of trigonometry. This reduction will immediately ascertain the base and perpendicular; or, in other words, will give the difference of latitude and departure to discover the course and distance. See NAVIGATION.

TRAVERSE-BOARD, a thin circular piece of board, marked with all the points of the compass, and having eight holes bored in each, and eight small pegs hanging from the center of the board. It is used to determine the different courses run by a ship during the period of the watch; and to ascertain the distance of each course. This implement is particularly useful in light and variable winds, at which time the helmsman marks the course every half hour, by fixing a peg in that point of the compass whereon the ship had advanced. Thus, if the wind is northerly at the beginning of the watch, the ship, being *close-hauled* on the larboard *tack*, will steer W. N. W. If, after the first half hour, the wind changes to N. *by* W. the ship will fall off to W. *by* N. both of these courses are marked by the helmsman upon the traverse-board, by putting in one peg for every half hour on which she steers the same course; as, one peg into W. N. W. and two pegs into W. *by* N. if she sails an hour on the latter course; and so on. The lee-way and variation of the compass are afterwards allowed by the pilot, on summing up the

whole.

TREE-NAILS, *gournables*, certain long cylindrical wooden pins, employed to connect the planks of a ship's side and bottom to the corresponding timbers.

The tree-nails are justly esteemed superior to spike-nails or bolts, which are liable to rust, and loosen, as well as to rot the timber; but it is necessary that the oak of which they are formed should be solid, close, and replete with gum, to prevent them from breaking and rotting in the ship's frame. They ought also to be well dried, so as to fill their holes when they are swelled with moisture. They have usually one inch in thickness to 100 feet in the vessel's length; so that the tree-nails of a ship of 100 feet long, are one inch in diameter; and one inch and a half for a ship of 150 feet.

TRESTLE-TREES, *tesseaux*, two strong bars of timber fixed horizontally on the opposite sides of the lower mast-head, to support the frame of the top, and the weight of the top-mast. See MAST and TOP.

TRIM, *manege du navire*, (*trimman*, Sax. *to build*) implies, in general, the state or disposition by which a ship is best calculated for the several purposes of navigation.

Thus the trim of the *hold* denotes the most convenient and proper arrangement of the various materials contained therein, relatively to the ships motion or stability at sea. The trim of the masts and sails is also their most apposite situation, with regard to the construction of the ship, and the effort of the wind upon her sails.

As the *stowage* of the hold, or the disposition of the several articles of the cargo, considerably affects the ship's motion and stability, it will be necessary to give a general idea of the action of a heavy body upon the fluid that supports it, and the re-action of

the fluid on the floating body.

The whole weight of any body, then, may be considered as united in its center of gravity; so that, if it were suspended by a line fastened to this center, the line would hang in a perpendicular position, as directed through the center of gravity to the center of the earth. A body which floats in a fluid is not, however, supported by its center of gravity, but by the compression of the surrounding filaments of water: and each of these, being considered as infinitely small, will act upon a very minute portion of the surface of the floating body, with regard to the specific gravity, and conform to a principle applicable to all fluids, in proportion to the height of these filaments, viz. That the weight of a column of any fluid will be in proportion to the specific gravity of the fluid and the height of the column multiplied by its base.

But as heavy bodies endeavour, by their gravity, to approach the center of the earth, in a vertical line passing through their centers; so the pressure of fluids endeavours to carry bodies in a vertical, tending from the center of the earth towards their surface, and passing through the center of gravity of the submerged part, which forces them towards the surface. So, in any submerged body at rest, these two opposite forces coincide in the same vertical, acting in a direction quite contrary to each other. *Bouguer's Traité du navire.*

From this theory it results, that the stability or trim of a ship chiefly depends upon her construction, as considering the bottom to be homogeneous. This, however, can only happen when her cargo consists of the same materials throughout, as with corn, salt, or any species stowed in bulk, and when her hold is entirely filled. For if the ship has not sufficient

breadth to resist the effort of the wind upon her sails; or if she is built too high, or too sharp in the floor, her center of gravity will be too high, and she will be very *crank*, i. e. apt to overturn.

But as the *stiffness* of a ship, or quality to carry sail without danger of overturning, depends very much on the *stowage* of the hold, the center of gravity may thereby be considerably lowered, by which her stability will be increased in proportion. It is a general maxim amongst mariners, that a ship will not carry sufficient sail till she is laden so deep that the surface of the water may glance on her extreme breadth *amidships*. She must therefore have a great deal of weight, as ballast, &c. to bring her to this situation, which is called a good sailing trim.

Several circumstances are also to be particularly considered with regard to the quality, weight, and stowage of the ballast. The center of gravity being placed too high, will render the ship incapable of carrying a sufficient quantity of sail; and by having it too low, she will be in danger of rolling away her masts. When it is placed too far forward, the ship will *pitch*, and *labour* heavily; and when too far aft, she will occasionally be exposed to the dangerous circumstance of a *pooping* sea. These extremes being carefully avoided, it remains to proportion the contents of every part of the *hold* to its capacity, and to place the lightest materials uppermost. See STOWAGE.

TRIM, when applied to the sails, denotes the general arrangement which is best calculated to accelerate the ship's course, according to the direction of the wind. See the article SAILING.

If the ship were always to sail before the wind, it would be a very simple operation to trim the sails; because nothing else could be required than to

dispose them so as to receive the greatest possible effort of the wind, which is evidently performed by arranging them at right angles with its direction. But, when the current of wind acts more directly upon the ship's side, it necessarily falls more obliquely on the surface of the sails, so as to diminish their effort to push the ship forward; and to augment their tendency to make her incline to one side. Hence we may conclude, that an increase of the wind, when accompanied with a variation unfavourable to the ship's course, will by no means augment her velocity; because the force previously employed to push her forward, will afterwards operate to overturn her; and because this impression renders it necessary to reduce the quantity of sail; the effort of which is farther diminished by the obliquity of the action of the wind upon its surface.

By this theory it appears, that the effect of the wind to advance the ship decreases in proportion to its obliquity with any sail upon which it operates.

The mechanical disposition of the sails, according to every direction of the wind upon their surfaces, is copiously described in the articles CLOSE-HAULED, LARGE, SAILING, and TACKING.

TRIM, when expressed of the masts, denotes their position with regard to the ship and to each other. Thus, in the latter sense, they should neither be too near nor too far apart; and, in the former, they should not be too far forward or aft; and, according to the situation or quality which communicates a greater velocity to the vessel, they should either be upright, or inclining aft, or forward.

TRIM *the boat*. See BOAT, and the phrases succeeding it.

Sharp-TRIMMED, the situation of a ship's sails in a scant wind.

TRIMONEER, a barbarous corruption of TIMONEER. See that article.

TRIP, a cant phrase, implying an outward-bound voyage, particularly in the coasting navigation. It also denotes a single *board* in *plying* to windward.

TRIPPING, the movement by which an anchor is loosened from the bottom by its cable or buoy-ropes. See ATRIP.

TROUGH, a name given to the hollow, or interval between two high waves, which resembles a broad and deep trench perpetually fluctuating. As the *setting* of the sea is always produced by the wind, it is evident that the waves, and consequently the trough or hollow space between them, will be at right angles with the direction of the wind. Hence a ship rolls heaviest when she lies in the trough of the sea.

TROWSERS, a sort of loose breeches of canvas worn by common sailors.

TRUCK, a piece of wood, which is either conical, cylindrical, spherical, or spheroidical.

Thus the trucks fixed on the spindle of a mast-head, and which are otherwise called *acorns*, are in the form of a cone: and those which are employed as wheels to the gun-carriages are cylinders. The trucks of the parrels assume the figure of a globe; and, lastly, those of the flag-staffs resemble an oblate spheroid. See the articles ACORN, CANNON, PARREL, and FLAG-STAFF.

Trucks of the shrouds are nearly similar to those of the parrels: they are fastened to the shrouds about twelve or fourteen feet above the deck, the hole in the middle being placed perpendicularly to contain some rope which passes through it. The intention of these is to guide the sailors to the particular rope, which might otherwise be easily mistaken for some other of the same size, especially in the night.

Speaking-TRUMPET, *trompette marine*, a trumpet of brass or tin used at sea, to propagate the voice to a great distance, or to convey the orders from one part of the ship to another, in tempestuous weather, &c. when they cannot otherwise be distinctly heard by the persons to whom they are directed.

Fire-TRUNK. See the article FIRE-SHIP.

TRUNNIONS, *tourillons*, the two knobs or arms which project from the opposite sides of a piece of artillery, and serve to support it in the carriage. See CANNON and MORTAR.

TRUSS, (*trousse*, Fr.) a machine employed to pull a yard home to its respective mast, and retain it firmly in that position.

As the truss is generally used instead of a parrel, it is rarely employed, except in flying top-gallant-sails, which are never furnished with parrels. It is no other than a ring or traveller, which encircles the mast, and has a rope fastened to its after-part, leading downward to the top or decks; by means of which the truss may be straitened or slackened at pleasure. The *haliards* of the top-gallant-sail being passed through this ring; and the sail being hoisted up to its utmost extent; it is evident, that the yard will be drawn close to the mast, by pulling down the truss close to the upper part of the sail. For, without the truss, the sail and its yard would be blown from the mast, so as to swing about, by the action of the wind, and the rocking of the vessel; unless the yard were hoisted close up to the pulley wherein the haliards run; which seldom is the case in flying top-gallant-sails, because they are usually much shallower than those which are fixed or *standing*.

TRUSS-PARREL. See PARREL.

TRYING, *à la cape*, the situation in which a ship lies nearly in the *trough* or hollow of the sea in a

tempest, particularly when it blows contrary to her course.

In *trying*, as well as in *scudding*, the sails are always reduced in proportion to the increase of the storm. Thus, in the former state, a ship may lie by the wind under a whole main-sail, a whole fore-sail, or a whole mizen; or under any of those sails, when diminished by the *reef* or *balance*. As the least possible quantity of sail used in scudding are the *goose-wings* of the foresail; so in *trying*, the smallest portion is generally the mizen-staysail or main-staysail: and in either state, if the storm is excessive, she may lie with all the sails furled, or, according to the sea-phrase, *under bare poles*.

The intent of spreading a sail at this time is to keep the ship more steddy, and, by pressing her side down in the water, to prevent her from rolling violently; and also to turn her *bow* towards the direction of the wind, so that the shock of the waves may fall more obliquely on her flank, than when she lies along the trough of the sea. While she remains in this situation, the helm is fastened close to the lee-side, or, in the sea-language, *hard a-lee*, to prevent her as much as possible from falling-off. But as the ship is not then kept in equilibrio by the effort of her sails, which at other times counterbalance each other at the *head* and *stern*, she is moved by a slow but continual vibration, which turns her head alternately to windward and to leeward, forming an angle of three or four points in the interval. That part where she stops, in approaching the direction of the wind, is called her *coming-to*, and the contrary excess of the angle *to leeward* is termed her *falling-off*.

Thus, suppose the wind northerly, and a ship trying with her starboard side to windward: if, in turning her head towards the source of the wind, she

arrives at N. W. ½ N. or N. 39° W. and then declines to the leeward as far W. ½ S. or S. 84° W, the former will be called her coming-to, and the latter her falling-off. In this position she advances very little according to the line of her length, but is driven considerably to leeward, as described in the articles DRIFT and LEE-WAY.

TUCK, a name given to that part of the ship where the ends of the bottom-planks are collected together immediately under the stern or counter.

When this part, instead of being incurvated, and forming a convex surface, assumes the shape of a vertical or oblique plane, it is said to be square, as represented in fig. 8. plate IX. A square tuck is accordingly terminated above by the wing-*transom*, and below and on each side by the *fashion-pieces*.

TUMBLING-HOME, *encabanement*, that part of a ship's side which falls inward above the extreme breadth, so as to make the ship gradually narrower from the lower deck upwards. This angle is represented in general throughout all the timbers in the plane of *projection*, plate I. It is also more particularly expressed by Q T in the MIDSHIP-FRAME, plate VII. where it is evident, that the ship grows narrower from Q towards T. N. B. In all our old sea-books, this narrowing of a ship from the extreme breadth upwards is called housing-in. See UPPER-WORK.

TURNING-*to-windward*, *chicaner le vent*, that operation in sailing wherein a ship endeavours to make a progress against the direction of the wind, by a compound course, inclined to the place of her destination. This method of navigation is otherwise called *plying*. See also BEATING and TACKING.

TYE, *itague*, a sort of *runner* or thick rope, used to transmit the effort of a tackle to any *yard* or *gaff*,

which extends the upper part of a sail.

The tye is either passed through a block fixed to the mast-head, and afterwards through another block moveable upon the yard or gaff intended to be hoisted; or the end of it is simply fastened to the said yard or gaff, after communicating with the block at the mast-head. See also the article JEARS.

V.

VAN, *avante-garde*, the foremost division of any naval armament, or that part which usually leads the way to battle; or advances first in the order of sailing. See CENTER, FLEET, and REAR.

VANE, a thin slip of bunting hung to the mast-head, or some other conspicuous place in the ship, to show the direction of the wind. See *b*, fig. 1. plate I. It is commonly sewed upon a wooden frame called the stock, which contains two holes whereby to slip over the spindle, upon which it turns about as the wind changes.

Dog-VANE, *panon*, a small light vane, formed of a piece of packthread about two feet in length, upon which are fixed five or six thin slices of cork stuck full of light feathers. It is usually fastened to the top of a staff two yards high, which is placed on the top of the ship's side on the quarter-deck, in order to shew the direction of the wind to the helmsman, particularly in a dark night, or when the wind is extremely feeble.

VANGS, a sort of *braces* to support the mizen *gaff*, and keep it steddy. They are fixed on the outer-end or *peek*, and reach downwards to the aftmost part of the ship's side, where they are hooked and drawn tight, so as to be slackened when the wind is *fair*; and drawn in to windward when it becomes unfavourable to the ship's course.

VARIATION, the angle contained between the true

meridian and the magnetic meridian.

‘After the discovery of that most useful property of the magnet, or loadstone, namely, the giving hardened iron and steel a polarity, the compass was for many years used without knowing that its direction in any wise deviated from the poles of the world: and about the middle of the 16th century, so certain were some of its inflexibly pointing to the north, that they treated with contempt the notion of the variation, which about that time began to be suspected[55]. However, careful observations soon discovered, that in England, and its neighbourhood, the needle pointed to the eastward of the true north: but the quantity of this deviation being known, mariners became as well satisfied as if the compass had none; because they imagined that the true course could be obtained by making allowance for the true variation.

‘From successive observations made afterwards, it was found, that the deviation of the needle from the north was not a constant quantity; but that it gradually diminished, and at last, about the year 1660, it was found at London that the needle pointed due north, and has ever since been getting to the westward, and now the variation is more than 20 degrees to the westward of the north: so that in any one place it may be suspected the variation has a kind of libratory motion, traversing through the north to unknown limits eastward and westward. But the settling of this point must be left to time.

‘During the time of the said observations it was also discovered, that the variation of the needle was different in different parts of the world, it being west in some places when it was east in others; and in places where the variation was of the same name, yet the quantity of it greatly differed. It was therefore

found necessary, that mariners should every day, or as often as they had opportunity, make, during their voyage, proper observations for an amplitude or azimuth; whereby they might be enabled to find the variation of the compass in their present place, and thence correct their courses.' *Robertson's Elements of navigation.*

Dr. Halley published, in the last century, a theory of the variations of the compass. In this work he supposes there are four magnetic poles in the earth, two of which are fixed and two moveable, by which he explains the different variation of the compass, at different times, in the same place. But it is impossible to apply exact calculations to so complicated an hypothesis. M. Euler, son of the celebrated geometrician of that name, has however shewn, that two magnetic poles placed on the surface of the earth will sufficiently account for the singular figure assumed by the lines which pass through all the points of equal variation in the chart of Dr. Halley.

M. Euler first examines the case, wherein the two magnetic poles are diametrically opposite; 2d. he places them in the two opposite meridians, but at unequal distances from the poles of the world; 3d. he places them in the same meridian. Finally, he considers them situated in two different meridians. These four cases may become equally important; because, if it is determined that there are only two magnetic poles, and that these poles change their situations, it may some time hereafter be discovered that they pass through all the different positions.

Since the needle of the compass ought always to be in the plane which passes through the place of observation and the two magnetic poles, the problem is reduced to the discovery of the angle contained between this plane and the plane of the meridian. M.

Euler, after having examined the different cases, finds, that they also express the earth's magnetism, represented in the chart published by Mess. Mountaine and Dodson in 1744, particularly throughout Europe and North America, if the following principles are established.

Between the Arctic pole and the magnetic pole 14° 53´.

Between the Antarctic pole and the other magnetic pole 29° 23´.

53° 18´ The angle at the north pole, formed by the meridians passing through the two magnetic poles.

250° The longitude of the meridian, which passes over the northern magnetic pole.

As the observations which have been collected with regard to the variation are, for the most part, loose and inaccurate, it is impossible to represent them all with precision; and the great variations observed in the Indian ocean, seem to require, says M. Euler, that the three first quantities should be 14, 35, and 63 degrees. In the mean time, the general agreement is sufficiently satisfactory.

The high reputation of Dr. Halley's magnetical chart renders it more particularly necessary to point out the errors contained therein[56]. There is evidently too little distance between the lines of no variation, of which one crosses the equator 17° westward of London, and the other 119° to the eastward. This makes 136 degrees only; whereas it should necessarily exceed 180 and even 200, inasmuch as the pole of the world is supposed farther distant from the magnetic pole towards the south than in the north, as is required by the other phænomena. Again, upon the coasts discovered by *Diemen*, there was no variation in 1642; and Dr. Halley also supposes there was none in 1700.

Meanwhile, by the alteration observed at Paris, the line of no variation should be advanced 60° towards the south, which will agree better with the calculations, and prove that the distance of the two intersections was really greater than Dr. Halley had established.

The table of variation of Mess. Mountaine and Dodson is accompanied with several interesting particulars, which equally deserve to be inserted here.

At Barbadoes, (says Capt. Snow) the variation seems very nearly at a stand; for in the road I observed 5° east; and by Dr. Halley's draught, in the year 1701, 5½ degrees. In 1747, at Port Royal keys, Jamaica, I observed the variation 7° 20′ E.; and on the coast of Carthagena, the same week, off the high land of Santa Martha, 7° 45′ nearly south of Port Royal. Therefore these curves are not much altered: the curve at Jamaica is nearly at a stand, as though tied, and the south part of them with the rest dropping to the westward.

Under the equator, in longitude 40° E. from London, the highest variation during the whole fifty-six years appears to be 17°¼ W. and the least 16°½ W.: and in latitude 15° N. longitude 60° W. from London, the variation has been constantly 5° E.: but in other places the case has been widely different. For in the latitude of 10° S. longitude 60° E. from London, the variation has decreased from 17° W. to 7°¼ W.; and in latitude 10° S. longitude 5° W. from London, from 2°¼ W. to 12°¾ W.; and in latitude 15° N. longitude 20°, it has increased from 1° W. to 9° W.

But there is still a more extraordinary appearance in the Indian seas. For instance, under the equator:

LONGITUDE	MAGNETICAL VARIATION

East from London. Degrees.	in 1700. Degrees.		in 1756. Degrees.	
40	16¾	West.	16¼	West.
45	17¾	W.	14½	W.
50	17½	W.	11¾	W.
55	16½	W.	8¾	W.
60	15¼	W.	6	W.
65	13½	W.	4½	W.
70	11½	W.	3¼	W.
75	9¾	W.	1	W.
80	7¾	W.	0¼	East.
85	5½	W.	1¼	E.
90	4¼	W.	1	E.
95	3¼	W.	0½	West.
100	2½	W.	1	W.

Where the west variation, in the longitude 40° E. is the same in both the above years; and in 1700 the west variation seemed to be regularly decreasing from longitude 50° E. to the longitude 100° E.; but in 1756, we find the west variation decreasing so fast, that we have east variation in the longitude 80°, 85°, and 90° E.; and yet in the longitude 95° and 100° E. we have west variation again. *Philosophical Transactions for the year 1757.*

To these remarks may be subjoined the following extracts from the *Exposition du calcul astronomique*, by *M. de la Lande.*

At the royal observatory in Paris, a magnetical needle of four inches deviated from the N. 18° 10′ towards the west, on the 15th of February 1759: and on the 22d of April 1760, the same needle varied 18° 20′. It is indeed natural to conceive, that nothing can be precisely ascertained by ten minutes upon a circle whose diameter is only four inches. It is nevertheless

sufficiently evident, that this variation continues to increase at Paris. In 1610 the needle declined 8° towards the east, so that the variation has changed 26° 20′ in the space of 150 years; and this appears particularly since 1740: for the same needle, which has always been used by M. Maraldi, is more than 3° advanced towards the west, beyond what it was at that period; and this makes 9′ in one year.

To VEER *and haul*, to pull a rope tight, by drawing it in and slackening it alternately, till the body to which it is applied acquires an additional motion, like the increased vibrations of a pendulum, so that the rope is straitened to a greater tension with more facility and dispatch. This method is particularly used in hauling the *bowlines*.

The wind is said to veer and haul when it alters its direction, and becomes more or less *fair*. Thus it is said to veer aft and to haul forward.

To VEER *away the cable*. See CABLE.

VEERING, *virer vent arriere*, the operation by which a ship, in changing her course from one board to the other, turns her stern to windward. Hence it is used in opposition to *tacking*, wherein the head is turned to the wind, and the stern to *leeward*.

Thus the ship A, fig. 8. plate XI. having made the necessary dispositions to veer, *bears away* gradually before the wind, till it blows obliquely upon the opposite side, which was formerly to leeward, as at *a*; and as the stern necessarily yields to this impression of the wind, assisted by the force of the helm, and the action of the waves upon the same quarter, the side which was formerly to leeward soon becomes to windward, as in the point *a*.

Since, by this movement, a ship loses ground considerably more than by tacking, it is rarely practised except in cases of necessity or delay: as,

when the violence of the wind and sea renders tacking impracticable; or when her course is slackened to wait for a pilot, or some other ship in company, &c.

It has been observed in the article TACKING, *that the change of motion in any body, will be in proportion to the moving force impressed, and made according to the right line in which that force operates*. Hence it is evident, that veering as well as tacking is a necessary consequence of the same invariable principle; for as, in the latter, almost the whole force of the wind and of the helm are exerted on the hind part of the ship, to turn the prow to windward; so, in the former, the same impression, assisted by the efforts of the helm, falls upon the prow, to push it to leeward; and the motion communicated to the ship must in both cases necessarily conspire with the action of the wind.

Thus, when it becomes necessary to veer the ship, the sails towards the stern are either furled, or *brailed* up, and made to *shiver* in the wind; whilst those near the head are spread abroad, so as to collect the whole current of air which their surfaces can contain. Hence, while the whole force of the wind is exerted on the fore part of the ship to turn her about, its effect is considerably diminished, or altogether destroyed, on the surfaces of the after-sails. The fore part accordingly yields to the above impulse, and is put in motion; and this movement, conspiring with that of the wind, pushes the ship about as much as is necessary to produce the effect required. When she is turned so that the wind will act upon that quarter which was formerly to leeward, as at the point *a*, fig. 8. her circular motion will be accelerated by extending some of the sails near the stern, as the mizen, and by placing those at the prow more obliquely, which will wheel the vessel round with

her bow to the windward; in the same situation, with regard to the wind, as when *close-hauled*, or tacking.

When the tempest is so violent as to prevent the use of sails, the effort of the wind operates almost equally on the opposite ends of the ship, so that the masts and yards situated at the head and stern counterbalance each other. The effect of the helm is also considerably diminished, because the *head-way*, which gives life and vigour to all its operations, is at this time feeble and ineffectual. Hence it is necessary to defray this equilibrium which subsists between the masts and yards *afore* and *abaft*, and to throw the balance forward, in order to prepare for veering. This is accordingly performed by bracing the foremost yards across the direction of the wind, and arranging those on the main-mast and mizen mast directly in the line of the wind. If this expedient proves unsuccessful, and it is absolutely necessary to veer, in order to save the ship from destruction, by oversetting or running ashore, the mizen-mast must instantly be cut away, and even the main-mast, if she yet remains incapable of answering the helm by bearing away before the wind.

VENT. See the articles *Cannon* and *Windage*.

VESSEL, *batiment*, a general name given to the different sorts of ships which are navigated on the ocean, or in canals and rivers. It is, however, more particularly applied to those of the smaller kind, furnished with one or two masts.

It has already been remarked in the article SHIP, that the views of utility, which ought always to be considered in a work of this kind, seemed to limit our general account of shipping to those which are most frequently employed in European navigation. We have therefore collected into one point of view the principal of these in plate XII.; so that the reader

who is unacquainted with marine affairs, may the more easily perceive their distinguishing characters, which are also more particularly described under the reflective articles.

Thus fig. 4. plate XII. exhibits a snow under sail; fig. 5. represents a ketch at anchor; fig. 6. a brig or brigantine; fig. 7. a bilander; fig. 8. a xebec; fig. 9. a schooner; fig. 10. a galliot; fig. 11. a dogger; all of which are under sail; fig. 12. & 13. two galleys, one of which is under sail, and the other rowing; and fig. 14. a sloop.

The ketch, whose sails are furled, is furnished with a try-sail, like the snow; and it has a fore-sail, fore-staysail, and jib, nearly similar to those of a sloop; but the sails on the main-mast and mizen-mast are like those of a ship. The main-sail and main-topsail of the brig are like those of the schooner; and the fore-mast is rigged and equipped with sails in the same manner as the ship and snow. The sails, masts, and yards of the xebec, being extremely different from these, are described at large under the article. In the schooner both the mainsail and foresail are extended by a *boom* and *gaff*, as likewise is the sloop's mainsail; the sails of the dogger and galliot are sufficiently expressed in the plate; and, finally, the galleys are navigated with lateen-sails, which are extremely different from those of the vessels above described.

Agent VICTUALLER. See AGENT VICTUALLER.

To UNBALLAST, *delester*, to discharge the ballast of a ship.

UNBENDING, *désamarrer*, generally implies the act of taking off the sails from their yards and stays; of casting loose the anchors from their cables, or of untying one rope from another. See also *Bend*.

UNBITTING, *débitter*, the operation of removing

the turns of a cable from off the bits. See BITS and CABLE.

To UNDER-RUN, *parcourir*, to pass under or examine any part of a cable or other rope, in order to discover whether it is damaged or intangled.

It is usual to under-run the cables in particular harbours, as well to cleanse them with brooms and brushes from any filth, ooze, shells, &c. collected in the stream; as to examine whether they have sustained any injury under the surface of the water; as, from rocky ground, or by the friction against other cables or anchors.

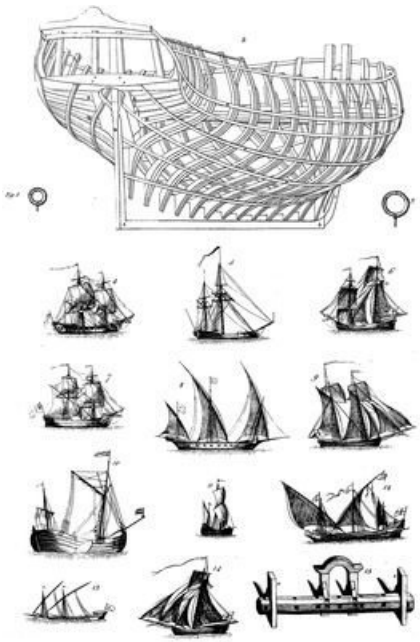


Plate. xii to face Vessel

To UNDER-RUN *a tackle*, is to separate the several

parts of which it is composed, and range them in order, from one block to the other; so that the general effort may not be interrupted, when it is put in motion.

UNDER SAIL, the state of a ship when she is loosened from her moorings, and under the government of her sails and rudder. See HELM and SAIL.

UNLACING, *déboutonner*, the act of loosening and taking off the *bonnet* of a sail from its principal part.

To UNMOOR, *desafourcher*, is to reduce a ship to the state of *riding* by a single anchor and cable, after she has been *moored* or fastened by two or more cables. See the articles ANCHOR and MOORING.

UNREEVING, the act of withdrawing or taking out a rope from any channel through which it had formerly passed; as in a *block*, *thimble*, *dead-eye*, &c. See REEVE.

To UNRIG *a ship*, *défuner*, is to deprive her of the standing and running *rigging*.

VOYAL, *tournevire*, a large rope used to unmoor, or heave up the anchors of a ship, by transmitting the effort of the *capstern* to the cables.

This is performed by fastening one part of the voyal to the cable in several places, and by winding another part thereof three or four times about the capstern, which answers the same purpose as if the cable itself were in that manner wound about the capstern; and the voyal being much lighter and more pliant, is infinitely more convenient in this exercise. See the articles CAPSTERN and NIPPER.

If the cable is drawn into the ship by the main capstern, the voyal is used without any block: but if the capstern in the fore-part of the ship be employed for this purpose, the voyal usually passes through a large block attached to the main-mast; and thence

communicates with the jear-capstern.

UPPER-DECK, the highest of those decks which are continued throughout the whole of a ship of war, or merchantman, without any interruption, of steps or irregular ascents. See DECK and WAIST.

UPPER-WORK, *oeuvres mortes*, a general name given to all that part of a ship which is above the surface of the water when she is properly balanced for a sea-voyage: hence it may be considered as separated from the bottom by the main *wale*, as explained particularly in the article *Naval* ARCHITECTURE.

UPRIGHT, the situation wherein the opposite sides of a ship are equally elevated above the surface of the water, as in fig. 2. plate VI.; or when she neither inclines to the right nor left, with regard to the vertical position of her stem and stern-post.

USES AND CUSTOMS *of the sea*; certain general principles which compose the basis of marine jurisprudence, and regulate the affairs of commerce and navigation.

W.

WAD, *bourrelet*, a quantity of old rope-yarns rolled firmly together into the form of a ball, and used to confine the shot or shell, together with its charge of powder, in the breech of a piece of artillery.

M. Le Blond observes, in his Elements of war, that the wad is necessary to retain the charge closely in the chamber of the cannon, so that it may not, when

fired, be dilated around the sides of the ball, by its *windage* as it passes through the chace; a circumstance which would considerably diminish the effort of the powder. But as the wad cannot be fastened to the sides of the bore, it is carried away in the same instant when the charge is inflamed, and that with so little resistance, that it cannot in any degree retard the explosion, or give time for the entire inflammation of the powder.

This reasoning may with equal propriety be applied to the wad that covers the bullet; which, nevertheless, is absolutely requisite, to prevent it from rolling out when the piece is fired horizontally or pointed downwards. Both are therefore peculiarly necessary in naval engagements, because, without being thus retained in its chamber, the shot would instantly roll out of the chace by the agitation of the vessel.

WAFT, *berne*, a signal displayed from the stern of a ship for some particular purpose, by hoisting the ensign, furled up together into a long roll, to the head of its staff. It is particularly used to summon the boats off from the shore to the ship whereto they belong; or as a signal for a pilot to repair aboard. See SIGNAL.

WAIST, that part of a ship which is contained between the quarter-deck and fore-castle, being usually a hollow space, with an ascent of several steps to either of those places.

When the waist of a merchant-ship is only one or two steps of descent from the quarter-deck and fore-castle, she is said to be galley-built; but when it is considerably deeper, as with six or seven steps, she is called frigate-built. See the articles DECK, DEEP-WAISTED, and FRIGATE.

WAKE, *houaiche*, the print or track impressed by

the course of a ship on the surface of the water. It is formed by the re-union of the body of water, which was separated by the ship's bottom whilst moving through it and may be seen to a considerable distance behind the stern, as smoother than the rest of the sea. Hence it is usually observed by the compass, to discover the angle of LEE-WAY.

A ship is said to be in the wake, *dans l'eau*, of another, when she follows her on the same track, or on a line supposed to be formed on the continuation of her keel. Thus the ships *a b*, fig. 11. and *a b*, fig. 7. plate V. are all in the wake of the foremost *b*. See the article LINE.

Two distant objects observed at sea are called in the *wake* of each other, when the view of the farthest is intercepted by the nearest; so that the observer's eye and the two objects are all placed upon the same right line.

WALE-KNOT, or WALL-KNOT, a particular sort of large knot raised upon the end of a rope, by untwisting the *strands*, and interweaving them amongst each other. See the article KNOT.

WALE-REARED, an obsolete phrase, implying *wall-sided*, which see.

WALES, *preceintes*, an assemblage of strong planks extending along a ship's side, throughout her whole length, at different heights, and serving to reinforce the decks, and form the curves by which the vessel appears light and graceful on the water.

As the wales are framed of planks broader and thicker than the rest, they resemble ranges of hoops encircling the sides and *bows*. They are usually distinguished into the main-wale and the channel-wale; the breadth and thickness of which are expressed by Q and R in the MIDSHIP-FRAME, plate VII. and their length is exhibited in the ELEVATION,

plate I. where L Q Z is the main-wale, and D R X the channel-wale, parallel to the former.

The situation of the wales, being ascertained by no invariable rule, is generally submitted to the fancy and judgment of the builder. The position of the gun-ports and scuppers ought, however, to be particularly considered on this occasion, that the wales may not be wounded by too many breaches.

WALL-SIDED, the figure of a ship's side, when, instead of being incurvated so as to become gradually narrower towards the *upper part*, it is nearly perpendicular to the surface of the water, like a wall; and hence the derivation of the phrase.

WALT, an obsolete or spurious term signifying *crank*. See that article.

WARP, a small rope employed occasionally to remove a ship from one place to another, in a port, road, or river. And hence,

To WARP, *remorquer*, is to change the situation of a ship, by pulling her from one part of a harbour, &c. to some other, by means of warps, which are attached to buoys; to anchors sunk in the bottom; or to certain stations upon the shore, as posts, rings, trees, &c. The ship is accordingly drawn forwards to those stations, either by pulling on the warps by hand, or by the application of some purchase, as a tackle, windlass, or capstern, upon her deck. See those articles.

When this operation is performed by the ship's lesser anchors, these machines, together with their warps, are carried out in the boats alternately towards the place where the ship is endeavouring to arrive: so that when she is drawn up close to one anchor, the other is carried out to a competent distance before her, and being sunk, serves to fix the other warp by which she is farther advanced.

Warping is generally used when the sails are *unbent*, or when they cannot be successfully employed, which may either arise from the unfavourable state of the wind, the opposition of the tide, or the narrow limits of the channel.

WASH. See the article OAR.

WASH-BOARD, a broad thin plank fixed occasionally on the top of a boat's side, so as to continue the height thereof, and be removed at pleasure. It is used to prevent the sea from breaking into the vessel, particularly when the surface is rough, as in tempestuous weather.

WATCH, *quart*, the space of time wherein one division of a ship's crew remains upon deck, to perform the necessary services, whilst the rest are relieved from duty, either when the vessel is under sail, or at anchor.

The length of the sea-watch is not equal in the shipping of different nations. It is always kept four hours by our British seamen, if we except the *dog*-watch between four and eight in the evening, that contains two reliefs, each of which are only two hours on deck. The intent of this is to change the period of the night-watch every twenty-four hours; so that the party watching from eight till twelve in one night, shall watch from midnight till four in the morning on the succeeding one. In France the duration of the watch is extremely different, being in some places six hours, and in others seven or eight; and in Turky and Barbary it is usually five or six hours.

A ship's company is usually classed into two parties; one of which is called the starboard and the other the larboard watch. It is, however, occasionally separated into three divisions, as in a *road* or in particular voyages.

In a ship of war the watch is generally commanded by a lieutenant, and in merchant-ships by one of the mates; so that if there are four mates in the latter, there are two in each watch; the first and third being in the larboard, and the second and fourth in the starboard watch: but in the navy the officers who command the watch usually divide themselves into three parts, in order to lighten their duty.

WATCH-GLASSES, *horloge*, a name given to the glasses employed to measure the period of the watch, or to divide it into any number of equal parts, as hours, half-hours, &c. so that the several stations therein may be regularly kept and relieved; as at the *helm*, *pump*, *look-out*. &c.

To set the WATCH, is to appoint one division of the crew to enter upon the duty of the watch; as at eight o'clock in the evening. Hence it is equivalent to *mounting the guard* in the army. See the French term BORDÉE.

WATER-BORNE, the state of a ship, with regard to the water surrounding her bottom, when there is barely a sufficient depth of it to float her off from the ground; particularly when she had for some time rested thereon.

For *Dead*-WATER, *Foul* WATER, and *High*-WATER, see DEAD, FOUL, and HIGH.

WATER-LINES, *lignes d'eau*, certain horizontal lines supposed to be drawn about the outside of a ship's bottom, close to the surface of the water in which she floats. They are accordingly higher or lower upon the bottom, in proportion to the depth of the column of water required to float her. See a particular account of these in the article *Naval* ARCHITECTURE.

In order to conceive a clearer idea of the curves of those lines when represented on a plane, let us suppose a ship laid *upright* on a level ground; so that

the keel shall lie in the same position, with respect to the horizon, as when she is laden. We may then describe several black horizontal lines about her bottom, which may be whitened for that purpose.

If a spectator is supposed to be placed, at a competent depth, under the middle of her bottom, in a line perpendicular to the plane of the ground; he will then, viewing the bottom upwards, discover the horizontal curves of all the water-lines.

These curves are all delineated on a plane, supposed to be formed by an horizontal section of the bottom, at the height of the load-water-line, *ligne d'eau du vaisseau chargé*.

WATER-LOGGED, the state of a ship when, by receiving a great quantity of water into her hold, by leaking, &c. she has become heavy and inactive upon the sea, so as to yield without resistance to the efforts of every wave rushing over her decks. As, in this dangerous situation, the center of gravity is no longer fixed, but fluctuating from place to place, the stability of the ship is utterly lost: she is therefore almost totally deprived of the use of her sails, which would operate to overset her, or press the head under water. Hence there is no resource for the crew, except to *free* her by the pumps, or to abandon her by the boats as soon as possible.

WATER-SAIL, a small sail spread occasionally under the lower studding-sail, or driver-boom, in a fair wind, and smooth sea.

WATER-SHOT. See the article MOORING.

WATER-SPOUT, an extraordinary and dangerous meteor, consisting of a large mass of water, collected into a sort of column by the force of a whirlwind, and moved with rapidity along the surface of the sea.

A variety of authors have written on the cause and effects of these meteors, with different degrees of

accuracy and probability. As it would be superfluous to enter minutely into their various conjectures, which are frequently grounded on erroneous principles, we shall content ourselves with selecting a few of the latest remarks; and which are apparently supported by philosophical reasoning.

Dr. Franklin, in his physical and meteorological observations, supposes a water-spout and a whirlwind to proceed from the same cause, their only difference being, that the latter passes over the land, and the former over the water. This opinion is corroborated by *M. de la Pryme*, in the *Philosophical Transactions*; where he describes two spouts observed at different times in Yorkshire, whose appearances in the air were exactly like those of the spouts at sea; and their effects the same as those of real whirlwinds.

Whirlwinds have generally a progressive as well as a circular motion; so had what is called the spout at *Topsham*, described in the *Transactions*; and this also by its effects appears to have been a real whirlwind. Water-spouts have also a progressive motion, which is more or less rapid; being in some violent, and in others barely perceptible.

Whirlwinds generally rise after calms and great heats: the same is observed of water-spouts, which are therefore most frequent in the warm latitudes.

The wind blows every way from a large surrounding space to a whirlwind. Three vessels employed in the whale-fishery, happening to be *becalmed*, lay in sight of each other, at about a league distance, and in the form of a triangle. After some time a water-spout appeared near the middle of the triangle; when a brisk gale arose, and every vessel made sail. It then appeared to them all by the *trimming* of their sails, and the course of each vessel,

that the spout was to leeward of every one of them; and this observation was farther confirmed by the comparing of accounts, when the different observers afterwards conferred about the subject. Hence whirlwinds and water-spouts agree in this particular likewise.

But if the same meteor which appears a water-spout at sea, should, in its progressive motion, encounter and pass over land, and there produce all the phenomena and effects of a whirlwind, it would afford a stronger conviction that a whirlwind and a water-spout are the same thing. An ingenious correspondent of Dr. Franklin gives one instance of this that fell within his own observation[57].

A fluid moving from all points horizontally towards a center, must, at that center, either mount or descend. If a hole be opened in the middle of the bottom of a tub filled with water, the water will flow from all sides to the center, and there descend in a whirl. But air flowing on or near the surface of land or water, from all sides towards a center, must at that center ascend; because the land or water will hinder its descent.

If these concentring currents of air be in the upper region, they may indeed descend in the spout or whirlwind; but then, when the united current reached the earth or water, it would spread, and probably blow every way from the center. There may be whirlwinds of both kinds; but from the effects commonly observed, Dr. Franklin suspects the rising one to be most frequent: when the upper air descends, it is perhaps in a greater body extending wider, as in thunder-gusts, and without much whirling; and when air descends in a spout or whirlwind, he conceives that it would rather press the roof of a house *inwards*, or force in the tiles,

shingles, or thatch, and force a boat down into the water, or a piece of timber into the earth, than snatch them upwards, and carry them away.

The whirlwinds and spouts are not always, though most frequently, in the day-time. The terrible whirlwind which damaged a great part of *Rome*, June 11. 1749. happened in the night; and was supposed to have been previously a water-spout, it being asserted as an undoubted fact, that it gathered in the neighbouring sea, because it could be traced from Ostia to Rome.

The whirlwind is said to have appeared as a very black, long, and lofty cloud, discoverable, notwithstanding the darkness of the night, by its continually lightening, or emitting flashes on all sides, pushing along with a surprising swiftness, and within three or four feet of the ground. Its general effects on houses were, stripping off the roofs, blowing away chimnies, breaking doors and windows, *forcing up the floors, and unpaving the rooms*, (some of these effects seem to agree well with a supposed vacuum in the center of the whirlwind) and the very rafters of the houses were broke and dispersed, and even hurled against houses at a considerable distance, &c.

The Doctor, in proceeding to explain his conceptions, begs to be allowed two or three positions, as a foundation for his hypothesis. 1. That the lower region of air is often more heated, and so more rarified, than the upper; and by consequence specifically lighter. The coldness of the upper region is manifested by the hail, which sometimes falls from it in warm weather. 2. That heated air may be very moist, and yet the moisture so equally diffused and rarified as not to be visible till colder air mixes with it, at which time it condenses and becomes visible.

Thus our breath, although invisible in summer, becomes visible in winter.

These circumstances being granted, he presupposes a tract of land or sea, of about sixty miles in extent, unsheltered by clouds and unrefreshed by the wind, during a summer's day, or perhaps for several days without intermission, till it becomes violently heated, together with the lower region of the air in contact with it, so that the latter becomes specifically lighter than the superincumbent higher region of the atmosphere, wherein the clouds are usually floated: he supposes also that the air surrounding this tract has not been so much heated during those days, and therefore remains heavier. The consequence of this, he conceives, should be, that the heated lighter air should ascend, and the heavier descend; and as this rising cannot operate throughout the whole tract at once, because that would leave too extensive a vacuum, the rising will begin precisely in that column which happens to be lighted, or most rarified; and the warm air will flow horizontally from all parts to this column, where the several currents meeting, and joining to rise, a whirl is naturally formed, in the same manner as a whirl is formed in a tub of water, by the descending fluid receding from all sides of the tub towards the hole in the center.

And as the several currents arrive at this central rising column, with a considerable degree of horizontal motion, they cannot suddenly change it to a vertical motion; therefore, as they gradually, in approaching the whirl, decline from right to curve or circular lines, so, having joined the whirl, they ascend by a spiral motion; in the same manner as the water descends spirally through the hole in the tub before mentioned.

Lastly, as the lower air nearest the surface is more

rarified by the heat of the sun, it is more impressed by the current of the surrounding cold and heavy air which is to assume its place, and consequently its motion towards the whirl is swiftest, and so the force of the lower part of the whirl strongest, and the centrifugal force of its particles greatest. Hence the vacuum which encloses the axis of the whirl should be greatest near the earth or sea, and diminish gradually as it approaches the region of the clouds, till it ends in a point.

This circle is of various diameters, sometimes very large.

If the vacuum passes over water, the water may rise in a body or column therein to the height of about thirty-two feet. This whirl of air may be as invisible as the air itself, though reaching in reality from the water to the region of cool air, in which our low summer thunder-clouds commonly float; but it will soon become visible at its extremities. The agitation of the water under the whirling of the circle, and the swelling and rising of the water in the commencement of the vacuum, renders it visible below. It is perceived above by the warm air being brought up to the cooler region, where its moisture begins to be condensed by the cold into thick vapour; and is then first discovered at the highest part; which being now cooled, condenses what rises behind it, and this latter acts in the same manner on the succeeding body; where, by the contact of the vapours, the cold operates faster in a right line downwards, than the vapours themselves can climb in a spiral line upwards; they climb, however, and as by continual addition they grow denser, and by consequence increase their centrifugal force, and being risen above the concentrating currents that compose the whirl, they fly off, and form a cloud.

It seems easy to conceive, how, by this successive condensation from above, the spout appears to drop or descend from the cloud, although the materials of which it is composed are all the while ascending. The condensation of the moisture contained in so great a quantity of warm air as may be supposed to rise in a short time in this prodigiously rapid whirl, is perhaps sufficient to form a great extent of cloud: and the friction of the whirling air on the sides of the column may detach great quantities of its water, disperse them into drops, and carry them up in the spiral whirl mixed with the air. The heavier drops may indeed fly off, and fall into a shower about the spout; but much of it will be broken into vapour, and yet remain visible.

As the whirl weakens, the tube may apparently separate in the middle; the column of water subsiding, the superior condensed part drawing up to the cloud. The tube or whirl of air may nevertheless remain entire, the middle only becoming invisible, as not containing any visible matter.

Dr. Stuart, in the *Philosophical Transactions*, says, "It was observable of all the spouts he saw, but more perceptible of a large one, that towards the end it began to appear like a hollow canal, only black in the borders, but white in the middle; and though it was at first altogether black and opaque, yet the sea-water could very soon after be perceived to fly up along the middle of this canal like smoke in a chimney."

When Dr. Stuart's spouts were full charged, that is, when the whirling pipe of air was filled with quantities of drops and vapour torn off from the column, the whole was rendered so dark that it could not be seen through, nor the spiral ascending motion discovered; but when the quantity ascending

lessened, the pipe became more transparent, and the ascending motion visible. The spiral motion of the vapours, whose lines intersect each other on the nearest and farthest side of this transparent part, appeared therefore to Stuart like smoke ascending in a chimney; for the quantity being still too great in the line of sight through the sides of the tube, the motion could not be discovered there, and so they represented the solid sides of the chimney.

Dr. Franklin concludes by supposing a whirlwind or spout to be stationary, when the concurring winds are equal but if unequal, the whirl acquires a progressive motion in the direction of the strongest pressure. When the wind that communicates this progression becomes stronger above than below, or below than above, the spout will be bent or inclined. Hence the horizontal process and obliquity of water-spouts are derived.

WATER-WAY, *gouttiere*, a long piece of timber serving to connect the sides of a ship to her decks, and form a sort of channel to carry off the water from the latter by means of scuppers. See that article.

The convexity of the decks, represented by N, M, N, in the MIDSHIP-FRAME, plate VII. necessarily carries the water towards the sides, where this piece is fixed, which is principally designed to prevent the water from lodging in the seams, so as to rot the wood and oakum contained therein. The water-ways N N are therefore hollowed in the middle lengthways, so as to form a kind of gutter or channel, one side of which lies almost horizontally, making part of the deck, whilst the other rises upwards, and corresponds with the side, of which it likewise makes a part. They are scored down about an inch and a half, or two inches, upon the beams, and rest upon lodging-knees or carlings. They are secured by bolts

driven from without through the planks, timbers, and water-ways, and clinched upon rings on the inside of the latter.

The scuppers, which are holes by which the water escapes from off the deck, are accordingly cut through the water-ways.

WAVE, a volume of water elevated by the action of the wind upon its surface, into a state of fluctuation.

Mr. Boyle has proved, by a variety of experiments, that the utmost force of the wind never penetrates deeper than six feet into the water; and it should seem a natural consequence of this, that the water put in motion by it can only be elevated to the same height of six feet from the level of the surface in a calm. This six feet of elevation being then added to the six of excavation, in the part whence that water was raised, should give twelve feet for the greatest elevation of a wave, when the height of it is not increased by whirlwinds, or the interruption of rocks or shoals, which always gives an additional elevation to the natural swell of the waves.

We are not to suppose, from this calculation, that no wave of the sea can rise more than six feet above its natural level in open and deep water; for some immensely higher than these are formed in violent tempests, in the great seas. These, however, are not to be accounted waves in their natural state; but they are single waves composed of many others: for in these wide plains of water, when one wave is raised by the wind, and would elevate itself up to the exact height of six feet, and no more, the motion of the water is so great, and the succession of the waves so quick, that during the time wherein this rises, it receives into it several other waves, each of which would have been of the same height with itself. These accordingly run into the first wave, one after

another as it rises: by this means its rise is continued much longer than it would naturally have been, and it becomes accumulated to an enormous size. A number of these complicated waves arising together, and being continued in a long succession by the duration of the storm, make the waves so dangerous to shipping, which the sailors, in their phrase, call mountains high.

WAY *of a ship*, the course or progress which she makes on the water under sail. Thus, when she begins her motion, she is said to be under way; and when that motion increases, she is said to have fresh way through the water. Hence also she is said to have *head-way* or *stern-way*. See those articles.

WEARING. See the article VEERING.

WEATHER is known to be the particular state of the air with regard to the degree of the wind, to heat or cold, or to driness and moisture.

WEATHER is also used as an adjective, applied by mariners to every thing lying to-windward of a particular situation. Thus a ship is said to have the weather-gage of another, when she is farther to-windward. Thus also, when, a ship under sail presents either of her sides to the wind, it is then called the weather-side; and all the rigging and furniture situated thereon are distinguished by the same epithet; as, the *weather-shrouds*, the weather-*lifts*, the weather-*braces*, &c. See the article LEE.

To WEATHER, is to sail to-windward of some ship, bank, or head-land.

WEATHER-BIT, a turn of the cable of a ship about the end of the *windlass*, without the *knight-heads*. It is used to check the cable, in order to slacken it gradually out of the ship, in tempestuous weather, or when the ship rides in a strong current. See also RING-ROPE.

WEATHER-SHORE, a name given by seamen to the shore lying to the windward.

To WEIGH, denotes in general to heave up the *anchor* of a ship from the ground, in order to prepare her for sailing. See also AWEIGH.

WELL, an apartment formed in the middle of a ship's hold to inclose the pumps, from the bottom to the lower deck. It is used as a barrier to preserve those machines from being damaged by the friction or compression of the materials contained in the hold, and particularly to prevent the entrance of ballast, &c. by which the tubes would presently be choaked, and the pumps rendered incapable of service. By means of this inclosure, the artificers may likewise more readily descend into the hold, in order to examine the state of the pumps, and repair them, as occasion requires.

WELL *of a fishing-vessel*, an apartment in the middle of the hold, which is entirely detached from the rest, being lined with lead on every side, and having the bottom thereof penetrated with a competent number of small holes, passing also through the ship's floor, so that the salt-water running into the well is always kept as fresh as that in the sea, and yet prevented from communicating itself to the other parts of the hold.

WELL-ROOM *of a boat*, the place in the bottom where the water lies, between the ceiling and the platform of the stern-sheets, from whence it is thrown out into the sea with a scoop.

WHARF, a perpendicular building of wood or stone raised on the shore of a road or harbour, for the convenience of lading or discharging a vessel by means of cranes, *tackles*, *capsterns*, &c.

A wharf is built stronger or slighter, in proportion to the effort of the tide or sea which it is to resist,

and to the weight which it is intended to support.

WHARFINGER, the person who has the charge of a wharf, and takes account of all the articles landed thereon, or removed from it, into any vessel lying alongside thereof; for which he receives a certain fee called wharfage, which becomes due to the proprietor for the use of his machines and furniture.

WHEEL *of the helm*. See HELM.

WHELPS. See the article CAPSTERN.

WHIP, a sort of small tackle, either formed by the communication of a rope with a single immoveable block, as fig. 3. plate XI. or with two blocks, one of which is fixed, and the other moveable, as fig. 5. It is generally used to hoist up light bodies, as empty casks, &c. out of a ship's hold, which is accordingly called *whipping* them up. See TACKLE.

To WHIP, is also to tie a piece of packthread, spun-yarn, &c. about the end of a rope, to prevent it from being untwisted and loosened.

Boatswain's WHISTLE. See CALL.

WHOODING. See the article RABBIT.

WINCH, a cylindrical piece of timber, furnished with an axis, whose extremities rest in two channels placed horizontally or perpendicularly. It is turned about by means of an handle resembling that of a draw-well, grind-stone, &c. and is generally employed as a *purchase*, by which a rope may be more conveniently or more powerfully applied to any object, than when used singly, or without the assistance of mechanical powers.

WIND, *vent*, a stream or current of air which may be felt; and usually blows from one part of the horizon to its opposite part.

The horizon, besides being divided into 360 degrees, like all other circles, is by mariners supposed to be divided into four quadrants, called

the north-east, north-west, south-east, and south-west quarters. Each of these quarters they divided into eight equal parts, called points, and each point into four equal parts, called quarter-points. So that the horizon is divided into 32 points, which are called *rhumbs* or *winds*; to each wind is assigned a name, which shews from what point of the horizon the wind blows. The points of north, south, east, and west, are called *cardinal points* and are at the distance of 90 degrees, or eight points from one another.

Winds are either constant or variable, general or particular. Constant winds are such as blow the same way, at least for one or more days; and variable winds are such as frequently shift within a day. A general or *reigning* wind is that which blows the same way, over a large tract of the earth, almost the whole year. A particular wind is what blows, in any place, sometimes one way, and sometimes another, indifferently. If the wind blows gently, it is called a breeze; if it blows harder, it is called a gale, or a stiff gale; and if it blows with violence, it is called a storm or hard gale[58].

The following observations on the wind have been made by skilful seamen: and particularly the great Dr. Halley.

1st. Between the limits of 60 degrees, namely, from 30° of north latitude to 30° of south latitude, there is a constant east wind throughout the year, blowing on the Atlantic and Pacific oceans; and this is called the *trade-wind*.

For as the sun, in moving from east to west, heats the air more immediately under him, and thereby expands it; the air to the eastward is constantly rushing towards the west to restore the equilibrium, or natural state of the atmosphere; and this occasions a perpetual east wind in those limits.

2d. The trade-winds near their northern limits blow between the north and east, and near the southern limits they blow between the south and east.

For as the air is expanded by the heat of the sun near the equator; therefore the air from the northward and southward will both tend towards the equator to restore the equilibrium. Now these motions from the north and south, joined with the foregoing easterly motion, will produce the motions observed near the said limits between the north and east, and between the south and west.

3d. These general motions of the wind are disturbed on the continents, and near their coasts.

For the nature of the soil may either cause the air to be heated or cooled; and hence will arise motions that may be contrary to the foregoing general one.

4th. In some parts of the Indian ocean there are periodical winds, which are called Monsoons; that is, such as blow half the year one way, and the other half-year the contrary way.

For air that is cool and dense, will force the warm and rarefied air in a continual stream upwards, where it must spread itself to preserve the equilibrium: so that the upper course or current of the air shall be contrary to the under current; for the upper air must move from those parts where the greatest heat is; and so, by a kind of circulation, the N. E. trade-wind below will be attended with a S. W. above; and a S. E. below with a N. W. above: And this is confirmed by the experience of seamen, who, as soon as they get out of the trade-winds, generally find a wind blowing from the opposite quarter.

5th. In the Atlantic ocean, near the coasts of Africa, at about 100 leagues from shore between the latitudes of 28° and 10° north, seamen constantly

meet with a fresh gale of wind blowing from the N. E.

6th. Those bound to the Caribbee islands, across the Atlantic ocean, find, as they approach the American side, that the said N. E. wind becomes easterly; or seldom blows more than a point from the east, either to the northward or southward.

These trade-winds, on the American side, are extended to 30, 31, or even to 32° of N. latitude; which is about 4° farther than what they extend to on the African side: Also, to the southward of the equator, the trade-winds extend three or four degrees farther towards the coast of Brasil on the American side, than they do near the Cape of Good Hope on the African side.

7th. Between the latitudes of 4° and 4° south, the wind always blows between south and east. On the African side the winds are nearest the south; and on the American side nearest the east. In these seas Dr. Halley observed, that when the wind was eastward, the weather was gloomy, dark, and rainy, with hard gales of wind; but when the wind veered to the southward, the weather generally became serene, with gentle breezes next to a calm.

These winds are somewhat changed by the seasons of the year; for when the sun is far northward, the Brasil S. E. wind gets to the south, and the N. E. wind to the east; and when the sun is far south, the S. E. wind gets to the east, and the N. E. winds on this side of the equator veer more to the north.

8th. Along the coast of Guinea, from Sierra Leone to the island of St. Thomas, (under the equator) which is above 500 leagues, the southerly and south-west winds blow perpetually: for the S. E. trade-wind having passed the equator, and approaching the Guinea coast within 80 or 100 leagues, inclines

towards the shore, and becomes south, then S. E. and by degrees, as it approaches the land, it veers about to south, S. S. W. and when very near the land it is S. W. and sometimes W. S. W. This tract is troubled with frequent calms, violent sudden gusts of wind, called tornadoes, blowing from all points of the horizon.

The reason of the wind setting in west on the coast of Guinea, is in all probability owing to the nature of the coast, which being greatly heated by the sun, rarefies the air exceedingly, and consequently the cool air from off the sea will keep rushing in to restore the equilibrium.

9th. Between the 4th and 10th degrees of north latitude, and between the longitude of Cape Verd, and the eastermost of the Cape Verd isles, there is a track of sea which seems to be condemned to perpetual calms, attended with terrible thunder and lightnings, and such frequent rains, that this part of the sea is called the *rains*. In sailing through these six degrees, ships are said to have been sometimes detained whole months.

The cause of this is apparently, that the westerly winds setting in on this coast, and meeting the general easterly wind in this track, balance each other, and so produce the calms; and the vapours carried thither by each wind meeting and condensing, occasion the almost constant rains.

The last three observations shew the reason of two things which mariners experience in sailing from Europe to India, and in the Guinea trade.

And first. The difficulty which ships in going to the southward, especially in the months of July and August, find in passing between the coast of Guinea and Brasil, notwithstanding the width of this sea is more than 500 leagues. This happens, because the S.

E. winds at that time of the year commonly extend some degrees beyond the ordinary limits of 4° N. latitude; and besides coming so much southerly, as to be sometimes south, sometimes a point or two to the west; it then only remains to ply to windward: And if, on the one side, they steer W. S. W. they get a wind more and more easterly; but then there is danger of falling in with the Brasilian coast, or shoals: and if they steer E. S. E. they fall into the neighbourhood of the coast of Guinea, from whence they cannot depart without running easterly as far as the island of St. Thomas; and this is the constant practice of all the Guinea ships.

Secondly. All ships departing from Guinea for Europe, their direct course is northward; but on this course they cannot proceed, because the coast bending nearly east and west, the land is to the northward. Therefore, as the winds on this coast are generally between the S. and W. S. W. they are obliged to steer S. S. E. or south, and with these courses they run off the shore; but in so doing they always find the winds more and more contrary; so that when near the shore, they can lie south; but at a greater distance they can make no better than S. E. and afterwards E. S. E.; with which courses they commonly fetch the island of St. Thomas and Cape Lopez, where finding the winds to the eastward of the south, they sail westerly with it, till coming to the latitude of four degrees south, where they find the S. E. wind blowing perpetually.

On account of these general winds, all those that use the West India trade, and even those bound to Virginia, reckon it their best course to get as soon as they can to the southward, that so they may be certain of a fair and fresh gale to run before it to the westward: And for the same reason those homeward-

bound from America endeavour to gain the latitude of 30 degrees, where they first find the winds begin to be variable; though the most ordinary winds in the north Atlantic ocean come from between the south and west.

10th. Between the southern latitudes of 10 and 30 degrees in the Indian ocean, the general trade-wind about the S. E. *by* S. is found to blow all the year long in the same manner as in the like latitudes in the Ethiopic ocean: and during the six months from May to December, these winds reach to within two degrees of the equator; but during the other six months, from November to June, a N. W. wind blows in the tract lying between the 3d and 10th degrees of southern latitude, in the meridian of the north-end of Madagascar; and between the 2d and 12th degree of south latitude, near the longitude of Sumatra and Java.

11th. In the tract between Sumatra and the African coast, and from three degrees of south latitude quite northward to the Asiatic coasts, including the Arabian sea and the Gulf of Bengal, the Monsoons blow from September to April on the N. E.; and from March to October on the S. W. In the former half-year the wind is more steddy and gentle, and the weather clearer, than in the latter six months: and the wind is more strong and steddy in the Arabian sea than in the Gulf of Bengal.

12th. Between the island of Madagascar and the coast of Africa, and thence northward as far as the equator, there is a tract, wherein from April to October there is a constant fresh S. S. W. wind; which to the northward changes into the W. S. W. wind, blowing at times in the Arabian sea.

13th. To the eastward of Sumatra and Malacca on the north of the equator, and along the coasts of

Cambodia and China, quite through the Philippines as far as Japan, the Monsoons blow northerly and southerly; the northern one setting in about October or November, and the southern about May. The winds are not quite so certain as those in the Arabian seas.

14th. Between Sumatra and Java to the west, and New Guinea to the east, the same northerly and southerly winds are observed; but the first half year Monsoon inclines to the N. W. and the latter to the S. E. These winds begin a month or six weeks after those in the Chinese seas set in, and are quite as variable.

15th. These contrary winds do not shift from one point to its opposite all at once; and in some places the time of the change is attended with calms, in others by variable winds: and it often happens on the shores of Coromandel and China, towards the end of the Monsoons, that there are most violent storms, greatly resembling the hurricanes in the West Indies; wherein the wind is so excessively strong, that hardly any thing can resist its force.

All navigation in the Indian ocean must necessarily be regulated by these winds; for if mariners should delay their voyages till the contrary Monsoon begins, they must either sail back, or go into harbour, and wait for the return of the trade-wind.

The relative force of the wind upon a ship's sails, and the epithets by which it is distinguished, as *fair*, *large*, &c. according to the angle which it makes with her course, are explained in the article SAILING.

Reigning WIND. See REIGNING WIND.

To WIND *a ship or boat*, is to change her position, by bringing the stern to lie in the situation of the head; or directly opposite to its former situation.

To WINDWARD, towards that part of the horizon

from whence the wind bloweth.

WINDAGE, the difference between the diameter of a piece of artillery, and the diameter of the shot or shell corresponding thereto. See CANNON and MORTAR.

WINDING *a Call*, the act of blowing or piping upon a boatswain's whistle, so as to communicate the necessary orders of *hoisting*, *heaving*, *belaying*, *slackening*, &c. See the article CALL.

WINDING-TACKLE, a name usually given to a tackle formed of three fixed and two or three moveable sheaves. It is principally employed to hoist up any weighty materials into or out of a ship, in the exercises of lading and delivering. See TACKLE.

WINDLASS, *vindas*, a machine used in merchant-ships to heave up the anchors from the bottom, &c.

The windlass is a large cylindrical piece of timber, fig. 15. plate XII. formed on the principles of the *axis in peritrochio*. It is supported at the two ends by two frames of wood, *a*, *b*, placed on the opposite sides of the deck near the fore-mast, called *knight-heads*, and is turned about in this position as upon an axis, by levers called handspecs, which are for this purpose thrust into holes bored through the body of the machine. See the article HEAVING.

The lower part of the windlass is usually about a foot above the deck. It is, like the *capstern*, furnished with strong *pauls*, *c*, *d*, to prevent it from turning backwards by the effort of the cable, when charged with the weight of the anchor, or strained by the violent jerking of the ship in a tempestuous sea. The pauls, which are formed of wood or iron, fall into notches, cut in the surface of the *windlass*, and lined with plates of iron. Each of the pauls being accordingly hung over a particular part of the windlass, falls eight times into the notches at every

revolution of the machine, because there are eight notches placed on its circumference under the pauls. So if the windlass is twenty inches in diameter, and purchases five feet of the cable at every revolution, it will be prevented from turning back, or losing any part thereof, at every seven inches nearly, which is heaved in upon its surface.

As this machine is heaved about in a vertical direction, it is evident that the effort of an equal number of men acting upon it will be much more powerful than on the capstern; because their whole weight and strength are applied more readily to the end of the lever employed to turn it about. Whereas, in the horizontal movement of the capstern, the exertion of their force is considerably diminished. It requires, however, some dexterity and address to manage the handspec to the greatest advantage; and to perform this the sailors must all rise at once upon the windlass, and, fixing their bars therein, give a sudden jerk at the same instant, in which movement they are regulated by a sort of song or howl pronounced by one of their number.

The most dextrous managers of the handspec in heaving at the windlass are generally supposed the colliers of Northumberland: and of all European mariners, the Dutch are certainly the most aukward and sluggish in this manœuvre.

WINDSAIL, a sort of wide tube or funnel of canvas, employed to convey a stream of fresh air downward into the lower apartments of a ship.

This machine is usually extended by large hoops situated in different parts of its height. It is let down perpendicularly through the *hatches*, being expanded at the lower end like the base of a cone; and having its upper part open on the side which is placed to windward, so as to receive the full current of the

wind; which, entering the cavity, fills the tube, and rushes downwards into the lower regions of the ship. There are generally three or four of these in our capital ships of war, which, together with the ventilators, contribute greatly to preserve the health of the crew.

WINGS, a name given to those parts of a ship's *hold* which are nearest to the sides, or farthest removed from the middle of her breadth.

This term is particularly used in the stowage of the several materials contained in the hold; as, Stow the large casks *amidships*, and the smaller barrels in the wings. See TRIM and STOWAGE.

WINGS are also the skirts or extremities of a fleet when it is ranged into a line a-breast, or when bearing away upon two sides of an angle. Thus the ships a, b. fig. 10. & 11. plate V. are in the wings of their fleet or squadron.

It is usual to extend the wings of a fleet in the day-time, in order to discover any enemy which may fall into their track. To prevent separation, however, they are commonly summoned to draw nearer to the center of the squadron before night, by a signal from the commander in chief, which is afterwards repeated by ships in the intervals.

WOOLDING, *surlier*, (*woelen*, Dut.) the act of winding a piece of rope about a mast or yard, to support it in a place where it may have been *fished* or *scarfed*; or when it is composed of several pieces united into one solid. See MAST.

WOOLDING is also the rope employed in this service. Those which are fixed on the lower masts, are represented in *a*, fig. 1, 2, & 3. plate VI.

TO WORK, *manœuvrer*, to direct the movements of a ship, by adapting the sails to the force and direction of the wind.

A ship is also said to work, when she strains and labours heavily in a tempestuous sea, so as to loosen her joints or timbers. See PITCHING and ROLLING.

WORKING *to windward*, the operation by which a ship endeavours to make a progress against the wind. See BEATING, PLYING, TURNING, and TACKING.

WORMING, *emieller*, the act of winding a rope spirally about a cable, so as to lie close along the interval between every two strands. It is generally designed to support and strengthen the cable, that it may be enabled to sustain a greater effort when the ship rides at anchor; and also to preserve the surface of the cable, where it lies flat upon the ground, near the station of the anchor: particularly in moderate weather.

WRECK, the ruins of a ship which has been stranded or dashed to pieces on a shelf, rock, or lee-shore, by tempestuous weather.

Conclusion of the article Pump.

As we wish to pay all possible attention in this work to every improvement in the marine, we have exhibited in plate VIII. a section of this machine at large, as fixed in a frigate of war, fig. 2. wherein A is the keel, and V the floor timbers, and X the kelson, *a a a* the several links of the chain, *b b* the valves, C the upper wheels, D the lower wheels, *c c* the cavities upon the surface of the wheels to receive the valves as they pass round thereon, *d d* the bolts fixed across the surface of the wheels, to fall in the interval between every two links, to prevent the chain from sliding back.

The links of the chain, which are no other than two long plates of iron with a hole at each end, and

fixed together by two bolts serving as axles, are represented on a larger scale as *a a*. The valves are two circular plates of iron with a piece of leather between them: these are also exhibited at large by *b b*.

Upon a trial of this machine with the old chain-pump aboard the seaford frigate, it appears, in a report signed by rear admiral Sir John Moore, 12 captains, and 11 lieutenants of his majesty's navy, that its effects, when compared with the latter, were as follow.

New Pump.			Old Pump.		
Number of Men.	**Tuns of Water.**	**Seconds of Time.**	**Number of Men.**	**Tuns of Water.**	**Secon of Time**
4	1	43½	7	1	76
2	1	55	4	1	81

The subscribers further certify, that the chain of the new pump was dropped into the well, and afterwards taken up and repaired and set at work again in two minutes and a half; and that they have seen the lower wheel of the said pump taken up to show how readily it might be cleared and refitted for action, after being choaked with sand or gravel; which they are of opinion may be performed in four or five minutes.

X.

XEBEC, a small three-masted vessel, navigated in the

Mediterranean sea, and on the coasts of Spain, Portugal, and Barbary. See fig. 8. plate XII.

The sails of the xebec are in general similar to those of the polacre, but the hull is extremely different from that and almost every other vessel. It is furnished with a strong *prow*, and the extremity of the stern, which is nothing more than a sort of railed platform or gallery, projects farther behind the counter and buttock than that of any European ship.

Being generally equipped as a corsair, the xebec is constructed with a narrow floor, to be more swift in pursuit of the enemy; and of a great breadth, to enable her to carry a great force of sail for this purpose, without danger of overturning. As these vessels are usually very low-built, their decks are formed with a great convexity from the middle of their breadth towards the sides, in order to carry off the water, which falls aboard, more readily by their scuppers. But as this extreme convexity would render it very difficult to walk thereon at sea, particularly when the vessel rocks by the agitation of the waves, there is a platform of grating extending along the deck from the sides of the vessel towards the middle, whereon the crew may walk dry-footed, whilst the water is conveyed through the grating to the scuppers.

When a xebec is equipped for war, she is occasionally navigated in three different methods, according to the force or direction of the wind.

Thus, when the wind is *fair*, and nearly astern, it is usual to extend *square* sails upon the main-mast; and indeed frequently on the fore-mast: and as those sails are rarely used in a scant wind, they are of an extraordinary breadth.

When the wind is unfavourable to the course, and yet continues moderate, the square yards and sails

are removed from the masts, and laid by, in order to make way for the large lateen yards and sails, which soon after assume their place: but if the foul wind increases to a storm, these latter are also lowered down and displaced; and small lateen yards with proportional sails are extended on all the masts.

The xebecs, which are generally armed as vessels of war by the Algerines, mount from sixteen to twenty-four cannon, and carry from 300 to 450 men, two thirds of whom are generally soldiers.

By the very complicated and inconvenient method of working these vessels, it will be readily believed, what one of their captains of Algiers acquainted the author, viz. That the crew of every xebec has at least the labour of three *square-rigged* ships, wherein the standing sails are calculated to answer every situation of the wind.

Y.

YACHT, a vessel of state, usually employed to convey princes, ambassadors, or other great personages from one kingdom to another.

As the principal design of a yacht is to accommodate the passengers, it is usually fitted with a variety of convenient apartments, with suitable furniture, according to the quality or number of the persons contained therein.

The royal yachts are commonly rigged as ketches, except the principal one reserved for the sovereign, which is equipped with three masts like a ship. They

are in general elegantly furnished, and richly ornamented with sculpture; and always commanded by captains in his majesty's navy.

Besides these, there are many other yachts of a smaller kind, employed by the commissioners of the excise, navy, and customs; or used as pleasure-boats by private gentlemen.

YARD, *vergue*, a long piece of timber suspended upon the masts of a ship, to extend the sails to the wind. See MAST and SAIL.

All yards are either square or lateen; the former of which are suspended across the mast at right angles, and the latter obliquely.

The square-yards, fig. 1. plate IX. are nearly of a cylindrical surface. They taper from the middle, which is called the *slings*, towards the extremities which are termed the *yard-arms*; and the distance between the slings and the yard-arms on each side, is, by the artificers, divided into quarters, which are distinguished into the first, second, third quarters, and yard-arms. The middle quarters are formed into eight squares, and each of the end parts is figured like the frustrum of a cone. All the yards of a ship are square except that of the mizen.

The proportions for the length of yards, according to the different classes of ships in the British navy, are as follows:

			Guns.
1000 : gun-deck ::	560 :	main yard expressed by *d*, fig. 1. plate IX. *Note*, the figure represents	100
	559 :		90 80
	570 :		70
	576 :		60
	575 :		50

	561 :		44
1000 : main-yard ::	880 :	fore-yard	100 90 80
	874 :		all the rest.

To apply this rule to practice, suppose the gun-deck 144 feet. The proportion for this length is as 1000 is to 575, so is 144 to 83; which will be the length of the main-yard in feet, and so of all the rest.

1000 : main-yard ::	820 :	mizen-yard	100 90 80 60 44
	847 :		70
	840 :		24

1000 : main-yard ::	726 :	main topsail-yard *e*, fig. 1. plate IX	24
	720 :	all the rest.	

1000 : fore-	719 :		70
	726 :	fore topsail-	24

	715 :		all the rest.
1000 : main topsail-y^{d}. ::	690 :	main top-gall. yard	all the rates.
1000 : fore topsail-y^{d}. ::	696 :	fore top-gall. yard *f*, fig. 1. plate IX.	70
	690 :		all the rest.
1000 : fore topsail-y^{d}. ::	768 :	mizen topsail-yard	70
	750 :		all the rest.

Cross-jack and sprit-sail yards equal to the fore topsail yard.

Sprit topsail yard equal to the fore top-gallant-yard.

The diameters of yards are in the following proportions to their length.

The main and fore yard five sevenths of an inch to a yard. The topsail, cross-jack, and sprit-sail yards, nine fourteenths of an inch to one yard. The top-gallant, mizen topsail, and sprit-sail topsail yards eight thirteenths of an inch to one yard.

The mizen yard five ninths of an inch to one yard.

All studding-sail booms and yards half an inch to one yard in length.

The lifts of the main-yard are exhibited in the

above figure, by *g*; the horses and their stirrups, by *h*, *i*; the reef-tackles and their pendants, by *k*, *l*; and the braces and brace-pendants, by *m*, *n*.

The lateen-yards evidently derive their names from having been peculiar to the ancient Romans. They are usually composed of several pieces fastened together by wooldings, which also serve as steps whereby the sailors climb to the *peek*, or upper extremity, in order to furl or cast loose the sail.

The mizen-yard of a ship, and the main-yard of a bilander, are hung obliquely on the mast, almost in the same manner as the lateen-yard of a xebec, settee, or polacre. See those articles.

To brace the YARDS, *brasser*, is to traverse them about the masts, so as to form greater or lesser angles with the ship's length. See BRACE.

To square the YARDS. See LIFT and SQUARE.

Dock-YARD. See the article DOCK-YARD.

YAW, a name given by seamen to the movement by which a ship deviates from the line of her course towards the right or left in steering.

YAWL, a small ship's boat, usually rowed by four or six oars. See BOAT.

YEOMAN, an officer under the boatswain or gunner of a ship of war, usually charged with the stowage, account, and distribution of their respective stores.

YOKE, a name formerly given to the tiller, when communicating with two blocks or *sheaves* affixed to the inner end of the tiller. It is now applied to a small board or bar which crosses the upper end of a boat's rudder at right angles, and having two small cords extending from its opposite extremities to the *stern-sheets* of the boat, whereby she is steered as with a tiller.

THE END.

SUPPLEMENT and ERRATA.

A.

In the article ABACK, *line* 19. *for* fig. 1. *read* fig. 14. *and in line* 22, *read* fig. 13.

After the ANCHOR is a cock bill, *read* à la veille.

AN-END, *debout*, the situation of any mast or boom, when erected perpendicularly on the plane of the deck, tops, &c. The top-masts are also said to be an-end when they are hoisted up to their usual station, at the head of the lower masts, as in fig. 3. plate VI.

In line 24. *page* 2. *of* Naval ARCHITECTURE, *dele* see the article Elevation, *and line* 21. *under this in the same page, for* plate V. fig. 4. *read* plate IV. fig. 11.

In the explanation of the pieces of the Hull, *page* 6. *of* Naval ARCHITECTURE, *line* 31. *for* sternpost, *read* dead-wood, *and two lines lower, for* sleepers, *read* knees.

In line 34. *page* 9. *of the same article, for* O K, *read* O *k*.

Top-ARMOUR. See the article TOP.

AVAST, the order to stop, or pause in any exercise.

In the article AWEIGH, *after the words* perpendicular direction, *read* as in fig. 6. plate 1.

B.

To BAGPIPE *the Mizen*, is to lay it *aback*, by bringing the sheet to the mizen shrouds.

BILL, the point or extremity of the fluke of an anchor.

BLOCK AND BLOCK, the situation of a tackle when the two opposite blocks are drawn close together, so that the mechanical power becomes destroyed, till the tackle is again *over-hauled* by drawing the blocks asunder.

In the 2d page of the article BOAT, *line* 13. *from the bottom, for* of framed iron, *read* framed of iron.

BOLD, an epithet applied to the sea coast, signifying steep, or abrupt, so as to admit the approach of shipping without exposing them to the danger of being run a-ground, or stranded.

For the articles BOLT and BOOM-IRON, see IRON-WORK, as corrected below.

BONNET, an additional part laced to the bottom of the main sail and fore sail of some small vessels, in moderate winds.

In the article BREAM, *the last line except one, read* or by docking.

In-BULK, *see* LADEN.

BUM-BOAT, a small boat used to sell vegetables, &c. to ships lying at a distance from the shore.

C.

In the article Can-BUOYS, *for* fig. 8. *read* fig. 6. *and in* Nun-BUOYS, *for* fig. 9. *read* fig. 7.

In Can-HOOKS, *dele* and 9.

In the 4th page of the article CANNON, *line 22. for* fig. 17. *read* fig. 10. *and in the 5th page of the same article, line 11. read the figures* 8. and 10.

Line 14. of CAPSTERN, *for* fig. 10. *read* fig. 11. and 12.

CAST-AWAY, the state of a ship which is lost or wrecked on a lee-shore, bank, or shallow.

COMING-TO. See the article TRYING.

COMPLEMENT, the limited number of men employed in any ship, either for navigation or battle.

CROWFOOT, *line 3. for 27. read 28.*

D.

DAVIT, *line 2. for 28. read 29.*

In the explanation of DECK, plate III. *for* L the deck-transom, *read* L the wing-transom, *and nine lines lower, read* Q the wing-transom-knee.

In DIVISION, *line 7. after* cannon, *read* each.

DOUBLE-BANKED, the situation of the oars of a boat when two opposite ones are managed by rowers seated on the same bench, or *thwart*. The oars are also said to be double-banked when two men row upon every single one.

DRAWING, the state of a sail when it is inflated by the wind, so as to advance the vessel in her course.

E.

In the 12th page of the article ENGAGEMENT, *line 18. for* have as many, *read* save as many.

F.

FIRE-SHIP, *line 10. after* bulk-head, *for* I, *read* L.

FLAW, a sudden breeze, or gust of wind.

FLUSH. See the article DECK.

G.

GAMMONING, *line 4. for* fig. 7. *read* fig. 6, 8, and 9.

GRIPE, the same with FORE-FOOT. See that article.

GUY, line 1. *read* to keep steddy.

H.

HAUSER, a large rope which holds the middle degree between the *cable* and *tow-line*, in any ship whereto it belongs, being a size smaller than the former, and as much larger than the latter.

In the 3d page of the article HEAD, *line 26. after* beams, *read* or; *and six lines lower, read* the head, and part, &c.

I.

In the article IRON-WORK, *line 14. dele* as in fig. 1. and 2. plate II. *and two lines lower, for* fig. 4. *read* fig. 1. plate II. *and in the next line, for* fig. 5, 6, and 39. *read* fig. 3, and 39. *Seven lines below this, after* barbs, *read* fig. 2. *and in the 2d line from the bottom, for* fig. 7. *read* fig. 5.

K.

To KEEP-OFF *for* alargeer, *read* alarguer.

In line 9. of the article KETCH, *after* war, *read see* fig. 5. plate VII.

L.

LANCH, the order to let go the *top-rope*, after any top mast is *fidded*.

LEDGES, certain small pieces of timber placed *athwart-ships*, under the decks of a ship, in the intervals between the beams, as exhibited in the representation of the deck, plate III.

LEDGE, is also a long ridge of rocks, near the surface of the sea.

Line 10. of the article LINE, *for* fig. 5. *read* fig. 6.

M.

MIDSHIPMAN, *line 4. for* all other, *read* several other.

In page 2d of the article MORTAR, *line 9. after* distance, *read* from the object, &c. *and in page 3. of the same article, line 2. for* fig. 14. plate VII. *read* fig. 5. and 20. plate VII. the former of which exhibits the transverse section of a bomb-vessel, with the mortar fixed in its place, at an elevation of forty-five degrees. See RANGE.

Q.

QUARTERING-WIND. See the article SAILING.

R.

RACK, *rasteau*, a frame of timber, containing several *sheaves*, and usually fixed on the opposite sides of a ship's bow-sprit, to direct the sailors to the respective ropes passing through it, all of which are attached to the sails on the bowsprit.

In page 4. of the article RATE, *line 14. for* without, *read* to avoid.

After the article RIDING, *read*, a rope is said to ride, when one of the turns by which it is wound about the *capstern* or *windlass* lies over another, so as to interrupt the operation of heaving.

S.

SALLY-PORT. See the article FIRE-SHIP.

SCUD, a name given by seamen to the lowest and lightest clouds, which are most swiftly wafted along the atmosphere by the winds.

SHALLOP, a sort of large boat with two masts, and

usually rigged like a *schooner*.

SHIVERING, the state of a sail when it shakes or flutters in the wind, as being neither *full* nor *aback*, but in a middle degree, between both, as well with regard to its absolute position, as to its relative effect on the vessel.

In line 9. of the article STERN, *for* fig. 1. *read* fig 3. *and thirteen lines lower, after* third transoms, *dele* with *l*, *m*, *n*, *o*, four intermediate transoms, *and read* the 4th, 5th, and 6th transoms are placed immediately under these: and that which lies between the wing and deck-transoms, is called the filling-transom.

T.

THICK-STUff. See the articles Ship-BUILDING and MIDSHIP-FRAME.

In page 2. of the article TOP, *line 19. for* fig. 2. plate VI. *read* fig. 1. plate IX.

A TRANSLATION OF THE PHRASES AND TERMS OF ART IN THE FRENCH MARINE.

ERRATA.

In the Article

ALLER en course, read, in search of an enemy.

AMURÉ, r. larboard or starboard-tacks.

BARRES *de panneaux*, &c. r. under the covers of the hatchways.

CHEVILLE *œillets*, &c. r. CHEVILLE *à œillets*, &c.

CLEF *des etains*, for cheek, r. chock.

CORDE *de retenue* (art. 2d.) r. also the pendant, &c.

COUP *de partance*, r. as a signal, &c.

For DEPLOER, r. DEPLOIER.

FAIRE *honneur*, for *a quelqu'* r. *à quelqu'*, &c.

FAIRE *le petit*, r. FAIRE *la petit*, &c.

FERS, r. *de boute-dehors*.

FILET, &c. for *merlin*, a marling, r. *merlin*, marline, &c.

For *La lune à* MANGÉ, r. *la lune a* MANGÉ, &c.

MARCHE-PIED, for draw their boats, r. drawboats, &c.

OLOFÉE, for spring, r. springing, &c.

PACFI, after PAfi, r. a course, *as le grand* &c.

PIECE *de charpente*, for pieces, r. piece.

POMPE, for *Vénitienne*, r. *Vénetienne*.

Longue RIME, for along stroke, r. a long stroke.

After SOU-BARBE, r. the bob-stay; also a bracket, &c.

SOULIE, for on shore, r. or shore.

TIERS *point*, for LATEEN, r. LATINE.

TREMUE, for comeings, r. coamings.

A

TRANSLATION

OF

French Sea Terms and Phrases.

A.

ABATÉE, or ABBATÉE, fallen off to a certain point; expressed of a ship when she lies by, with some of her sails aback.

ABATTRE, to bear away, to drive, to edge farther to leeward.

ABATTRE *un vaisseau*, to heave down or careen a ship.

*Le vaisseau s'*ABAT, the ship drives or falls to leeward. This phrase is more peculiar to the motion of a ship when her anchor is loosened from the ground.

ABORDAGE, the shock or concussion produced by two vessels striking each other in battle or otherwise; also the assault of boarding.

*Aller à l'*ABORDAGE, *sauter à l'*ABORDAGE, to board or enter an enemy's ship in an hostile manner.

ABORDER, to fall or drive aboard a ship, by accident, or neglect of the steersman; spoken of two vessels when one or both are under sail, or otherwise in motion.

ABORDER *un vaisseau de bout au corps*, to lay a ship aboard by running the bowsprit over her waist.

ABOUGRI, or RABOUGRI, cross-grained, or knotty; a term applied by shipwrights to timber which is, by this quality, rendered unfit for ship-building.

ABOUT, the butt or end of any plank: also the place where the ends of two planks are joined on the ship's side, &c.

ABRI, a place of anchorage under shelter of the weather-shore. Hence

ABRIÉ, becalmed, sheltered from the wind.

ACASTILLAGE, or rather ENCASTILLAGE, a general name for the quarter-deck, poop, and fore-castle. Hence *accastillé* answers to deep-waisted.

ACCLAMPER, to fortify a piece of wood by attaching another piece thereto; as the fishes which are fixed on the masts.

ACCON, a small flat-bottomed boat, for fishing of cockles.

ACCORD, the order to pull together on a rope or tackle; also to row together, or pull uniformly with the oars.

ACCORDS, or ACCORES, props or shoars fixed under a ship's wales, to keep her upright, before she is launched, or when she is brought into dock, or laid aground.

ACCORD *droit*, an upright shoar or prop.

ACCORER, to prop or sustain any weighty body, as a ship on the ground.

ACCOSTE, come aboard, or come along-side; the order given to a small vessel or boat, to approach a ship.

ACCOSTER, or ACCOTER, to pull or thrust any

thing near or close to some other, as the two blocks of a tackle, &c.

ACCOSTER *les huniers ou les perroquets*, to haul home the top-sail sheets, or top-gallant sheets.

ACCOTAR, the gunnel-plank of a ship. See PLATBORD.

ACCOURSIE, a passage formed in a ship's hold, by a separation of her stores, cargo, or provisions, when she is laden, to go fore and aft, as occasion requires.

ACCROCHER, the act of boarding and grappling an enemy's ship.

ACCUL, the depth of a bay, or small road,

ACCULEMENT, the concavity and figure of those timbers which are placed upon the keel, towards the extremities of a ship.

ACROTERE, a cape, head-land, or promontory.

ACTE *de delai*, an act by which a debtor loses all his effects by shipwreck.

ADIEU-VA, an expression of command, used by the master or pilot, to bid the ship's crew prepare for tacking, or veering, when the course is to be changed.

ADDONER, to scant, or veer forward; expressed of the wind when it becomes unfavourable.

AFFALE, the order to lower or let down any thing.

AffALÉ, to be embayed, or forced, by the violence of the wind, or current, near to a lee shore.

AFFALER, to lower any thing by a tackle, as a yard, sail, cask, &c.

AFFINE, it clears away, or becomes fair: understood of the weather, after having been cloudy or overcast for some time.

AFFOLÉE, erroneous or defective; spoken of a magnetical needle which has lost its virtue.

AFFOURCHER, to moor, or let go a second anchor, so that a ship may ride between the two, which will bear an equal strain.

AFFRANCHIR, to free the ship, or clear her hold of water by the pumps.

AFFRÉTEMENT, the freight of a merchant-ship. Hence

AFFRETER, to freight.

AFFUT *de mer*, the carriage of a cannon used at sea.

AGITER, to swell, or run high; expressed of a turbulent sea.

AGRÉER, to rig a ship, or equip her with yards, sails, rigging, &c.

AGREILS, or AGRÈS. There is no sea-term in English which answers to this expression, in its full extent; unless we adopt the obsolete word *Tackling*, which is now entirely disused by our mariners. The French term comprehends the rigging, yards, sails, blocks, cables, and anchors; and is probably better translated, machinery or furniture.

AIDE *major*, an officer whose duty resembles that of our adjutant of marines.

AIDE *de canonnier*. See CANONNIER.

AIGU, sharp or narrow towards the two ends, afore and abaft.

AIGUADE, a watering-place for shipping; also the

provision or quantity of fresh water necessary for a sea-voyage.

AIGUILLE, part of a ship's cut-water. See EPERON. This term appears to be obsolete, as it is not once mentioned by M. Du Hamel, who is very minute in describing the several pieces of the cut-water.

AIGUILLE also implies a top-mast, or such like piece of timber employed to support a lower-mast, in the act of careening.

AIGUILLE *de fanal*, an iron crank or brace, used to sustain the poop-lanthern.

AIGUILLE *aimantée*, the magnetical needle.

AIGUILLES *de tré* or *de trevier*, sail-needles, bolt-rope-needles.

AIGUILLETES. See PORQUES.

AILURES. See ILLOIRES.

AIMANT, the magnet or loadstone.

AIR *de vent*, the point of the compass in which the wind fits.

AISEMENT, a place of convenience in the gallery or head of a ship.

AISSADE, that part of the poop where the ship's breadth begins to diminish as it approaches the stern.

A LA BOULINE, close hauled. See ALLER *à la bouline*.

ALARGUER, to sheer off; to sail aloof from the shore or some contiguous object.

A L'AUTRE, an exclamation pronounced by the sailors of the watch, at the striking of the watch-

bell, every half hour to signify to the pilot that they keep a good look-out. See LOOK-OUT AFORE.

ALIDADE, the index of a nocturnal or sea-quadrant. See OCTANT.

ALIZÉ, the reigning wind of a particular season or region.

ALLEGE, a lighter or pram.

ALLÉGER *un vaisseau*, to lighten a ship by taking out part of her lading.

Alléger *le cable*, to buoy up the cable by attaching barrels, or pieces of timber, to it lengthwise, to float it up from a rocky or foul ground: also to veer away the cable.

ALLER *à la bouline*, to sail close by the wind, or close hauled.

ALLER *à grasse bouline*, to sail with the wind upon the beam, or large.

ALLER *à la derive*, to try under bare poles, or to try a hull. See DÉRIVE.

ALLER *au plus près du vent*, to sail as near the wind as possible.

ALLER *de bout au vent*, to go head to wind, to sail right in the wind's eye.

ALLER *en course*, to cruise against, or in search of, an enemy.

ALLER *entre deux écoutes*, to sail right afore the wind, or with both sheets aft.

ALLER *vent largue*, to sail large, or with a large wind.

ALLER *terre à terre*, to coast, or sail along shore.

ALLONGE, a futtock, or top-timber. See COUPLE and VARANGUE.

ALMADIE, a small African canoe, formed of the bark of a tree.

ALONGER *un vaisseau*, to lay a ship along-side of another.

ALONGER *le cable*, to haul up a range of the cable upon deck.

ALONGER *la vergue de civadiere*, to get the sprit-sail yard fore and aft under the bowsprit.

ALONGER *la terre*, to sail along shore.

AMARQUE, the beacon, or buoy, of a shoal, flat, or sand-bank.

AMARRAGE, the ground-tackling, or furniture for mooring a ship.

*Ligne d'*AMARRAGE, a seising or lashing.

AMARRE, the order to fasten or belay a rope.

AMARRE *de bout*, the head-fast, the head-cable, or hawser with its anchor.

AMARRER, to make fast, seise, or belay.

AMATELOTER, to mess together, to associate as comrades or mess-mates.

AME *d'un gross cordage*, the middle strand of a four stranded rope.

AMENER, to lower or strike. Hence AMENE, lower away, or strike.

AMENER *une terre*, to make the land, &c.

AMIRAL, Admiral. Hence

AMIRAUTÉ, the admiralty.

AMOLETTES or AMELOTES, the bar-holes of the capstern or windlass.

AMORCER, to prime a cannon or other fire-arm.

AMPOULETTE, the watch-glass, kept in the binacle.

AMURÉ *à babord*, or *à stribord*, to have the larboard tacks aboard.

AMURER, to haul aboard the main or fore-tack.

AMURER *la grand voile*, to bring aboard the main tack. Hence

AMURER *tout bas* implies to get the tacks close aboard, or down as close as possible.

AMURES. See DOGUE *d'Amure*.

AMURES *d'une voile*, the tacks of boom-sails and stay-sails.

ANCETTES, the bow-line cringles in the bolt-rope of a sail.

ANCRE, an anchor. Hence ANCRAGE, the duty of anchorage. See MOUILLAGE.

ANCRE *à demeure*, a large anchor sunk in a road or harbour, to warp ships in and out, or ride them a short time.

ANCRE *à la veille*, an anchor which is ready to be sunk from the ship.

ANCRE *de flot*, & ANCRE *de jussant*, the flood-anchor and ebb-anchor.

ANCRE *de terre*, the shore-anchor, or that which lies towards the shore.

ANCRE *du large*, the sea-anchor, or that which lies towards the offing.

*L'*ANCRE *a quitté*, *l'*ANCRE *est dérangée*, the anchor

is a-trip, or a-weigh.

*L'*ANCRE *est au bossoir*, the anchor is at the cat-head.

*A l'*ANCRE, see VAISSEAU *à l'ancre*. *Bosser l'*ANCRE, see BOSSER. *Caponner l'*ANCRE, see CAPON.

*Faire venir l'*ANCRE *à pic*, or *à pique*, *virer à pic*, to heave a-peek upon the anchor.

*Gouverner sur l'*ANCRE, to sheer the ship to her anchor, when heaving a-head.

*Lever l'*ANCRE, to heave up the anchor, to weigh.

Chasser sur les ANCRES, to drag the anchors, to drive at anchor.

Filer sur les ANCRES. See FILER.

Leve l'Ancre avec la chaloupe, go and weigh the anchor with the long-boat.

*Leve l'*ANCRE *d'affourché*, the order to veer away one cable, and heave upon the other.

ANCRER, or *Jetter l'ancre*, *Mouiller l'ancre*, or simply *Mouiller*, *Donner fond*, *Mettre*, or *Avoir le vaisseau sur le fer*, *Toucher*, *Laisser tomber l'ancre*. All these terms are synonimous, and signify to bring up, to anchor, to come to anchor, or to let go the anchor.

ANGE, chain-shot.

ANGUILLERES, ANGUILLES, or ANGUILLÉES, *Lumieres*, *Vitonnieres*, synonimous terms, which signify the limber-holes.

ANNEAU *pour attacher les vaisseaux*, a mooring-ring on a wharf, buoy, &c.

ANNEAU *de corde*, a slipping-noose, a running bowline-knot.

ANNEAUX *d'écoutilles*, or *boucles*, ring-bolts of the deck, &c.

ANNEAUX *d'étai*, the hanks of a stay-sail. See DAILLOTS.

ANNEAUX *de sabords*, ring-bolts of the gun-ports.

ANORDIE, a northerly storm peculiar to the gulph of Mexico, and the adjacent coasts, at certain seasons of the year, called by the English Creoles, a North.

ANSE, a bight or small bay.

ANSPECT, a handspike or lever.

ANTENNE, a lateen sail-yard. See VERGUE.

ANTOIT, a crooked instrument of iron, used to bind the side-planks round the timbers in ship-building. English artificers perform this operation by wraining-bolts and staffs.

A PIC, a-peek, perpendicularly above the anchor, with a tight cable.

APIQUER *une vergue*, to top a sail-yard, or peek it up.

APLESTER, or APLESTRER, to unfurl and set the sails, ready for putting to sea.

APOSTIS, the row-locks of a galley.

APOTRES, the hawse-pieces of a ship.

APPARAUX, or APARAUX, the whole furniture of a ship, as the sails, yards, blocks, anchors, cables, helm, and artillery. This term is therefore more comprehensive than *Agrès*, and less so than *Equippement*, which, besides the above, includes the seamen, soldiers, and their provision.

APPARCELADO, a flat, equal and uniform bottom of the sea.

APPAREIL *de carene*, the careening-purchases; also the necessary implements and materials employed in careening.

APPAREIL *de pompe*, the pump-gear, as the boxes, brake, spear, &c.

APPAREILER, to make ready for sailing, to get under sail.

APPARTEMENT, a birth, cabin, or store room, in a ship.

APPOINTÉ, a mariner whose passage is paid by the state, and who is not obliged to work in the ship that carries him.

APPROCHER *du vent*. See ALLER *à la bouline*.

AQUE, or ACQUE, a sort of flat bottomed lighter employed on the Rhine.

ARAIGNÉES, the crow-feet of the tops.

ARAMBER, to close in with a ship and grapple her.

ARBALETE, a cross-staff or fore-staff.

ARBALETRIERE, a platform, or gangway, on which the soldiers stand to fire their musquetry in a row-galley.

ARBORER *un mât*, to step or set up a mast, to get the mast an end.

ARBORER *un pavillon*, to hoist and display a flag or ensign.

ARBRE, a mast, in the dialect of Provence. See MAT.

ARC, or *ligne courbe de l'éperon*, the curve of the

prow or cutwater.

ARCANNE, a sort of red chalk used by shipwrights in France, to mark the timber in hewing or forming it.

ARCASSE, the stern of a ship; also the shell of a block.

ARCBOUTANT, a spar or small mast; more particularly, a boom to extend the bottom of a studding-sail, square-sail, or driver.

ARCBOUTANT *d'échafaud*, the prop or shoar of a scaffold used in ship-building.

ARCEAUX, a name formerly given to the rails of the head. See LISSE *de poulaine*.

ARCENAL *de marine*, a royal dock-yard, with its warren or gun-wharf.

ARCHE, a thin covering of lath or shingle, and sometimes of rope, which cases the ship's pump like a sheath, to preserve and keep it tight.

ARCHIPOMPE, the pump-well.

ARCHITECTURE *navale*, the art of ship-building.

ARDENT, a corposant, or meteor, often seen at sea in a storm. See FEU *St. Elme*.

ARDENT, the quality of griping in the steerage, or carrying a weatherly helm.

ARER, or CHASSER, to chase. See CHASSER.

ARGANEAU, or ORGANEAU, a ring-bolt of the deck or sides of a ship.

ARGANEAU *d'ancre*, the anchor-ring.

ARGOUSIN, a petty officer in the gallies, whose duty it is to fix on, or take off the shackles of the

slaves, and to prevent them from escaping. It answers nearly to the corporal of a ship of war. See PREVÔT.

ARISER *les vergues*, to strike the lower yards down upon the gunnel.

ARMADILLE, a small squadron of Spanish frigates of War, usually employed to guard the coast of New Spain, and prevent illicit trade.

ARMATEUR, a privateer or cruiser. See CORSAIRE.

Vaisseau ARMÉ *en guerre*, a merchant-vessel fitted for war, and furnished with a letter of marque to cruise against the enemy.

ARMÉE *navale*, a naval armament, a fleet of ships of war.

ARMEMENT, the equipment or fitting out of a ship of war, or merchantman, for a cruise, or voyage.

*Etat d'*ARMEMENT, a list of the officers intended to serve in a squadron of men of war.

ARMER *les avirons*, to ship the oars ready for rowing.

ARMER *un vaisseau*, to arm a ship for war, or equip her for a voyage.

ARMURIER, the armourer of a vessel of war.

ARONDELLES *de mer*, a general name for small vessels, as brigs, settees, tartans, &c.

ARQUÉ, broken-backed or hogged, drooping at the stem and stern.

ARRET *de vaisseaux* & *fermetures de port*, an embargo laid on shipping,

ARRIERE, abaft; the hind part of a ship.

Faire vent ARRIERE, to bring the wind aft, or astern.

ARRIERE-GARDE *d'une armée navale*, the rear-division of a fleet of vessels of war.

ARRIMAGE, the stowage or disposition of the cargo in the hold.

ARRIMER, to stow the hold, to trim the ship by her stowage. Whence

ARRIMEUR, a stower.

ARRISER, or AMENER. See AMENER.

ARRIVAGE, an arrival of merchandise in a port or haven.

ARRIVE, the order to put the helm a-weather, bear away, or edge farther to leeward.

ARRIVE *tout*, hard a-weather. The order to put the helm close to windward.

*N'*ARRIVE *pas*, don't fall off; loft.

ARRIVÉE, the movement of veering or bearing away.

ARRIVER, to bear away before the wind. Hence

ARRIVER *sur un vaisseau*, to bear down on a ship.

ARRIVER *beaucoup*, to veer apace.

ARTILLÉ, or ARTILLIÉ, mounted with cannon: as, *vaisseau* ARTILLIÉ *de trents pieces*, a ship mounting thirty guns.

ARTIMON, the mizen-mast, also the mizen itself.

ASPECT, the looming or perspective view of the land from the sea.

ASSECHER, *etre à sec*, to appear dry, as a rock or shore when the tide of ebb has retreated from it.

ASSEMBLER, to unite the several pieces of a ship, as by rabbiting, scarfing, scoring, tenanting, &c.

ASSUJETTIR, to fix a piece of timber firmly in its place, in shipbuilding.

ASSURANCE, a contract or policy of insurance.

*Pavillon d'*ASSURANCE, a flag or signal of peace.

ASSURER, to insure a vessel against the dangers of the sea, &c.

ASTROLABE, a nocturnal.

A TRAIT & *à rame*, to go with sails and oars.

ATTEINDRE, to join a ship at sea, either by accident or pursuit.

ATTELIER *de Construction*, a shed or store-house to contain shipwrights tools; a loft or work-house near the dock; a wharf, or place for building sea-vessels.

ATTÉRAGE, a land-fall. Whence

ATTERIR, to make the land.

ATTERRISSEMENT, a mound or bank of earth thrown up near the margin of a river, by violent freshes or storms.

ATTOLONS, a cluster of keys or small islands, a chain of rocks.

ATTRAPE, the pendant or guy of the relieving tackle used in careening a ship. See CORDE *de retenue*.

AVAL. See AVAU *l'eau*.

AVANT, forward, afore, ahead.

*Etre de l'*AVANT, *se mettre de l'*AVANT, to be in the van of, or ahead in, a fleet.

*Le vaisseau est trop sur l'*AVANT, the vessel is too much by the head.

AVANTAGE, the head, with its cutwater or prow. See EPERON.

AVANTAGE *du vent*, to be to windward of some other ship.

AVANT-GARDE, the van of a fleet of vessels of war.

AVARIE, the damage or loss which a ship may have sustained, by accidents or bad weather, in her voyage; also the duty paid for anchoring in a port.

AVASTE, avast.

AVAU *l'eau*, to sail with the tide, to tide it up or down a river.

AUBALÉTRIERES, a sort of stanchions or pillars erected on the sides of a row-galley, to support the rails of the gang-way, and form the bed-place of a soldier.

AUBIER, the sap of timber.

AUBINET, or *Saint* AUBINET, no man's land.

AUGE *à goudron*, a tar-bucket.

AVIRON, an oar. See RAME.

AVITAILLEMENT, or AVICTUAILLEMENT, the sea-victualling or provision of a ship.

AVITAILLEUR, or AVICTUAILLEUR, an agent-victualler, or contractor for supplying a ship with sea-provisions.

AU LOF, luff. The order from the pilot to steer nearer the wind. See OLOFÉE.

AUMONIER, the sea-chaplain.

AVOCAT *Fiscal*. See FISCAL.

AVOIER, to rise, to freshen; expressed of the wind when it has changed.

AVOIR *gagné*, to have fore-reached, or gained upon; spoken of a vessel, relatively to some other in sight.

AVOIR *le pied marin*, to have good sea-shoes aboard, to walk firm in a ship like a sailor.

AVOIR *pratique*, to have pratic, or free intercourse with the natives, after having performed quarantine.

AVOIR *vent arriere*, to have the wind aft.

AVOIR *vent de bout*, to have the wind right an end, or a head. See ALLER *de bout*, &c.

AU *plus pres de vent*, close upon a wind. See ALLER *au plus pres*, &c.

AUSSIERE, or HAUSIERE, a hawser or small cable.

AUTAN, a gust or squall of wind from the south.

AUTARELLES, the thoules or rowlock-pins of a galley.

AVUSTE, or AJUSTE, a bend, or knot, by which the ends of two ropes are fastened together.

AVUSTER, to bend or tie two ends of ropes together.

B.

BABORD. See BAS-BORD.

BAC, a large flat-bottomed ferry-boat, for horses, carriages, &c.

BAC *a naviger*, a punt, or small boat, used by the shipwrights to carry tar, pitch, &c.

BACALAS, cleats of various kinds.

BACALIAU, a name given to dried salt cod-fish.

BACASSAS, a sort of lighter, somewhat resembling an American periagua.

BACHE, or BACHOT, a yawl or wherry.

BACLAGE, a tier of boats, moored along-side of each other.

BACLER *les ports*, to fortify harbours by fixing chains or booms athwart their entrances; also to bar in the gun ports of a ship.

BAGUE, a small grommet, or wreath of an eye-let hole in a sail.

BAIE. See BAYE.

BAILLE, an half-tub used to contain shot, grenades, matches, &c. also to hold water for cooling the guns in time of action, or to freshen the salt provisions.

BAJOU, or BAJON, a sort of tiller.

BAISSER, to fall down with the tide, to drive or be carried along, according to the course of the stream.

BAISSER *le pavillon*. See AMENER.

BAISSER *les voiles*, to lower the sails.

BALAI *du ciel*, the sweeper of the sky; a name given by sailors to the north-west winds of America, which always bring clear weather.

BALANCIER *de lampe*, the rings by which the lamp is slung in the binacle.

BALANCIERS *de compas*, or *de boussole*, the gimbals of a sea-compass, by which it is hung in equilibrio.

BALANCINES, or VALANCINES, lifts of the yards.

BALANCINE *de chaloupe*, the topping-lift of a boat.

BALANT, the bight or slack part of a rope, also the part which is unemployed.

BALAST. See LEST.

BALAYEUR *d'un navire*, the swabber or sweeper of a ship, usually called captain-swabber.

BALCONS, the galleries framed in the stern or quarter of a great ship.

BALISE, a sea-mark, the beacon or buoy of a shoal or dangerous channel.

BALOIRES, a name sometimes given to water-lines, and to horizontal ribbands. See LIGNE *d'eau*.

BALON, a sort of galley or barge of Siam.

BANC, a sand-bank; also the bench, thwart, or beam of a boat.

BANC *à s'asseoir*, the seats or benches placed in the stern-sheets of a boat or small vessel.

BANC *à coucher*, a sort of folding bed-stead, or settee-bed.

BANCS *de rameurs*, the thwarts or seats of the rowers in a galley or row-boat.

BANCHE, a ridge or reef of rocks, under the surface of the water.

BANDE, the side of a ship; also a coast, or the side

of a river. Hence

BANDE *du nord*, the northern shore, &c.

Avoir son vaisseau à la BANDE, to have his ship laid on the careen.

BANDE *de sabords*, a tier of gun-ports on one side of a ship.

BANDER *une voile*, to line a sail at the edges in order to strengthen it.

BANDIERES, the flag or colours: this term is peculiar to the gallies.

BANDINS, a sort of stancheons or small pillars, ornamented with sculpture, and used to support the after-canopy or awning of a row-galley.

BANDOULIERE, a cartridge-box for musquetry, used by the marines or others who fight with small arms.

BANNEAU. See BOUÉE.

BANNIERE, a Levantine term for the colours. See BANDIERE.

BANQUE, a banker, or vessel which fishes on the banks of Newfoundland, &c.

BANQUETTES, the stretchers of a galley or row-boat.

BAPTEME, the ceremony of ducking a sailor the first time he passes the line, or tropics, from which he may be redeemed by paying a certain forfeit. Hence

BAPTISER, to duck, &c.

BAPTISER *un vaisseau*, to give a ship her name at the time of launching.

BARAT, or BARATERIE, the forfeiture or fine paid by the master of a ship and his crew, for embezzling part of the cargo, or suffering it to be damaged by neglect of stowage, &c.

BARBE. See SAINTE-BARBE.

BARBES *d'un vaisseau*, the entrance or fore-foot of a ship.

BARBEYER, to touch or shiver; expressed of a sail when shaking in the wind.

BARCES, a short cannon, resembling a falconet, formerly used at sea.

BARCO-LONGO, a Spanish coasting-boat.

BARDIS, water-boards or weather-boards.

BARDIS also implies the partitions occasionally formed in the hold to separate different species of grain, when the ship is laden therewith, &c.

BARGE, an old word for skiff or yawl.

BARIL, BARILLAGE, BARIQUE, small casks of different sizes.

BARIL *de poudre*, a powder cask, containing an hundred pounds of gun-powder.

BARILLARD, the steward, or officer who has charge of the wine and water on board of a vessel. This term is peculiar to the galleys.

BARIQUES *a feu*, or *foudroyantes*, thundering-barrels, or casks which contain the fire-pots in a fire ship.

BARQUE, a settee, or three-masted vessel with lateen sails.

BARQUE *à eau*, a watering-boat, or vessel employed

for carrying water.

BARQUE *d'avis*, an advice-boat.

BARQUE *de descente*, a sort of lighter.

BARQUE *de vivandier*, a provision-boat, a bumboat.

BARQUE *droite*, the order to trim the boat upright, when she heels.

BARQUE *en fagot*, a boat in frame, an assemblage of all the pieces of a boat, ready formed and put on board a ship, in order to build her at the place where she may be required.

BARQUE *longue*, or *double chaloupe*, a sort of pinnace, or large long-boat.

BARQUEROLES, BARQUETTE, or BARCANETTE, a sort of passage boats.

BARRE, the bar of a harbour; also a chain of rocks.

BARRE *à bord*, hard over; the order to put the helm close to the ship's side.

BARRE *d'arcasse*, a transom. See LISSE *de hourdi*.

BARRE *de gouvernail*, the tiller of the helm.

BARRE *de gouvernail toute à bord*, the whole force of the helm when the tiller is hard a-starboard, or hard a-port.

Change la BARRE, the order to the steersman to shift the helm.

Pousse la BARRE *à arriver*, no nearer, put the helm a-weather.

Pousse la BARRE *à venir au vent*, luff, or keep your luff.

BARRE *de pompe*, the pump-spear.

BARRE *de pont*, the deck-transom, parallel to the wing-transom.

BARRER, to secure; as, BARRER *un port*, to secure or defend a harbour, by fixing a boom across the mouth of it.

BARRES, the booms or chains fixed across a harbour, to secure it from the assaults of an enemy.

BARRES *de cabestan*, the bars of the crab or capstern.

BARRES *de contre-arcasse*, or *sous-barres d'arcasse*, the lower transoms.

BARRES *d'écoutille*, the hatch-bars.

BARRES *de hune*, *barreaux*, or *tesseaux*, the frames of the cross-trees and tressel-trees.

BARRES *de panneaux d'écoutille*, the carlings, or ledges placed athwart under the hatchways.

BARRES *de porte*, the gun-port bars, by which their covers are fastened in.

BARRES *de virevaut*, the hand-spikes, or bars of the windlass.

BARRILLARD. See BARILLARD.

BARROTE, full to the beams; an epithet given to a vessel which is laden up to the beams of her deck. Whence

BARROTER, to lade a ship, &c.

BARROTS, the beams of the higher decks.

BARROTINS, ledges, or small spars, placed between the beams.

BARROTINS *de caillebotis*, ledges of the gratings.

BARROTINS *d'écoutilles*, the spurs of the beams, or the pieces which are joined to the beams to fortify the deck a-breast of the hatchways.

BAS *de soie*, iron-garters; a cant term applied to bilboes or fetters.

BAS *du vaisseau*, the lower parts of a ship.

BAS *le pavillon*, haul down the colours.

BASBORD, the larboard or left side of a ship.

Vaisseau de BASBORD, a low-built vessel, whose deck extends not to her whole length.

BASBORD *tout*, hard a-port; the order to put the helm close to the larboard side.

BASBORDES or BASBORDUIS, the larboard-watch.

BASE *des sabords*, the plank between the lower edges of the gun-ports and the wale.

BAS-FOND, a shoal or shallow.

BASSE, or BATURE, a ridge of rocks, sand-banks, &c. with breakers.

BASSE *eau*, low-water, the last of the ebb.

BASSES *voiles*, the courses, or principal lower sails, of a ship.

BASSIN, a basin or bason; also a small harbour within a larger one.

BASTARD *de racage*, the parrel-rope.

BASTARDE, the largest sail of a galley, which is only carried in fair weather and light winds.

BASTARDES, or BATARDELLES, square-sterned row-gallies.

BASTINGUAGE, painted quarter-cloths, or waist-

cloths; also the quarter-nettings, &c.

BASTUDE, a peculiar sort of fishing-net.

BATAILLE *navale*, a general or particular sea fight.

BATARDEAU, a sort of dam.

BATAYOLLES, the quarter-stanchions, or the stanchions which support the rails of the waist and quarter.

BATAYOLETTES, small stanchions, used to sustain the awnings.

BATEAU, a general name for several kinds of boats; as

BATEAU *délesteur*, a ballast-boat, or lighter.

BATEAU *pêcheur*, a fishing-boat, &c.

BATELÉE, the lading, or number of passengers, to be carried in a boat.

BATELIERS, the boat-men, the wherry-men.

BATIMENT, a vessel or small ship of any kind.

BATON *astronomique*, Jacob's staff; an instrument formerly used for taking altitudes at sea.

BATON *à meche*, a lint-stock. See Boute-feu.

BATON *de flamme*, the stick which spreads the inner part of a pendant.

BATON *de giroüette*, the spindle upon which the vane turns, at the mast-head.

BATON *de justice*, a cobbing-board.

BATON *de pavillon*, or *d'enseigne*, the flag-staff, or ensign-staff.

BATON *de vadel*, or *de guispon*, the handle of a long tar-brush, or pitch-mop.

BATONNÉE *d'eau*, the quantity of water thrown out by the pump at each stroke of the brake or handle.

BATTANT *de pavillon*, the fluttering or waving of an ensign, as it flies in the wind.

BATTERIE, the whole range of cannon placed on both sides of any one deck in a vessel of war,

BATTERIE *& demie*, a deck and a half of cannon; spoken of a frigate which carries cannon on her upper-deck and quarter-deck only.

Mettez la BATTERIE *de hors*, run the guns out.

Mettez la BATTERIE *dedans*, run in the guns.

BATTRE *aux champs*, to found a march or chase at sea.

BATTRE *à Diane*, to beat a reveille on the drum, as at day-break.

BATTRE *la marche*, to give the signal for sailing.

BATTU, weather-beaten, shattered by a storm, or disabled in battle.

BATTURE. See BASSE.

BAU, abeam of the lower-decks.

BAU *de dale*, the hindermost or aftmost beam.

BAU *de lof*, the foremost beam in a ship.

BAU-*maître*, or *Maître*-BAU, the midship-beam, or the beam which is placed at the extreme breadth.

BAUX-*faux*, or *Faux*-BAUX, beams of the orlop.

BAUDET, a sawyer's frame, horse, or tresle.

BAUQUIERES, the clamps, or inner planks, by which the beams of a ship rest upon her sides.

BAYE, a bay, or bight.

BAYES, or BAIES, *d'un vaisseaux*, the holes in the deck through which the masts are let down, called also the partners.

BEAUPRÉ, the bowsprit. Whence

Petit Beaupré, the jib-boom, or sprit-sail top-mast.

BEAUPRÉ *sur pouppe*, close behind; spoken of one ship which is so near to the stern of another, in chase or otherwise, that the bowsprit of the former hangs over the stern of the latter.

BEC *de corbin*, a caulker's sharp iron, or instrument, with which he cuts the old oakum out of a seam.

BÉLANDRE, a small vessel, carrying about eighty tons, and usually navigated by three or four men. This is nowise like the English bilander.

BELLE, the main-deck, or waist. See EMBELLE.

BERCEAUX. See BIGOT.

BERCHE. See BARCES.

BERGE, a bold shore; also an artificial mound, or rampire, on the banks of a river, to prevent it from overflowing.

BERNE, a waft of the ensign.

Mettre le pavillon en BERNE, to hoist the ensign with a waft.

BESSON, the arching or convexity of the beams and decks. See TONTURE.

BESTION, the head, or ornamental figure, on the prow of a ship.

BIDON, or CANETTE, a cann.

BIGOTS, the ribs of a parrel. See RACAGE.

BIGUES, certain props, or shoars, let into the ports of a ship, to bear her up when she rests upon the ground; also the masts of a sheer-hulk.

BILLE, the beckets of the tacks and sheets.

BILLER, to fasten a rope to a boom, in order to ride or tow a boat.

BILLOTS, dead-wood, or short pieces of timber laid upon the keel, between the crotches, afore and abaft. See CONTRE-QUILLE.

BISCUIT, biscuit, sea-bread.

BISE, *vent de nord-nord-est*, the north-north-east wind.

BISTORD, spun-yarn.

BISTORD *de trois fils*, three-yarn spun-yarn.

BITTES, the bits. Whence

BITTER *le cable*, to bit the cable.

BITTON, a post fixed on a wharf, or pier, whereon to fasten a cable.

BITTONS, or TAQUETS, the top sail-sheet bits.

BITTURE, a range of the cable drawn upon the deck, ready for bitting.

BLEU, a temporary or acting officer, who performs the duty of another while sick or absent.

BLIN, a machine used to drive the wedges under a ship's bottom, when she is to be launched.

BLOCQUER, or BLOQUER. See PLOCQUER.

BOIS, wood or timber.

BOITE *du gouvernail*, the rudder-case, or the box placed above the rudder-head, upon deck,

through which the tiller passes.

BOMBARDE, a bomb-vessel, a ketch.

BOMBÉ, incurvated; an epithet given by shipwrights to crooked timber, fit for knees, crotches, or standards.

BOMERIE, bottomry.

BON-FRAIS, a fresh of wind, or fresh gale.

BONNACE, calm weather, with a smooth sea.

BONNE *de nage*, swift of rowing, a fine rower.

BONNE-VOGLIE, a volunteer-rower in the gallies.

BONNEAU, a buoy. See BOUÉE and ORIN.

BONNETTE, the bonnet of a sail.

BONNETTE *lardée*. a bag or basket charged with cinders, ashes, and chopped oakum, to be used in the act of FOTHERING, which see.

Lasser la BONNETTE, to fasten the bonnet of a sail to its principal part.

BONNETTES, *en étui*, a general name for all studding-sails.

BON-TOUR, a favourable swing or turn; expressed of a ship when she keeps her hawse clear by winding the right way.

BORD, board, or aboard.

Renverser, *tourner*, *changer le* BORD, to veer or tack.

Rendre le BORD, to anchor, to come to an anchor.

BORD *à bord*, along-side; spoken of two ships lying near to each other.

BORD *allongé*, or *qui allonge*, a-long board; understood of a vessel plying to windward.

BORD *à terre*, BORD *au large*, standing in, or off, shore.

BORD *de la mer*, the sea-coast or shore.

BORD *sur bord*, tack for tack, hank for hank.

Faire un BORD, to make a tack.

Bon BORD, a good board.

Courir même BORD *que l'ennemi*, to stand on the same tack with the enemy.

BORDAGE, the planks of a ship's side. Hence

Franc BORDAGE, the outside planks.

BORDAGES *de fond*, the planks of the bottom or floor.

BORDAGES *pour recouvrir les ponts*, the planks of the decks.

BORDAYER, to advance to windward by boards, or by tacking.

BORDE *au vent,* & BORDE *sous le vent*, haul aft the sheets.

BORDÉE, a board or tack; also a watch of part of the crew.

Faire la grande BORDÉE, to set a watch of half the ship's crew, when in any dangerous road, usually called the sea-watch.

Faire la petite BORDÉE, to set the quarter-watch.

BORDÉE *de canon*, all the guns on one side of a ship, usually called a broadside.

Envoyer une BORDÉE, *donner la* BORDÉE, to fire the broadside into an enemy.

BORDER, to plank a ship, or lay on her outside

planks; also to stand towards, examine, or observe the motions of an enemy at sea.

BORDER & *brasser au vent*, to trim the sails by the wind.

BORDER *à quein*, to plank a ship with clench-work, or plank over plank.

BORDER *en louvelle*, to lay on the planks level, or with their surfaces even.

BORDER *l'artimon*, to haul the mizen-sheet flat aft, or close aft.

BORDER *les avirons*, to ship the oars ready for rowing.

BORDER *les écoutes arrieres*, to haul aft both sheets of a sail, for going afore the wind.

BORDER *les écoutes tout plat*, to tally the sheets flat aft.

BORDER *un vaisseau*, to board or enter a ship, either in a hostile or friendly manner.

BORDER *une voile*, to trim a sail by the tacks and sheets.

BORDIER, lap-sided; expressed of a ship stronger on one side than the other.

BORÉAL, *vent* BOREAL, the northern wind.

BORNAGER, a method of shoving a great boat off from the shore, in a river, by fixing one end of the setting-pole against her side, whilst the other bears upon the ground.

BOSPHORE, a streight, or narrow channel; as the Thracian Bosphorus.

BOSSAGE, a name given by shipwrights to crooked

timber, fit for knees, &c.

BOSSE, a powder-flask, used by privateers, in naval engagements.

Serre-BOSSE, the shank-painter.

BOSSEMAN, *second contre maître*, the boatswain's mate.

BOSSER *l'ancre*, to cat the anchor; also to stow the anchor. See CAPONNER.

BOSSER *le cable*, to stopper the cable. From

BOSSES *à aiguilettes*, or *à rubans*, stoppers of the cable.

BOSSES, stoppers of the shrouds or stays.

BOSSES *de chaloupe*, or *de canot*, the boat's painter or mooring-rope.

BOSSE *du bossoir*, or *de lout*, the anchor-stoppers at the cat-head.

BOSSOIRS, the cat heads of a ship.

BOT, a boat, of several kinds. Whence

Paque-BOT, pacquet-boat, the packet, or packet-boat.

BOUCHE, the mouth of a river. *Bouchaut* is also sometimes used in this sense.

BOUCHE *de canon*, the bore or calibre of a piece of ordnance.

BOUCHIN, the extreme breadth of a ship, from outside to outside.

BOUCHON *d'etoupe, de foin, ou de paille*, the wad of a cannon, formed of oakum, hay, &c.

BOUCHOTS, a penn, or place enclosed by hurdles,

for fishing on the sea-coast.

BOUCLE, shackles or bilboes.

Mettre un matelot sous BOUCLE, to confine a sailor, or put him in irons.

Un port BOUCLÉ, a harbour which is land-locked.

BOUDINURE *de l'arganeau*, the puddening of the anchor. See EMBODINURE.

BOUÉE, a buoy.

BOUÉE *de bout de mât*, a wooden buoy, formed of an end of a mast.

BOUÉE *de barril*, a cann-buoy, or nun-buoy.

BOUGE, incurvated; spoken of a piece of timber; also of the rounding or convexity of the decks and beams. See TONTURE.

BOUILLAR, a squall, a cloud charged with wind and rain.

BOUILLONEMENT, the rippling of a river, as it is discharged into the ocean.

BOULETS, balls or bullets of a cannon. Whence

BOULETS *rouge*, red-hot bullets. BOULETS *à chaîne*, chain-shot. BOULETS *à branches*, or *à deux têtes*, bar or double-headed shot.

BOULIER, a sort of fishing-net.

BOULINE, the bowline. BOULINE *de la grand voile*, the main bowline.

BOULINE *de revers*, the lee bowline.

Faire courir la BOULINE, to run the gauntlope.

BOULINER. See ALLER *à la bouline*.

BOULINGUE, the royal-sail.

BOULINIER, a ship that sails close-hauled. Hence *bon* BOULINIER signifies a ship that plies well to windward.

BOULON, an iron bolt. See CHEVILLE.

BOULONS *d'afut*, the bolts of the gun-carriages.

BOUQUE, an entrance or channel between islands or in narrow seas.

BOUQUETS, the fore-thwarts or fore-sheets of a boat.

BOURCER *un voile*, to carry a sail clewed up, or hauled up in the brails. See CARGUER.

BOURCET, a name given to the fore-sail and fore-mast of small vessels in the English Channel.

BOURGEOIS, the proprietor or owner of a ship.

BOURGEOIS is also the person who bargains with a shipwright to build a ship, called the contractor or ship's husband.

BOURGUIGNON, an island of ice.

BOURRASQUE, a violent squall of wind.

BOURRE, the wadding of a charge in artillery.

BOURRELET, or BOURLET, the puddenings of the yards.

BOURRELET *de canon*, the muzzle-ring of a piece of cannon.

BOURSE, or BOURCE, the exchange, or place of resort for merchants, mariners, &c. in a commercial sea-port.

BOUSSOLE, COMPAS *de route*, or CADRAN *de mer*, the sea compass.

BOUSSOLE *affolée*, an erroneous or defective

compass. See AffOLÉE.

BOUSSOLE *de cadran*, an horizontal dial, with a magnetical needle.

BOUT *de beaupré*, a boom used for a bowsprit in small vessels.

BOUT *de corde*, a rope's end, a short piece of rope.

BOUTS *de cable*, pieces of junk, or old cable.

BOUTS *de corde*, a cat of nine tails, scourge, or rope's end for punishment.

BOUT *de vergue*, the yard-arm, but more particularly that part of it which reaches beyond the upper corners of its respective sail, to extend the reef.

BOUTE-DEHORS, the studding-sail booms: this name is also given to a small mast erected in the tops, to hoist up and fix the caps on the mast-heads.

BOUTE-DEHORS is likewise a boom to push off some ship which is near, or which approaches for any hostile purpose, as to board, &c.

BOUTE *de lof*, or BOUTE-LOF, the bumkin, or boom of the fore tack.

BOUTE-FEU, a lint-stock; also the name of an officer who is appointed to fire the cannon.

BOUTE-LOF. See BOUTE *de lof*.

BOUTE *le cable au cabestan & vire l'ancre*, bring the cable to the capstern, or bring-to the cable, and heave to the anchor.

BOUTEILLES, the quarter-badges of a ship. See BALCON.

BOUTEILLES *de callebasse*, bundles of buoyant rushes, used in the exercise of learning to swim.

BOUTER, to bear off, to push, to join, &c.

BOUTER *à l'eau*, to launch into the water, to put to sea.

BOUTER *au large*, to stand out into the offing.

BOUTER *de lof*, to haul the wind, to trim sharp.

BOUTES, large casks, which hold fresh water for the use of a sea-voyage.

BOUTEUX, or BOUT *de quevre*, a sort of fishing rod.

BOUTONNER *la bonette*, to lash on the bonnets. See BONNETTE.

BOUVET, a sort of plane used by shipwrights to form a small groove.

BOYE, See BOUÉE or BALISE.

BOYER, a kind of Dutch sloop.

BRAGUE, the breeching of a cannon used at sea.

BRAI, pitch. Hence *braier un vaisseau*, to pay the seams of a ship with hot melted pitch, after they are caulked with oakum. It is sometimes mixed with other compositions, to nourish the timber, and is then called BRAI *gras*.

BRANCHE *de ciprès*, beaconage; a small duty paid by shipping in France, for keeping the beacons in repair.

BRANCHE *superieure d'une courbe*, the upper part of a knee.

BRANCHE *d'embas*, the lower arm of a knee or standard.

BRANLE, a hammock.

Tendre les BRANLES, to sling the hammocks.

BRANLE *bas*, or *fort* BRANLE, the order to lash and take down all the hammocks between decks, in order to prepare for engagement, or otherwise to clear the ship.

BRAS, the brace of a yard.

Tenir un BRAS, to haul in and fasten the brace.

Bon BRAS, braced to a large wind, braced in.

BRAS *de revers*, the lee brace.

BRAS, or BRANCHES *d'ancre*, the anchor-arms.

BRASSE, a fathom, or measure of six feet.

BRASSEIAGE, the quarters of a yard.

BRASSER *à faire porter*, or *à faire servir* to fill the sails after they have been braced a back.

BRASSER *au vent*, to brace the sails in, to haul in the weather braces.

BRASSER *les voiles sur le mât*, to brace the sails a-back, or lay the sails to the mast. This is also called BRASSER *à contre*. See COEFFER.

BRASSER *sous le vent*, to brace to leeward, to brace up.

BRAYES, the tarred canvas coats of the mast.

BREDINDIN, a small stay-tackle, or burton, affixed to the main-stay.

BREF, a sort of warrant or commission from the state, allowing a ship to purchase provisions, conducting her safe on the coast, and exempting her from other duties.

BREGIN, a sort of fishing-net, with very small meshes, used in the Mediterranean.

BREQUIN, or *Ville*-BREQUIN, a shipwright's wimble to bore wood.

BRESSIN, the jears or haliards of a yard or sail; also a tackle-hook. See PALAN.

BREVET, CONNOISSEMENT, POLICE *de chargement*, a bill of lading.

BREVET *d'officier*, the commission or warrant of an officer.

BREUILLER. See CARGUER.

BREUILS. See CARGUES, MARTINETS, and GARCETTES.

BRIDER *l´ancre*, to bridle the anchor[59].

BRIEUX, a term used in Brittany to express the salutation of striking the flag, or topsails, to an admiral, &c. Also a duty paid for entering a harbour.

BRIGANTIN, a small light vessel, navigated by oars and sails; but differing extremely from the vessel known in England by the name of brig or brigantine.

BRIMBALE, the brake or handle of a ship's pump.

BRION, the fore-foot, placed at the extremity of the keel forward.

BRIS, a duty formerly paid to the lord of the coast, by those who suffered shipwreck thereon. This unjust exaction is now totally abolished. See DEBRIS.

BRISANT, or BRISANS, a shelf or ridge of rocks nearly level with the surface of the water, and distinguished by the breakers, or waves that burst over it; also the breakers themselves.

BRISE, a fresh gale or breeze; the trade-winds, or sea-breezes between the tropics.

BRISE *carabinée*, a violent wind or squall.

BRISER, to split, or dash forcibly against a rock or shelf; expressed of a ship when she is stranded.

BRISES, the land-winds which blow during the night in the West Indies, &c.

BROCHETER, to give the scantlings of the several members or pieces of a ship's frame.

BROU, the bark of the cocoa, of which the Indians form the cordage used in their shipping,

BRUINE, small drizzling rain.

BRULOT, a fire ship.

BRUME, a mist or fog at sea.

Tems EMBRUMÉ, or *couvert de brouillard*, thick misty weather.

BUCENTAURE, a sort of galley used by the state of Venice, when the doge performs the annual ceremony of espousing the sea.

BUCHE, a herring-buss, or small fly-boat used in the herring-fishery.

BULLETIN, a certificate given to sea-officers and sailors, when they are registered in a port, to testify their qualities, age, privileges, and time of service.

BURINS. See TAPPES.

BUTIN, the pillage or plunder of a prize taken from an enemy.

C.

CABANE, a flat-bottomed passage-boat, with a deck, navigated on the river Loire.

CABANES, the cabins or apartments wherein the officers and sailors sleep or mess aboard a ship. See TEUGUE.

CABESTAN, the capstern or crab of a ship.

Virer au CABESTAN, to heave the capstern round with bars.

CABILLOT, a toggel; also a wooden pin for belaying ropes.

CABLE, the cable; also a measure of 120 fathoms, called by the English seamen a cable's length.

CABLE *à pic*, the situation of the cable when the ship is close a-peek on her anchor.

CABLE *de touei*, a stream-cable, or large hauser.

CABLE *tourné*, or *qui à un tour*, or *demi-tour*, a foul hause, a cross or elbow in the hause.

Bitter le CABLE, to bit the cable, or clap it on the bits. See BITTER.

Couper, or *tailler le* CABLE, to cut the cable in the hause.

Donner le CABLE *à un vaisseau*, to give a cable's end to another ship; to take a ship in tow at sea.

Filer du CABLE, to slack out or veer away the cable. See FILER.

Laisser trainer un CABLE *sur le sillage du vaisseau*, to drag a cable in the ship's wake in order to prevent her sailing swiftly, when she is chased by a vessel

of inferior force, which is decoyed by this stratagem within reach of her cannon.

Lover un CABLE, to coil a cable.

CABLEAU, the painter, or mooring-rope of a boat.

CABLER, to make large ropes or cables.

CABOTAGE, the art of a coasting-pilot; as the knowledge of the shore, the tides, ports, rivers, capes, soundings, &c. on any particular coast.

CABOTER, to coast, or sail along the shore between cape and cape.

CABOTIERE, a large flat-bottomed lighter, with a long rudder.

CABRE, sheers, a machine resembling the sheers of a ship, used to heave up pieces of timber on the wharf of a river.

CABRIONS, certain wedges fixed under the train of a gun-carriage, to secure the cannon when the sea is very high.

CADENE, a chain by which a galley-slave is confined to his oar.

CADENES *de hauban*, the chains of the shrouds, the chain-plates.

CADRE, a bed frame, resembling the frame of a cott, wherein the sea-officers sleep: these are usually bottomed with small cords by the French, and slung by the corners without a cott.

CAGE. See HUNE.

CAGOUILLE, a sort of volute or ornament on the extremity of the prow of polacres, xebecs, tartans, &c.

CAIC, the yawl or skiff of a galley; also a small Polish vessel, navigated in the Black Sea.

CAIES, a ridge of rocks, or sand-banks; called in the West indies, keys.

CAILLEBOTIS, the gratings of the hatches.

CAJOLER, to ply to windward with the tide, to work by short tacks.

CAISSE *de poulie*. See ARCASSE and MOUFFLE.

CAJUTES, the cabins which are ranged along the inside of a ship, to sleep in.

CALANGE, or CALE, a small harbour behind a hill, or rising ground, on the sea-coast.

CALCETS, the cheeks or hounds of the mast, which support the brazen blocks in a galley.

CALE, the hold of a ship; also a sloping or shelving on the sea-coast; likewise the lead of a fishing-line used to sink the bait.

Donner la CALE, to duck or plunge an offender from the yard-arm into the sea, by way of punishment.

Donner la grand CALE, to keel-haul; a punishment peculiar to the Dutch.

CALE-BAS, a down-haul, or down-haul tackle.

CALE-HAUBAN, a breast back-stay for the top-mast or top-gallant-mast.

CALER, to sink down in the water; also to founder at sea.

CALER *les voiles*. See AMENER.

CALER also signifies to quoin or wedge up any thing.

CALE-TOUT, let go amain, or at once.

CALFAS, or rather CALFAT, caulking.

CALFAT, or CALFATEUR, a caulker.

CALFAT also signifies a caulking-iron. CALFAT *double*, a making-iron.

CALFATER, to caulk a ship or boat.

CALFATIN, a caulker's boy, who spins or twists his oakum.

CALIBRE, the bore of a cannon or other fire-arm, or the diameter of a cannon-ball.

CALIBRE *de vaisseau*, the model of a ship.

CALIORNE, a winding-tackle; a tackle formed by a rope passing through two three-fold blocks.

CALME, calm, a cessation of wind.

CALME *tout plat*, a dead calm, or a flat calm. Whence

CALMER, to become calm.

CAMBRER, to bend the planks or boards of a ship to their proper curve, by stoves, &c.

CAMPAGNE *sur mer*, a voyage, a cruise at sea for a season, or limited space of time.

CANAL, a canal, streight, or channel.

CANAL *de l'étrave*, the concavity in the top of the stem, wherein the bowsprit rests.

CANAL, or CREUX *autour d'un poulie*, the hole in a block between the shell and the sheave, through which the rope passes.

CANDELETTE, or BOSSE *de bossoir*, the cat tackle and hook. See CAPION.

CANEFAS, or CANEVAS, canvas or sail-cloth. See

TOILE.

CANON, a cannon or piece of ordnance.

CANON *à la serre*, a gun housed athwart, with the top of its muzzle bearing against the upper edge of the port.

CANON *alongé contre le bord*, a gun housed lengthways, close to the ship's side, abreast of its own port.

CANON *aux sabords*, a gun levelled to the point-blank range.

CANON *de coursier*, the bow-chase of a row-galley.

CANON *demare*, a cannon drawn in to be charged.

CANON *détape*, a cannon with its tompion taken out.

CANON *moindre*, a cannon whose calibre is not proportioned to the thickness of the metal.

CANON *renforcé*, a cannon whose breech is reinforced, i. e. thicker than the calibre, which is the usual dimension.

CANONNER, to cannonade, to fire a broadside.

CANONNIER *de vaisseau*, the gunner of a ship.

Second maître CANONNIER, the gunner's mate.

CANONNIERS, the quarter-gunners or artillery-men of a ship.

CANOT, a ship's boat, cutter, or yawl.

CANOT *de bois*, a canoe.

CANOT *jaloux*, a crank boat.

CANOTS, Indian canoes of various kinds.

CANTANETTES, the light-ports in the stern of a

galley.

CANTIBAI, a name given by shipwrights to timber which is full of cracks, &c.

CANTIMORON. See CATIMORON.

CAP, the head or prow of a ship.

Porter le CAP *sur l'ennemi*, to bear towards the enemy.

Ou as-tu le CAP? how is the head? how does the ship wind?

CAP, a cape, head-land, or promontory.

Doubler le CAP, to double, or sail round, a cape.

CAP *de more*. See CHOUQUET.

CAP *de mouton*, the dead-eye of a shroud or stay.

CAP *de mouton à croc*, an iron-bound dead-eye, with a hook.

CAP *de mouton de martinet*, the dead-eye of a crow-foot. See TRELINGAGE.

CAPACITÉ *d'un vaisseau*, the burthen of a ship.

CAPE, or GRAND PACfi, the mainsail.

Etre à la CAPE, to lie-by under the main-sail, or some other of the courses.

CAPÉER, CAPIER, or CAPEYER, *aller à la cape, mettre le vaisseau à la cape*, to lie under the mainsail when all the other sails are furled.

CAPELER *les haubans*, to fix the shrouds on the mast-head.

CAPION, the stern-post of a galley. See RODE.

CAPION *de proue*, the stem of a galley.

CAPION *à capion*, from stem to stern.

CAPITAINE *d'un vaisseau de guerre*, the captain of a ship of war.

CAPITAINE *d'armes*, a captain of marines.

CAPITAINE *de frégate legére*, *de brulot*, *de galiote*, a master and commander.

CAPITAINE *du hautbord*, the captain of a ship of the line.

CAPITAINE *de ports*, the commandant of a detachment of marines, appointed to guard a dock-yard, and the shipping in the harbour.

CAPITAINE *des matelots*, an officer resembling our captain of the fore-castle.

CAPITAINE *en second*, the second captain, or first lieutenant, of a ship of war.

CAPITAINE *garde-côte*, a captain of the militia appointed to guard the coasts.

CAPITANE, or CAPITAINESSE, a name formerly given to the principal galley of France.

CAPLANIER, a cod-fisher, a vessel appointed to fish and cure cod; also the men employed in this service.

CAPON, the cat-tackle.

CAPONNE, the order to cat the anchor.

CAPONNER *l'ancre*, to cat or draw up the anchor to the cat-head.

CAPOSER, to bring a ship to, with her helm a-lee.

Faire CAPOT, to cant, over-set, or turn topsy-turvy.

CAPRE, a vessel of war, or armed ship.

CAQUE *de poudre*, a powder-cask; also a herring-barrel, whence

CAQUEURS, sailors appointed to cure and barrel the herring.

CARACORE, an Indian vessel, peculiar to the island of Borneo.

CARAMOUSSAL, or CARAMOUSSAIL, a merchant-ship of Turky, constructed with a very high stern.

CARAQUE, a name given by the Portuguese to ships employed in the Brazil and the East Indian trade.

CARAVELLE, a small square-sterned Portuguese vessel, navigated with lateen sails; and esteemed very expeditious, and therefore used in business that requires dispatch.

CARCASSE, the carcase or ribs of a ship before the planks are laid on, or after they are ripped off.

CARENAGE, a careening wharf.

CARENE, the outside of a ship's bottom. This word is sometimes used for the keel.

CARENE *entier*, to heave down a ship keel-out.

Demie CARENE, a parliament-heel, or boot-topping.

CARENER, *donner la carene à un vaisseau*, to careen or heave down a ship with careening tackles to a wharf or pontoon.

CARGADOR, the person who procures a freight or voyage for a merchant-ship.

CARGAISON, the cargo, or articles of a ship's lading.

CARGUE *à veu*, a slab-line.

CARGUER, to clue up a sail, or haul it up in the brails.

CARGUER *l'artimon*, to brail up the mizen.

CARGUER *le point de la voile qui est sous le vent*, to haul up the lee-clue-garnet, or goose-wing of a sail.

CARGUES, a general name for the brails of a sail, comprehending the clue-lines, bunt-lines, leech-lines, &c.

CARGUES *d'artimon*, the brails of the mizen.

Mettre les basses voiles sur les CARGUES, to haul up the courses, or haul the courses up in the brails.

Mettre les huniers sur les CARGUES, to clue up the top-sails.

CARGUES *bouline*, the leech-lines.

CARGUES *de fond*, the bunt-lines.

CARGUES *de hune*. See RETRAITE *de hune*.

CARGUES *dessous le vent*, the lee-brails, &c.

CARGUES *du vent*, the brails to windward, or weather-brails.

CARGUES *point*, the clue-garnets, or clue-lines.

CARGUEUR, the top-block of a top-gallant-mast.

CARLINGUE, *contre-quille*, the kelson.

CARLINGUE *de cabestan*, the step of the capstern.

CARLINGUE *de pied de mât*, the step of the mast, with its block.

CARNAU, the lateen fore-sail of a settee or polacre.

CARREAU. See LISSE *de platbord*.

CARTAHU, girt-line, or gurt-line.

CARTE *marine*, a chart or map of the sea, representing its banks, rocks, shoals, bays, havens, &c.

CARTE *plate*, or *au point commun*, the plain chart.

CARTON, a book containing a collection of charts in folio.

CARTOUCHE, a cartridge to contain a charge of powder for a cannon or other fire-arm.

CATARACTES, water-falls.

CATIMARON, a catamaran, or Indian raft.

CATURS, armed vessels of Bantam.

CAYES, keys, or chains of rocks, nearly even with the surface of the sea.

CEDRE, *bois de* CEDRE, cedar-wood, which is excellent for ship-building.

CEINTES, a name formerly given to the wales. See PERCEINTES and LISSES.

CENTRE *de pesanteur*, the center of gravity.

CERCLE *d'étambraie*, or *de cabestan*, an iron hoop that lines the hole of the deck, within which the capstern turns upon its spindle.

CERCLES *de boute-hors*, the studding-sail boom-irons.

CERCLES *de hune*, the top-rails, which formerly surrounded the tops, when circular.

CERCLES *de pompe*, the iron hoops fixed on the top of the pump, to strengthen it.

CHABLEAU, a tow-line, a large warp.

CHABLEUR, a water-officer, who has the care of the wherries.

CHAINES *de chaudiere*, the chains of the copper, or kettle, which boils victuals in the cobose, for the ship's crew.

CHAÎNES *de port*, the boom or chain of a harbour. See BARRE.

CHAÎNES *de vergues*, the top-chains.

CHALAND, or BAC, a sort of lighter used on the Loire.

CHALINGUE, a light high-built Indian vessel, formed without nails.

CHANDELIER *de fanal*, the iron brace, or crank, with its stool, which supports the poop-lanthorn.

CHANDELIER *de pierrier*, the iron crutch of a swivel gun; also the wooden stock, hooped with iron, in whose socket it rests, and is turned.

CHANDELIERS *de chaloupe*, the crutches of a boat, which sustain the main-boom, or the mast and sail, when they are lowered, for the conveniency of rowing.

CHANDELIERS *d'écbelle*, the stancheons which support the entering ropes at the gangway.

CHANDELIERS *de lisses*, the iron crutches, or double stanchions, of the quarters, &c. fixed in a vessel of war, to extend the double nettings. See FILARET.

CHANDELIERS, *de petite batiments*, the crutches on the stern or quarter of a boom-sail vessel. See CHANDELIERS *de chaloupe*.

CHANGER, in a naval sense, generally implies to tack, shift, or relieve.

CHANGER *de bord*, to tack or veer. See VIRER *de bord*.

CHANGER *l'artimon*, to shift over the mizen to the other side.

CHANGER *le quart*, to change or relieve the watch.

CHANGER *les voiles*, to shift the sails, to brace about, to jibe.

CHANGER *les voiles d'avant, & les mettre sur le mât*, to brace the head-sails to the wind, to lay the head-sails to the mast.

CHANTIER, the stocks upon which a ship is laid down to be built.

CHANTIER, or ATTELIER, also signifies a shipwright's yard or wharf.

CHANVRE, hemp employed to make the sails and cordage of a ship.

CHAPE, the inner box of a sea-compass.

CHAPEAU *de maître*, a gratuity or due, required by the master of a ship for each ton of goods which his vessel carries.

CHAPELLE, the chapelling of a ship, or suffering her to be taken aback, so that she cannot recover her course till she has gone quite round. This seldom happens, unless when the vessel is close-hauled in light winds, and is usually occasioned by the negligence of the steersman.

Faire, or *prendre* CHAPELLE, to build a chapel at sea, or chapel a ship.

CHARGE, the cargo, burthen, or lading of a ship. This is also called *chargement*.

Etre CHARGÉ *â la côte*, to be upon, or near a lee-

shore.

CHARGEOIR, or *lanterne à charger*, a gunner's ladle.

CHARGER, to load a ship, or take in her cargo.

CHARGER *en grenier*, to load a ship in bulk.

CHARGER *la pompe*, to fetch the pump.

CHARGEUR-MARCHAND, or MARCHAND-CHARGEUR, the merchant who loads a ship, or freights her to convey a cargo to some distant place.

CHARNIER, a scuttled cask, to contain water for the ship's crew to drink on the deck.

CHAROI. See CHARROI.

CHARPENTIER *de navire*, a shipwright; also the carpenter of a ship.

CHARTE-PARTIE, a charter-party, or compact made between the owner of a ship and the merchant, or contractor, who hires her for a limited time; also a convention made by a company of merchants who trade together.

CHASSE, a chase at sea, or flight of one vessel from another who pursues her.

Prendre CHASSE, to stand away from, to fly from.

Donner CHASSE, or CHASSER, to give chase, to pursue.

Soutenir CHASSE, to make a running fight, to fight in retreat.

CHASSE *de proue*, the head-chase, or bow-chase. See PIECE *de chasse*.

CHASSER *sur son ancre*, to drag the anchor, to bring the anchor home.

CHAT, a cat; a ship so called.

CHATEAU, a general name for the fore-castle and quarter-deck of a deep-waisted vessel.

CHATEAU *d'arriere*, or *de pouppe*, the quarter-deck and poop.

CHATEAU *d'avant*, or *de proue*, the forecastle.

CHATTE, a small two-masted vessel, formed like a cat or Norwegian pink.

CHAUDERON *de pompe*, a plate of lead or copper, perforated with holes, to cover the bottom of a pump.

CHAUDIERE, the great copper, or kettle, in which the provisions for the sailors are boiled.

CHAUDIERE *à brai*, or *à goudron*, a pitch-kettle.

CHAUFFAGE, breaming-fuel, furze, or faggots, to burn the dirt from off a ship's bottom at the time of breaming.

CHAUFFER, to bream a ship, or burn the filth from off her bottom.

CHAUffER *les soutes*, to dry or season the bread-room, in order the better to preserve the biscuit during a sea-voyage.

CHAUffER *un bordage*, to bend a plank, or make it pliant by heating it.

CHAVIRER, or TREVIRER, to over-set, capsize, or turn any thing topsy turvy.

CHAUSSE, a present of money, or wine, given by the merchant to the master of a trading vessel, partly for himself, and partly to be distributed amongst the ship's crew on a proper occasion.

CHEBEC, or CHABEK, a xebeck.

CHEF, the stem or head of a boat.

CHEF is also a junk, or end of a cable, used as an headfast to a ship, when she is ready to be launched, and which is to retain her after she floats, till her anchor is carried out, or let fall from the bow.

CHEF *d'eau*, high-water. See HAUTE *marée*.

CHEF *d'escadre*, a commodore.

CHEMIN, a range of skeeds laid by seamen, to roll full casks upon, either on shore or aboard.

CHEMIN *du halage*, a path on the side of a river, or canal, for horses to track boats and vessels along the stream.

CHEMISE *à feu*, or SOUFRÉE, a tarpawling, or a piece of old canvas, dipped in a composition of oil, petrol, camphire, and other combustible materials, and nailed to the planks of an enemy's ship, when it is intended to set her on fire.

CHENALER, to find out a channel by the help of buoys, or of sounding, where the water is shallow.

CHENETS, a sort of iron claws used to bend the planks of a ship by fire.

CHERSONESE, a peninsula.

CHEVALET, a roller for passing the cables from one place to another.

CHEVAUCHER, to ride, or be fayed upon; a term in ship-building.

CHEVET *de traversin de bittes*, the lining or doubling of the bitts, which is employed to prevent the cable from galling them when the ships ride with

a great strain.

CHEVILLE, an iron bolt, of which there are several sorts used in the construction of a ship: as,

CHEVILLE *à boucle*, a ring-bolt.

CHEVILLE *à boucles & à goupilles*, a ring which is fastened with a forelock.

CHEVILLE *à croc*, a hook-bolt for the gun ports.

CHEVILLE *à goupilles*, a forelock-bolt, or bolt fitted to receive a forelock.

CHEVILLE *à grille & à boucles*. See GOUJON.

CHEVILLE *œilettes d'affut*, the eye-bolts of the gun-carriages.

CHEVILLE *à tête de diamant*, or *à tête ronde*, a round-headed bolt.

CHEVILLE *à tête perdue*, a bolt whose head is sunk into the timber wherein it is driven.

CHEVILLE *d'offut*, a gun-carriage bolt.

CHEVILLE *de fer à charger le canon*, langrage-shot.

CHEVILLE *de pompe*, the short pump-bolt, or bolt to connect the brake with the spear.

CHEVILLE *de potence de pompe*, a long pump-bolt, or bolt which fastens the brake to the cheeks or ears of the pump.

CHEVILLER, to bolt a ship, or drive the bolts which fasten one part to another.

CHEVILLOTS, belaying-pins, fixed in the rails fore and aft.

CHEVRE, a gin, or triangle with pullies.

CHICAMBAUT, or CHICABAUT, a bumkin. See

BOUTE-LOF.

CHICANER *le vent*, to ply or beat to windward. See LOUVIER.

CHIORME, or rather CHIOURME, the troop or crew of slaves belonging to one row-galley, together with the volunteers who row at the oars.

CHIRURGIEN *major*, the surgeon of a ship.

CHOPINE, or CHOPINETTE *de pompe*, the lower pump-box.

CHOQUER *la tournevire*, to surge the capstern; to lift up the rope passing round the body of the capstern, that it may not ride while the capstern turns.

CHOSES *de la mer*, or *du flot*, wreck, or whatever is found floating at sea, or within certain limits of the sea-coast.

CHOUQUET, a cap of the mast-head.

CHUTE *de voiles*, the depth of the sails.

CIEL *embrumé*, a cloudy, heavy, or dark sky.

CIEL *fin*, fine weather, a clear sky.

CINGLAGE, or SINGLAGE, the run of a ship for twenty-four hours, or the course and distance she has made between noon and noon.

CINGLAGE also imports the pay or wages of mariners.

CINGLER, or SINGLER, to sail with a favourable wind on a particular course.

CINQUENELLE, or CINCENELLE, a general name for the tackling of the great guns, by which they are fastened to the ship's sides, &c.

CINTRAGE, or CEINTRAGE, a name given to any kind of lashing, or frapping, which surrounds the object it is intended to secure.

CINTRER, or CEINTRER *un vaisseau quand il largue*, to frap a ship.

CIVADIERE, the sprit-sail.

CLAIRON, a clear spot in a cloudy sky.

CLAMP, a sheave, or small wheel, placed in a mortise, as in the foot of a top mast, to pass a rope through.

CLAN, a mortise or hole cut in a plank, mast, &c. lengthwise, to admit a sheave.

CLAN, or CLAMP *de beaupré*. See COUSSIN.

CLAN, a sort of breast-hook in a large lighter.

CLAPET *de pompe*, the clapper of a pump-box.

CLAPETS, leathern flaps nailed on the outside of the scuppers, instead of scupperhoses.

CLASSE, a division of pilots, gunners, seamen, &c. engaged to serve in any naval armament for a limited time, after which they are relieved by another division sent from the shore.

CLAVETTE, or GOUPILLE, a forelock.

CLEF. See CHEF.

CLEF *de beaupré*, or BARROT *de coltis*, the collar-beam, which is raised a little above the second deck, to fortify the bowsprit.

CLEF *de pierrier*, the forelock of a pedrero or swivel-gun.

CLEF *de pompe*, a sort of wooden pump-bolt, to confine the brake within the cheeks or ears of the

pump. See CHEVILLE *de potence*.

CLEF *des étains*, or *contre-port*, a triangular cheek of timber, formerly used to connect the fashion-pieces with the stern-post.

CLEF *de ton du mât*, or CLEF *de mât de hune*, the iron or wooden fid of a top-mast.

CLEFS *des guindas*, the cheeks of the windlas.

CLERC *du guet*, the clerk who assembles and musters the militia appointed to guard the sea-coast.

CLERCS *de la secretaire*, or *du gresse de l'amirauté*, the messengers of the admiralty.

CLINCAR, a sort of flat-bottomed clinker-built pram, or lighter, of Sweden and Denmark.

CLOCHE *de plongeurs*, a diving-bell.

CLOISSON, a range of stanchions to support the bulk-heads, or partitions, which separate one cabin from another.

CLOPOTEUSE, turbulent or agitated; an epithet given to the sea when it runs high.

CLOU, an iron spike, or nail, of any size.

CLOUS *à river*, a rivet, or riveting-nail to be clenched at both ends.

CLOUS *des sabords*, doubling-nails, to line the gun ports.

CO-BOURGEOIS, a co-partner in, or part-owner of, a ship.

COCHES *d'assut de bord*, the notches or steps of a sea-carriage.

COEFFÉ, aback. *Un vaisseau* COEffÉ, a ship laid

aback.

COEFFER, to back a sail, to lay aback, or to the mast.

COFFRE *à feu*, a powder-chest, fixed on the deck or side of a ship, to-be discharged upon a boarding enemy.

COFFRE *à gargousses*, a cartridge-chest, which contains the filled cartridges in a ship's magazine.

COFFRE *de bord*, a sea-chest, a sailor's chest.

COINS *d'arrimage*, the quoins or coins used in the stowage of a ship's hold, &c.

COINS *de chantier*, the wedges driven between the blocks and the keel, when a ship is building.

COINS *de mât*, the wedges of a mast, by which it is confined in the partners, or in the cap.

COITES, the ways, or cradles, upon which a ship gradually descends, when she is launched into the water.

COITES *de guindas*, the cheeks or bits of the windlas. See CLEF *de guindas*.

COLLET *d'étai*, the eye of a stay placed over a mast-head.

COLLIER *d'étai*, the collar or lower part of a stay.

COLLIER *du ton*, or *du chouquet*, the iron clamp of a French cap. As the caps of English vessels are formed wholly of wood, this clamp is not in use amongst our shipping.

COLLIERS *de défense*, the puddening of a boat's stem.

COLOMBIERS, two shoars employed to launch a

ship into the water.

COLONNE, a line of ships, a line of battle.

COLTIS, the breast or front of a ship's fore-castle, comprehended between the two cat-heads athwart, and descending from the top of the fore-castle to the platform of the head.

COMBAT *naval*, a general or particular sea-fight.

COMBUGER *les sutailles*, to fill the water-casks of a ship with fresh water.

COMITE, an under-officer of a galley, who commands the slaves.

COMMANDANT, a commodore. See CHEF *d'escadre*.

COMMANDE, holloa! the answer given by the sailors to the master, boatswain, or other officer, when he calls to them by the name of the place where they are; as, "Fore-castle, there! main-top, there! main-top, hoay!" &c.

COMMANDEMENT, the order or command to do any thing relative to the working of a ship.

COMMANDER *à la route*, to order or direct the course of a ship.

COMMANDES, knittles or seizings.

COMMANDEUR, the master or commander of a ship.

COMMIS, the supercargo of a merchant-vessel.

COMMIS *des bureaux des douanes*, the surveyors of the customs who visit shipping.

COMMIS *du munitionnaire*, or COMMIS *à la distribution des vivres*, a clerk or steward to the commissary or purser of a ship of war.

COMMIS *général des convois & congés*, an overseer or inspector of the customs with regard to shipping.

COMMISSAIRE *de la marine* imports in general a civil officer, or commissioner of the marine, of which there are several: as,

COMMISSAIRE *général à la suite des armées navales*, an officer who receives the orders and instructions of the *intendant* of a fleet of men of war, and performs his duty when he is absent. See INTENDANT *des armées navales*.

COMMISSAIRE *général de la marine*, the principal officer under the *intendant de marine*, in his department. It is his duty, 1. To execute the orders of the admiral, or commissioners of the admiralty, with regard to the number of ships which are ordered to be taken into the service of the state; to provide for their being equipped, manned, and victualled, for the expedition to which they are destined; to press the masters and mates who refuse to serve, and to break, or disband and return, those who will not do their duty. 2. To measure the ships which attend a fleet; to give them orders, either to sail with the fleet, or to join it according to the regulations which have been made; to keep account of those who have been discharged from duty, and send them back in due time to the appointed place. 3. To attend the affairs of the dock-yards and harbours, and controul the clerks, artificers, and ordinary-men; to administer the oath of allegiance to them; to review the shipping, and take an inventory of the prizes. 4. To take care that the oldest and best seasoned timber is first used; and that the bolts, nails, and other iron-works, have their due proportions, and conform to their

dimensions. 5. To examine, once every fortnight, the muster-roll of the artificers, signed by the clerks. 6. To observe that the master-shipwrights do in nowise depart from the draught which has been established by the council of construction, of which he is always possessed of a copy. 7. To inspect whatever concerns the port, and to take care that the ordonnances relative thereto are faithfully executed; and to see that the ships are properly situated, and each one moored in the birth assigned.

It is also the office of the *commissaire général* to keep a list of the sea-officers and sailors, able and ordinary; and to minute the ships in which they have served, and upon what footing they have been paid. With respect to the youths, officers servants, and other boys, their names, privileges, and time of service, are enrolled in a particular list; and each of them is furnished with a certificate, representing these articles.

The *commissaire général* is not, however, always charged with these several employments himself. There are under his department, in different places, or according to the times, other commissaries, who share such services with him: as, COMMISSAIRE *ordinaires de la marine*; COMMISSAIRES *ayant inspection sur les vivres d'un port*, an agent victualler; COMMISSAIRE *préposé pour l'enrôlement des matelots*, clerk of the cheque; COMMISSAIRE *pour les constructions des vaisseaux*; and COMMISSAIRE *des ports*, master-attendant.

COMMISSAIRE *général de la marine ambulant*, an officer whose duty resembles that of the former, but who has no particular residence, being intended to visit any one port or harbour

occasionally.

COMMISSAIRE *de l'artillerie de la marine*, an officer who, under the orders of the intendant, has the charge of the foundery, the proof of cannon and mortars, and of all other arms, gunpowder, ammunition, instruments, and implements of war. He has also the command of the gunners, matrosses, and bombardiers, maintained in a royal port, who are divided into squads, commanded by *lieutenants de marine*, or lieutenants of bomb-ketches. There are two of these COMMISSAIRES *généraux*, one for the western ports of France, and the other for Provence, or the eastern ports.

COMMISSAIRE *ordinaire de la marine*, an officer whose duty it is to superintend the ordinary, the several clerks in a dock-yard, the store-keepers accounts in a port, and the out-fits and return of stores of a fleet.

COMMISSAIRE *ordînaire de l'artillerie de la marine*, an officer who performs the duty of the COMMISSAIRE *général de l'artillerie de la marine*, when he is absent. He keeps the keys of the naval magazine and artillery store rooms jointly with the *garde-magazin*. He has also a key of the arsenal, wherein the fire-arms are disposed according to their length and calibre; and he keeps a register of all the artillery within the warren where he resides. This register contains principally the matter and fabric of such artillery.

COMMISSION, an order given by the king to an admiral, vice-admiral, or other superior officer, to cruise against, and seize, the enemy's ships, &c.

COMPAGNE, the cabin of the steward of a row-

galley.

COMPAGNIE *de navires*, or CONSERVE, a convoy or fleet of vessels.

COMPAGNONS, a general name for sailors, mariners, or whoever forms a part of a ship's crew.

COMPAS *azimutal*, an azimuth-compass.

COMPAS, *de carte*, or COMPAS *marin*, a pair of compasses, or dividers, used to prick a chart, or discover courses and distances thereon.

COMPAS *de route*, or *de mer*, a common sea-compass.

COMPAS *de variation*, an amplitude-compass.

COMPAS *mort*, a compass whose needle has lost its magnetical virtue.

COMPAS *renversé*, a swinging compass whose face is downwards; it is usually hung over-head in the great cabin, to shew the ship's course to the captain.

COMPASSER. See POINTER *la carte*.

COMPOST, a tide-duty, or revenue; arising from shipping.

CONFLUENT, the place where two rivers are united.

CONGÉ, a pass, or permission, granted to the master of a merchant-ship, by the office of admiralty, when he is ready to sail.

CONNOISSANCE, the skill and intelligence of a pilot; also a prospect of the land and sea-coasts.

CONNOISSEMENT, a ship´s bill of lading, or the

manifest of her cargo.

CONSEIL *de construction*, a council held in any of the king's ports, consisting of the *intendant* (or commissioner), *le commissaire général*, and the principal officers, for the construction or repairing of ships of war. These last are usually styled the builders, and sometimes *les charpentiers-constructeurs*, the shipwrights.

CONSEIL *de guerre*, a council of war.

CONSEIL *de l'amirauté* a jurisdiction exercised under the name and authority of the lord-admiral, who has certain claims called the dues of the admiralty. The officers of the admiralty have their patents from the king, but they are nominated by the lord-admiral. The admiralty of France consists of a lieutenant-general, who is president, a *lieutenant particulier*, three counsellors, an advocate, and a royal proctor; of a register in chief, and two serjeants or bailiffs.

CONSEIL *de marine*, a secret council held by the king and his ministers, to which he usually summons the princes and the chief officers of his fleet, to deliberate with them about the affairs of naval war.

CONSERVE, a fleet or convoy of ships, associated for their mutual defence and safety. See COMPAGNIE.

CONSOLE, a bracket, or part where two pieces of timber are united by a bracket.

CONSOMMATION, the consumption of a ship during a sea-voyage, comprehending whatever has been expended, as cordage, canvas, ammunition, &c.

CONSTRUCTION *des vaisseaux*, the art of ship-building, or the practical part of naval architecture.

CONSUL, a consul established in foreign parts, for the protection of the commerce of his country.

CONTINENT, a continent, or vast tract of land.

CONTRAT *à la grosse*. See BOMERIE.

CONTRE-AMIRAL, the rear-admiral of France.

CONTRE-BANDE, prohibited goods.

CONTRE-BITTES, the standards which support the cable-bits.

CONTRE-BRASSER, to brace about the yards.

CONTRE-CAPION *de pouppe*, the upper part of the salse = post of a row-galley, which is a crooked piece of timber placed on the fore-side of the stern-post to support it. See CONTRE-RODE *de pouppe*.

CONTRE-CAPION *de proue*, the upper part of the stemson of a galley. See CONTRE-RODE *de proue*.

CONTRE-CARENE, the kelson of a galley. See CARLINGUE.

CONTRE-ÉTAMBOT, the knee of the stern-post, by which it is attached to the keel.

CONTRE-ÉTAMBOT, or FAUX-ÉTAMBOT, is also the false stern-post.

CONTRE-ÉTRAVE, the apron; a piece of timber which supports the scarf of the stem.

CONTRE-MAITRE, the boatswain of a ship.

CONTRE-MARCHE, the general tacking of a division of ships, arranged on the same line, so as to

preserve the line in its former disposition on the other tack.

CONTRE-MARÉE, a spring-tide.

CONTRE-QUILLE, the dead-wood placed on the keel fore and aft. See FAUSSE-QUILLE.

CONTRE-RODE *de pouppe*, the lower part of the false-post, or counter-stern-post of a row-galley. See CONTRE-CAPION *de pouppe*.

CONTRE-RODE *de proue*, the lower part of the stemson of a galley. See CONTRE-CAPION *de proue*.

CONTRE-SABORDS. See MANTELETS.

CONTRE-SALUT, the return of a salute at Sea.

CONTROLEUR *de la marine*, an officer of the marine, who attends and controuls all the purchases and sales held in a royal dock-yard, assists at the general musters, reviews the artificers, and keeps a register of their names.

CONVERSO, the waist, or main-deck, of a ship.

CONVOI, the convoy or escort of ships of war, used to guard a fleet of merchantmen.

CONVOYER, to convoy or accompany a fleet of merchant-men as their escort.

COQ, the cook of a ship.

COQUE, a kink, or round twist, in a new rope.

COQUERON, the cook-room, fore-castle, or cuddy, of a lighter or hoy.

COQUET, a cock-boat, a sort of small boat which passes between Normandy and Paris.

COQUETER, to navigate or manage a boat by paddling, or rowing in the boat's stern with a

paddle.

CORADOUX. See COURADOUX.

CORALINE, a light small long-boat, or lanch, employed in the Levant, to fish coral.

CORBEAU, a sort of sheer-hook or fire-grappling.

CORBEILLON, or CORBILLON, a small kid, or tub, to contain the biscuit or sea-bread daily distributed to the several messes.

CORDAGE, cordage, a general name for all the ropes employed to rig or work a ship: the cables, or ground-tackling, are sometimes comprehended in this term. See CABLE, MANOEUVRES.

CORDAGE *blanc*, white, or untarred cordage.

CORDAGE *étuvé*, cordage which has passed through a stove, to discharge its moisture or watery humour.

CORDAGE *goudronné*, tarred cordage.

CORDAGE *raque*, or *raqué*, cordage which has been well rubbed, in order to take off the hulks, straw, or roughness of the hemp from the surface.

CORDAGE *refait*, twice-laid cordage.

CORDAGES *de rechange*, spare-ropes, spare-cordage.

CORDE, a rope of any kind.

CORDE *de retenue*, a guy, used to steady a heavy bale, cask, &c. when hoisted into a ship.

CORDE *de retenue* is also pendant of a relieving tackle, employed to prevent a ship from over-setting, or falling down more than is necessary in the careen; and to right her, or pull her upright, when the careen is finished. See ATTRAPE.

CORDE *de retenue* likewise implies a stern-fast, or large rope used to ease a ship gradually off the stocks, or to prevent her from launching too quick. This is meant of vessels launched head foremost, a method never practised in England.

CORDES *de défense*, fenders of junk or old cable.

CORDELLE, a warp or tow-line.

CORDERIE, a ropery or rope-walk, the rope-yard of a dock.

CORDIER, a rope-maker, or roper.

CORDON, a strand of rope-yarns. See TORON.

CORNE *de vergue*, the crutch or cheeks at the inner end of a gaff, or boom which embraces and slides along the mast of a small vessel, as the sail is hoisted or lowered.

CORNET *de mât*, a step and partners peculiar to the masts of some small vessels, being open at the after-part, so that the mast may occasionally be lowered over the stern. See CARLINGUE.

CORNETTE, a broad pendant, displayed at the mast-head of a commodore.

CORPS *de bataille*, the center division of a fleet of ships of war.

CORPS *de garde d'un vaisseau*, the half-deck; that part of a ship which is under the quarter-deck and before the bulk-head of the steerage.

CORPS *de pompe*, the chamber of a pump.

CORPS *d'un vaisseau*, the hull of a ship, without her rigging.

CORRECTIONS, the methods of correcting the

errors of a dead reckoning, by observations and allowances, as prescribed by the rules of navigation.

CORSAIRE, a privateer, also a pirate.

CORVETTE, a sloop of war.

COSSE, a thimble; also a bull's eye, or traveller. See MARGOUILLET.

COTE, the sea-coast, the shore.

CÔTE *en écore*, a bluff or bold shore.

CÔTE *qui court nord-sud ou est-ouest*, a coast which lies north and south, or east and west.

CÔTE *saine*, a safe coast, where there is neither rocks or sand-banks, that may render the access dangerous to shipping.

Donner à la CÔTE, *ranger la* CÔTE. See DONNER and RANGER.

CÔTÉ *du vaisseau*, the side of a ship.

Presenter le CÔTÉ, *mettre le* CÔTÉ, *du vaisseau en travers*, to bring the broad-side to bear upon. See EffACER.

Mettre un vaisseau sur le CÔTÉ, to lay a ship on the careen. See ABATTRE.

Faux-CÔTÉ, lap-sided.

CÔTÉ *du vent*, the weather-side, to windward.

CÔTÉ *sous le vent*, to leeward, the lee-side.

COTES, or MEMBRES, *d'un vaisseau*, the timbers, or ribs of a ship, from the keel, upwards.

COTIER, a coaster, or coasting vessel.

COTONNINE, a species of thick sail-cloth, used in

galleys and vessels of the Levant: it is formed by a mixture of hemp and cotton, the woof being of the former, and the warp of the latter.

COTONS, fishes of the mast. See JUMELLE.

COTTIMO, a duty or exaction of so much per cent. which the consuls, by order of their courts, or by the consent of merchants, demand of the shipping of their nation, when they enter a port where such consuls are established.

COUBAIS, a barge or galley of Japan, greatly ornamented, and rowed with forty oars.

COUCHE, the pillow of a stay, or the piece of wood upon which it rests.

COUDRAN, a mixture of tar and some other ingredients, used to prevent ropes from rotting. See GOUDRON.

COUETS, the tacks of the main-sail and fore-sail. See AMURER.

COUETS *à queue de rat*, tacks which taper to the point.

COUILLARD, an old term signifying the clue of a sail.

COULADOUX, shroud-tackles, which are used in the galleys, and some other vessels of the Mediterranean, in the place of dead-eyes and laniards.

COULANTES, or COURANTES, the running rigging. See MANOEUVRES *courantes*.

COULÉE, that part of a ship's bottom which lies between the floor-heads and the keel, which is somewhat concave on the outside.

COULER *à fond*, to sink at sea. See also SANCER.

COULER *bas d'eau*, to sink deeper in the water; expressed of a ship when her leaks gain upon the pump, or when she receives more water than the pumps can discharge.

COULOIRS, certain gangways fixed on the sides of undecked vessels; also the grating-gangways on the sides of such vessels as have their decks arched very high in the middle, as xebecks, &c.

COULOIRS likewise imports the passages that lead to the several cabins or store-rooms of a ship.

COUP *d'assurance*, a gun fired by a ship on her entrance into a port, when she displays her colours, as a sign of peace. See ASSURANCE.

COUP *de gouvernail*, the whole force of the helm.

COUP *de mer*, the shock of a wave of the sea, striking a ship violently, and rushing over her deck.

COUP *de partance*, a farewel-gun, a gun fired as signal for sailing.

COUP *de vent*, a sudden squall or gust of wind.

COUPS *de canon à l'eau*, shot received under water, or between wind and water.

COUPS *de canon en bois*, shot received in the upper works of a ship.

COUPER *la lame*, to cut the sea, to divide the waves.

COUPER *le cable, ou le mâts*, to cut the cable, or cut away the masts.

COUPER, *l'ennemi*, to thwart or cross the enemy's course, in giving chase to him.

COUPLE *de haubans*, a pair of shrouds.

COUPLE *du lof*, or *du balancement*, the loof-frame or loof-timbers.

COUPLES, the timbers of a ship, or the frames. See GABARI.

COURADOUX, between decks, the space between any two decks of a ship; also the place where the soldiers sleep in a galley. See ENTRE-PONT.

COURANT, a current or stream at sea.

COURBATONS, small knees used, in the upper part of a ship, for the same purposes as the *courbes* are, in the lower parts.

COURATONS *de l'éperon*. See HERPES *de poulains* and MONTANS.

COURBE *capucine*, the standard which fastens the cut-water to the stem.

COURBES, a general name for the larger knees of a ship.

COURBES *d'arcasse*, the transom-knees, or sleepers.

COURBES *de bittes*, the knees of the cable-bits. See CONTRE-BITTES.

COURBES *d'écubier*, the cheeks of the head. See JOTTEREAUX.

COURBES *d'équerre*, or *à fausse équerre*, knees which are right-angular, and knees which are within, or without a square.

COURCIVE, or COURCITE, a half-deck, formed in a vessel which is not wholly decked.

COUREAU, a small yawl of the Garonne.

COURÉE, COUROI, or COURET, a composition, or

stuff, used to pay a ship's bottom at the time of docking or breaming.

COURIR, imports in general, to sail, to run at sea, to stand onward.

COURIR *à l'autre bord*, to stand upon the other tack.

COURIR *au large*, to stand off. See TIRER *à la mer*.

COURIR *au plus près*, to run close upon a wind.

COURIR *en latitude*, to run down latitude.

COURIR *en longitude*, to run down longitude.

COURIR *la bouline*, to run the gauntlope.

COURIR *la mer*, to infest or scour the sea; to cruise up and down therein.

COURIR *le bon bord*, to make a lucky cruise; a cant phrase peculiar to cruisers or pirates, and alluding to the capture or plunder of merchant-ships.

COURIR *même bord*, to stand upon the same tack as some other ship in sight.

COURIR *nord, sud, &c.* to stand to the northward, southward, &c.

COURIR *sur la terre*, to stand in shore, or on shore.

COURIR *sur un vaisseau*, to chase or pursue a ship.

COURIR *sur son ancre*, to run over, or foul of, the anchor.

COURIR *terre à terre*. See RANGER *la côte*.

COURIR *une bordée*, or *bord sur bord*. See LOUVIER.

COURONNEMENT, the after-part of a ship's taffarel, which is usually ornamented with sculpture.

COURROI. See COURÉE.

COURS, or COURSE, a cruise at sea. Hence *faire* COURS, to go upon a cruise.

COURS *du vaisseau*, the course or run of a ship; also the wake, or track marked on the surface of the water behind her.

COURSIER, a bow-chase, or great brass cannon in the head of a row-galley.

COURSIER, or COURSIE, a fore-and-aft passage between the banks of a row-galley, where the *comite*, or boatswain walks, to see that the slaves manage their oars and row with application.

COURSSIERE, a spar-deck, or grating-deck, reaching from the quarter-deck to the fore-castle.

COURTAGE, a tax or duty levied on all merchandises which pass by sea from one port to another.

COURVETTE. See CORVETTE.

COUSSIN *de beaupré*, the pillow of the bowsprit.

COUSSIN *de bittes*, the fir lining or doubling of the bits. See CHEVET.

COUSSIN *de canon*, the bed of a cannon which supports the breech.

COUSSINS, the mats of the top-rims, used to prevent the top-sails from being fretted by striking the edges of the tops.

COUSSINS *d'amures*, the mats nailed by the chess-tree, to prevent the clue of the main-sail from being galled when the tack is aboard.

COUSTIERES, the shrouds of a galley, which are usually formed of runners and tackles. See COULADOUX.

COUT *d'assurance*. See PRIME *assurance*.

COUTELAS. See BONNETTES *en étui*.

COUTURE, a seam between the planks of the deck or side of a ship.

COUTURE *de ceuille de voiles*, the seam of a sail.

COUTURE *ouverte*, an open seam, or one from which the oakum has been expelled by the straining of the ship, &c.

COUVERTE, the deck of a ship, in the dialect of Provence.

COUVERTE *de l'iscosele de proue*, the fore castle, or fore-deck, of a galley, together with the space beneath it, where the cannon are planted.

COUVERTURES *de fanaux*, a sort of tubs to cover the top and poop-lanthorns, to preserve them when they are not in use.

CRAIE, a small Swedish ship, without top-masts or top-sails.

CRAMPE, a cramp-iron, or hook of a block.

CRAQUER, to crack or strain; expressed of a ship that labours greatly in a turbulent sea.

CRAVAN, a barnicle, or small shell-fish, of a disagreeable taste, which fastens to a ship's bottom in a long voyage.

CREUX, the depth of the hold from the lower-deck beams to the floor.

CREUX *d'une voile*, the belly or cavity of a sail, which retains the wind.

CRIBLÉ, pierced with holes; expressed of a ship that has been much damaged by worms or cannon-

shot.

Une voile CRIBLÉE, a sail much damaged by shot.

CRIQUE, a creek, or small natural harbour.

CROC, a boat-hook, or setting pole.

CROC *de candelette*, the cat-hook. See CAPON.

CROC *de pompe*, the pump hook.

CROCS *de palans*, the tackle-hooks.

CROCS *de palans de canons*, the hooks of the gun-tackles.

CROCS *de palanquins*, jigger-tackle-hooks.

CROCHETS *d'armes*, certain crutches, or hooks, to support the small-arms in the cabins of a ship of war.

CROCHETS *de retraite*, the eye-bolts, in the train of a gun-carriage, wherein are hooked the relieving-tackles.

CROISÉE *de l'ancre*, the cross of the anchor, or the part where the shank terminates at the arms.

CROISER, to cruise in any particular station.

CROISER *à la lame*. See DE BOUT *à la lame*.

CROISETTE, the pin or bolt used as a fid to any flag-staff.

CROISEUR, a cruiser, a vessel employed to guard a coast; also a pirate, or sea rover.

CROISEURS, or *vaisseaux en croisiere*, ships cruising in an appointed station or latitude.

CROISIERE, a rendezvous or latitude for cruisers.

CROITRE, to rise or flow; expressed of the tide.

CROIX *sur les cables*, a cross in the hawse.

CRONE, a wheel-crane, built on a wharf.

CROQUER, to hook or grapple any thing.

CROQUER *le croc de palan*, to hook the cat to the anchor.

CROUCHANTS, the crochets, or floor-timbers fore and aft in a boat.

CROULER. See ROULER.

CROULER *un batiment*, to shake a ship by jumping on her decks, in order to launch her from the stocks.

CROUPIARDER. See MOUILLER *en croupiere*.

CROUPIAT. See EMBOSSURE.

CROUPIERE, or CROUPIAS, a stern-fast, a stern-cable or hawser.

CUEILLE, one of the cloths of a sail.

CUEILLETTE, a measure or weight of any merchandise, which is equal to a quintal, or 100 ℔.

CUILLER *à brai*, a pitch-ladle, to pay the seams of a deck.

CUILLER *à canon*, or CHARGEOIR, a gunner's ladle.

CUILLER, *de pompe*, a pump-borer.

CUIRS *verds*, raw hides, used to cover the tops, lace on the yards, serve the cables, &c.

CUISINE, the galley or cook-room of a ship.

CUL *de lampe*, an ornament of sculpture resembling the bottom of a lamp, and placed in several parts of the stern or galleries, to terminate the carved-

work.

CUL *de pot*, *de porc*, or *de port*, a double or single wall-knot, wrought on the end of a tack, stopper, or other rope.

CUL *de sac*, a name given by the inhabitants of America to a harbour formed by nature without the assistance of art.

CUL *de vaisseau*. See ARRIERE.

CULASSE, the breech of a cannon, also the stock of a musquet.

CULÉE, the shock which a ship feels when striking the ground, on a rock or sand-bank.

CULER, to go astern, to have stern-way.

CURATEUR *de la marine*, an officer who formerly assigned to the several TRIÉRARQUES the duties of their respective departments. See TRIÉRARQUE.

CURETTE, a pump-scraper, fastened to a staff, or pole, of ten or twelve feet long, to clean the inside of a pump.

CUSEFORNE, a small, long, and sharp rowing-boat of Japan, without decks, employed to fish whales.

D.

DAGUE *de prevôt*, the colt or cat used by the *prevôt* to punish criminals.

DAILLOTS, or ANDAILLOTS, the hanks or grommets

of a stay.

DALE, the gutter or channel in which the train is laid in a fire-ship.

DALE *de pompe*, the pump-dale.

DALOTS, the scupper-holes of a ship. See GOUTTIERE.

DAME-JEANNE, a demijan, or large bottle, containing about four or five gallons, covered with basket-work, and much used in merchant-ships.

DAMELOPRE, a vessel navigated on the canals of Holland.

DAMOISELLES. See LISSES *de porte-haubans*.

DANGERS *civils*, the duty, fine, or exaction, formerly demanded by the lord of the manor from the merchant, or master, who suffered shipwreck on his coast. See BRIS.

DANGERS *naturels*, a general name for the dangers of a coast or bank, as rocks, or shelves of mud, sand, &c. which the officers of the adjacent ports are charged to distinguish by buoys or beacons.

DARD *a feu*, a fire-arrow, used to burn the sails of an enemy's ship.

DARSE, or DARSINE. See BASSIN.

DÉBACLE, or DÉBACLAGE, the act of clearing or opening an harbour, by removing the lightened vessels to make room for such as are laden.

DÉBACLEUR, an officer whose duty it is to regulate the mooring of light and laden ships in a harbour, and to keep the passage, or fair-way, open and clear.

DÉBARCADOUR, a wharf, or storehouse, to receive goods discharged from a ship.

DÉBARDAGE, the act of unlading in general, but particularly fire-wood.

DÉBARDER, to unlade wood, &c. Whence

DÉBARDEUR, a lighter-man. See GABARIER and PORTE-FAIX.

DÉBARQUEMENT, a return of the artillery, stores, rigging, &c. of a ship of war into the dock-yard; also the discharging of the officers and crew.

DÉBARQUEMENT likewise implies disembarking, or landing and discharging the cargo of a merchant-ship.

DÉBARQUER, to unload or discharge a ship, to disembark, to return to the shore.

DÉBAUCHE, an irregular tide.

DÉBILLER, to take off or dismiss the horses that track vessels up and down a canal.

DÉBITTER *le cable*, to unbit the cable.

DE BORD *à bord*, upright on the water.

DÉBORDE, put off, sheer off! the order given by some officer of a ship, to a boat lying near her, to remove farther off.

DÉBORDER, to sheer off from some other ship, particularly an enemy who attempts to board: also to over-haul the tack and sheets, in order to haul a sail up in the brails.

DÉBOSSER *le cable*, to take the stoppers off from the cable.

DÉBOUCLÉ, a term opposed to BOUCLÉ, which see.

DÉBOUQUEMENT, the arrival into open sea, after having been amongst islands, or in narrow channels.

DE BOUT *à la lame*, head to the sea.

DE BOUT *à terre*, head to the shore, standing in shore. See DONNER *de bout à terre*.

DE BOUT *au corps*. See ABORDAGE.

DE BOUT *au vent*. See ALLER *de bout au vent*.

DÉBOUTONNER *la bonnette*. See DÉLACER.

DÉBRIS, the effects which remain in a shipwrecked vessel. By the ordonnances of the marine, all persons who shall have found, or drawn such effects from the bottom of the sea, are to place them in safety, and in twenty-four hours afterwards, at farthest, to make proclamation thereof, under pain of being punished as felons: and by the same ordonnance, it is permitted to the proprietors of the said effects to demand them in a year and a day after such publication, upon paying the salvage-money. It is to be wished that this laudable decree were established in England.

DÉCHARGE, the act of unlading or discharging a merchant-ship.

DÉCHARGE *le petit hunier*, fill the fore-top-sail!

DÉCHARGEMENT. See DÉCHARGE.

Se DÉCHARGER, to lose water; expressed of the ship's pump.

DÉCHARGER *les voiles*, to fill the sails. See SERVIR.

DÉCHEOIR. See ABATTRE.

DÉCHET. See DÉRIVE.

DÉCHIRAGE, the act of breaking up an old ship, or of ripping off her planks.

DÉCHIRER, to rip up an old vessel.

DÉCHOUER, to get a ship afloat, or off from the ground, into deep water.

DÉCLINAISON, the variation of the compass, or of the magnetical needle.

DÉCLINAISON *d'un astre*, the declination of a fixed star, &c.

DÉCOLEMENT, the forming of a tenon on a piece of timber.

DÉCOMBRES, the chips and useless pieces of timber which are left on a shipwright's wharf, after a vessel is built and launched.

DÉCOUDRE, to rip off planks from any part of a ship's side, in order to examine her timbers, &c.

DÉCOUVERTE, a look-out at the mast-head.

DÉCOUVRIR *les terres*, to make, or discover, the land.

DEDANS, when expressed of the sails, imports furled or stowed: as,

Mettre les voiles DEDANS, to take in the sails.

DÉFEND, keep off, keep at a distance; the order given by the pilot, or officer of the watch, to the helmsman, to steer farther from some adjacent object, which may damage the ship.

DÉFENDRE *la côte*, to defend the sea-coast, and prevent an enemy from landing thereon.

DÉFENSES, the skeeds of a ship's side; also booms to send off another ship which is near.

DÉFENSES *de bouts de cable*. See CORDES *de défense*.

DÉFENSES *pour chaloupes*, loose skeeds hung over a ship's sides occasionally, to preserve the boats from being damaged when they are hoisted into, or out of, the ship.

DÉFERLER, to loose or heave out the sails. See DÉPLOYER.

DÉFIE *du vent*, you are all in the wind, keep her full! an information or caution to the helmsman, that the ship is too near the wind; implying that he should keep her farther off, or more to leeward, to fill the sails.

DÉfiE *l'ancre du bord*, bear off the anchor! the order to keep the fluke or bill of the anchor off from the side, to prevent it from tearing the planks at the time of hoisting the fluke up, to be secured by the shank-painter.

DÉFIER, to bear off, as a ship from a wharf, or one vessel from another, to prevent either from being bruised or damaged by rubbing, striking, &c.

DÉFUNER, to unrig a ship, to strip a mast, &c.

DÉGAGER *un vaisseau*, to rescue a ship from the possession, attack, or pursuit, of an enemy.

DÉGARNIR *le cabestan*, to unrig the capstern, by taking off the viol and unshipping the bars.

DÉGARNIR *un vaisseau*, to unrig or dismantle a ship. See DEGRÉER.

DÉGAUCHIR, to bevel or form a piece of timber, so as to fit aptly the place for which it is designed.

DÉGORGEOIR, the bit or priming-iron of a cannon.

DÉGRADER *un vaisseau*, to lay-by a ship; also to

quit or abandon a ship at sea, after having taken out the rigging, stores, &c. when she is become so old and crazy as to be equally useless and dangerous.

DÉGRAPPINER, to warp a ship off from the ice by the means of grapplings, when she had approached too near it.

DEGRÉ, the division of a degree upon a quadrant, nocturnal, &c.

DEGRÉ *de latitude*, a degree of latitude.

DEGRÉ *de longitude*, a degree of longitude.

DÉGRÉER, to unrig a ship; also to loose the rigging in a storm. See DESAGRÉER.

DEHORS, the offing, the outside, or road, of a harbour.

DÉJOUER, to fly out, to flutter, or turn in the wind, expressed of flags, pendants, &c.

DÉLACER *la bonnette*, to unlace or take off the bonnet from the foot of a sail.

DÉLAISSEMENT, an instrument, or act, by which the loss of a ship is announced by the master or merchant to an insurer, summoning him to pay the stipulated insurance.

DÉLESTAGE, the discharging of ballast from a ship.

DÉLESTEUR, an officer appointed to receive the ballast of ships; also a ballast-lighter,

DELOT, or rather COSSE. See COSSE.

DÉMAILLER. See DÉLACER.

DEMANDE, the scantlings or proportions required in each piece of timber which enters into the

construction of a ship of war; also the capacity of every piece, without regard to such demand.

DÉMARAGE, or DÉMARRAGE, breaking adrift from the moorings, parting the cables.

DÉMARRE, the order to cast off, let go a cable, hawser, or other rope.

DÉMARRER, to unmoor, to weigh anchor, to put to sea.

DÉMATÉ, dismasted by a storm or battle; also without the masts, when they have been hoisted out.

DÉMATER, to take out the masts of a ship.

DEMEURER, to remain, or be left, in some road, bay, or harbour.

DEMI-BARRES, the bars of an English capstern.

DEMI-CLEF, a half-hitch on a rope, &c.

DEMI-PIQUE, a half-pike, sometimes used to oppose the boarders in a sea-fight.

DEMI-PONT, the half-deck. See CORPS *de garde*.

DEMOISELLES. See LISSE *de porte-haubans*.

DEMONTER *le gouvernail*, to unhang the rudder.

DÉPARTEMENT, a marine arsenal, or dock-yard and gun-wharf; also the extent of the district and jurisdiction of an *intendant* of the marine.

DÉPASSER, to be ahead of one's reckoning; to sail past or beyond the place intended, as by mistake.

DÉPASSER *la tournevire*, to shift the viol, or change it to the other side of the cap-stern.

DÉPASSER *un vaisseau*, to fore-reach, gain ground upon, or pass another ship, when sailing in

company with her.

DÉPECER *un batiment*. See DÉCHIRER.

DÉPENCE, the steward-room in a ship of war.

DÉPENCIER, or DÉPENSIER *d'un vaisseau*, the ship's steward. See MAITRE-VALET.

DÉPENDANT. *Aller en* DÉPENDANT, to sail in company; to follow.

Tomber en DÉPENDANT, to bear up; to shorten sail in order to veering.

DÉPLOER *le pavillon*, to let fly or display the ensign.

DÉPLOIER *une voile*, to heave out, or set a sail.

DÉPREDÉ, goods plundered or robbed from a wreck, contrary to law.

DÉRADER, to drive with the anchors ahead; to be driven from the anchors and forced out to sea, by the violence of a storm.

DÉRALINGUER, to blow from the bolt-rope, in a storm; spoken of a sail.

DERAPER, to loosen from the ground; understood of the anchor when it is almost aweigh.

DÉRIVATION, the yawing, or deviation from the line of the course.

DÉRIVE, the angle of lee-way, or drift.

DÉRIVE is also the stray-line, or allowance made for stray-line, occasioned by a ship's falling to leeward, when sounding, in deep water.

DÉRIVE is likewise used for a lee-board. See SEMELLE.

DÉRIVE *qui vaut la route*, a drift favourable to the course.

Belle DÉRIVE, a good offing, or sea-room.

DÉRIVER, to drive, to be driven to leeward by a tempest or foul wind.

DÉROBER *le vent d'un vaisseau*, to becalm a ship; also to becalm some of the sails with others.

DÉSAFOURCHER, to unmoor.

DÉSAGRÉER, to have the rigging, or a part of it, blown away or lost by a storm, &c.

DEÉSANCRER, to weigh anchor, and depart from a port or road.

DÉSARBORER, to strike the top-mast and haul down the colours.

DÉSARMEMENT. See DÉCHARGEMENT, and DÉBARQUEMENT.

DÉSARRIMER, to alter or shift the stowage of the hold, in order to change the ship's trim.

DESCENDRE, to maroon. See DESERTER.

DESCENDRE *une riviere*, to fall down a river with the tide.

DESCENTE, a descent or landing upon an enemy's country.

DÉSEMBARQUER. See DÉBARQUEMENT.

Vaisseau DÉSEMPARÉ, a ship disabled, as in a tempest or battle.

DÉSEMPARER *un vaisseau*, to disable a ship in battle, by dismasting her and destroying her sails, &c.

DESERTER *quelqu'un*, to maroon a sailor, or leave him ashore in a foreign country contrary to his inclination.

DESSUS *du vent.* See AVANTAGE *du vent.*

Vingt hommes la-DESSUS, clap on here twenty hands! the order from an officer for twenty men to be employed on some particular duty.

DESTINATION, the place whither a ship is bound.

DÉTACHER, to select some ships from a squadron, for a particular service.

Se DÉTACHER, to quit or abandon the fleet.

DE TALINGUER, to unbend the cable, or take it off from the anchor.

DÉTREMPEUR *de viandes salées & de poisson*, the cook's shifter.

DÉTROIT, a streight or narrow channel between two lands; also an isthmus between two seas.

DÉVENTER *les voiles*, to shiver the sails, or brace them to shiver in the wind.

DEVERGUER, to unbend the sails from their yards.

DEVERS, the moulding of any piece of timber, amongst shipwrights. Whence *Marquer le bois suivant son* DEVERS, to mould the timber according to its compass or inclination.

DÉVIRER *le cable*, to surge the cable about the capstern or windlas, in order to prevent it from riding, with one part over another.

DEVIS, a scheme containing the general dimensions of a ship, from which the shipwright is to form a draught for constructing her.

DEXTRIBORD, or rather STRIBORD, the starbord side of a ship. See STRIBORD.

DIABLOTIN, the mizen top-mast stay-sail.

DIGON, or DIGUON, the stock or staff of a vane or pendant; also a piece of the ship's cut water.

DIGUE, a wall, mound, or pier, of earth or stone, and sometimes of timber, built on the margin of a river, to confine it within its banks so that it may not overflow the adjacent country.

DILIGENCE, a swift-sailing wherry, or passage-boat.

DISPUTER *le vent*, to strive for the weather-gage, or endeavour to get to windward of some ship, or fleet in sight.

DISTANCE *de ports, &c.* the line of distance, in navigation, between any two given places, whose latitude and longitude are known.

DISTANCE *de sabords*, the distance, or interval, between two gun-ports in a ship's side.

DIVISION *d'une armée navale*, one division of a fleet of ships of war.

DIXIEME, an additional cask allowed by an agent-victualler to every ten casks of sea provisions, to answer for waste or leakage.

DOGRE, or DOGRE-*bot*, a Dutch dogger.

DOGUES *d'amure*, the holes in the chess-trees. See TAQUET.

DONNER *à la côte, sur un banc, ou sur un écueil*, to run aground, strike, or be stranded on any coast, shoal, or rock.

DONNER *de bout à terre*, to run right in for the land.

DONNER *dedans*, to enter a port, road, &c.

DONNER *le bas de soie*. See BAS *de soie*.

DONNER *les culées*, to strike repeatedly on a shelf or

rock.

DONNER *le fond*. See MOUILLER.

DONNER *la cale*. See CALE.

DONNER *la chasse*. See CHASSER.

DONNER *le côté*. See PRETER *le côté*.

DONNER *le feu à un vaisseau*, to bream a ship.

DONNER *le suif*, to pay a ship's bottom after she is breamed.

DONNER *vent devant*, to throw a ship up in the wind, or in stays; to bring the wind ahead, by putting the helm a-lee.

DONNER *un grand hunier*, to spare a main top-sail to some other ship in company; implying, that such ship sails slower by as much, as the force of a main-top-sail assists her velocity.

DONNEUR *à la grosse*, the insurer of a ship and her cargo.

DORER *un vaisseau*, to pay a ship's bottom. See ESPALMER.

DORMANTE, *l'eau* DORMANTE, standing water, or water where no tide runs.

DORMANT, the standing part of a tackle, brace, or other running rope.

Bateau fait à DOS *d'ane*, a sharp-bottomed boat.

DOU *est la navire*? whence came the ship? where belongs the ship to?

DOUBLAGE, the sheathing applied to the bottom of a ship, to preserve her.

DOUBLE *d'une manœuvre*, the bight of a rope. See BALANT.

DOUBLER, to double, or double upon, in a sea-fight.

DOUBLER *le sillage*, to make a crooked wake; to run over more space of water than is necessary, by bad steerage.

DOUBLER *un cap*, *parer un cap*, to double, or pass beyond a cape, and leave it behind.

DOUBLER *un vaisseau*, to sheathe a ship's bottom.

DOUCIN, a name given by seamen to brackish water.

DRAGAN, the ornamented part of the stern of a row-galley.

DRAGON, a whirlpool, or vortex of water.

DRAGON *de vent*, a sudden gust or violent squall of wind.

DRAGUE, a drag, or instrument to clean the bottoms of rivers and canals; also to catch oysters.

DRAGUE *de canon*. See BRAGUE.

DRAGUER, to clean the bottom of a river or canal with a drag.

DRAGUER *l'ancre*, to drag, or sweep the bottom, for an anchor which is lost.

DREGE, a sort of net for catching soles and turbot.

DRESSE *la chaloupe*, trim the boat! See BARQUE *droite*.

DRESSER *les vergues*, to brace the yards to the wind when the sails are furled at sea.

DRESSER *une piece de bois*, to trim or prepare any piece of timber for its use.

DRISSE, or ISSAS, the haliards of any sail or yard.

DRISSE *de pavillon*, the ensign haliards.

Allonge la DRISSE, the order to man the haliards, or stretch them along to be manned.

DROGUERIE, the herring-fishery, or the catching and preparation of herrings, on the Northern Banks.

DROIT *d'ancrage*. See ANCRAGE.

DROIT *de congé*. See CONGÉ.

DROIT *de varech, ou varet*. See CHOSES *de la mer*, and DÉBRIS.

Aller en DROITURE, or *faire sa route en* DROITURE, to make a strait course, to make a voyage without touching at any intermediate port.

DROSSE, or DROUSSE, the tiller-rope, formed of white hemp, and wound about the barrel of a ship's wheel.

DROSSE *de canon*, a gun-tackle.

DROSSE *de racage*, a parrel-rope, or truss-rope.

DUNES, downs or heights on the sea-coast.

DUNETTE, the poop of a ship of war.

DUNETTE *sur* DUNETTE, the poop-royal. See TEUGUE.

E.

EAU *changée*, discoloured water, or water whose

colour is changed by approaching the shore, or otherwise.

EAU *du vaisseau*. See SILLAGE.

EAU *haute*, high-water. See HAUTE-MARÉE.

EAU *maigre*, or *Maigre-eau*, shoal-water. This phrase is peculiar to the common sailors.

EAU *plate & courtoise*, very smooth water; the state of the water in a dead calm.

EAU *premiere* & EAU *seconde*, the first and second floods after a neap-tide.

EAUX *fermées*, water enclosed with ice.

EAUX *ouvertes*, an open channel, after the ice has melted or separated.

EBAROUI, abounding with shakes or rents; expressed of a ship whose planks are split, and her seams opened, by the sun or wind, for want of being wetted, or sluiced over with water, in the evenings and mornings.

EBE, or JUSSANT, the ebb-tide.

Il y à EBE, the tide ebbs, or falls.

EBRANLEMENT, the cracking or straining of a ship, as she labours in a high sea.

ECALE, the touching, or anchoring, at any port, in the course of a voyage.

ECARLINGUE. See CARLINGUE.

ECART *double*, a scarf of two ends of timber laid over each other.

ECART *simple ou quarré*, butt and butt; the joining of the butt-ends of two planks.

ECHAFAUD, a flake, or light stage, used in

Newfoundland to dry cod-fish; also a stage hung over a ship's side, to caulk or repair any breach.

ECHANDOLE. See ESCANDOLE.

ECHANTILLONS, the scantlings or dimensions of the different pieces of timber used in ship-building.

ECHARPE, the shell of a block or pulley. See ARCASSE and MOUFFLE.

ECHARS, a wind that veers and hauls; a light and variable wind.

ECHELLE, a scale of equal parts; also a sea-port town, in the dialect of Provence.

ECHELLE *de pouppe*, the stern or quarter-ladder, formed of ropes.

ECHELLES, the gangway and ladder, which serve to ascend or descend the ship's side; likewise the several ladders between decks.

ECHELLES *de latitude croissante*. See CARTE *réduite*.

ECHILON, a water-spout. See SIPHON.

ECHOME, a thoule-pin. See AUTARELLES and THOLET.

ECHOUEMENT, the state of being stranded or wrecked on a coast.

ECHOUER *sur la rivage*, to run ashore, or aground; also to be stranded.

ECLAIRCIE, a clear spot in a cloudy sky. See CLAIRON.

ECLAT *de bois*, a splinter, or chip, torn from any piece of timber, by the force of a cannon-ball or by the stroke of an ax.

ECLUSE, a sluice, or dam.

ECOLE, the school, or academy, in a dock-yard, where navigation, arithmetic, and fortification are taught.

ECOPE, a boat's scoop, or skeet, to throw out the water in her bottom.

ECORE, the edge or extremity of a sand-bank. See CÔTE.

ECORES, are also the shores or props which sustain a ship in dock, or on the stocks, when they are repairing or building her. See ACCORES.

ECOTARD. See PORTE-HAUBANS.

ECOUETS, the tacks of the main-sail and fore-sail.

ECOUPE, or ECOUPÉE, a swab. See FAUBER.

ECOUTES, the sheets of a sail.

ECOUTE *de bonette en étui*, the tack or guy of a studding-sail boom.

Avoir les ECOUTES *largues*, to sail with a flowing sheet.

*Larguer ou filer l'*ECOUTE, to ease off the sheet.

Border les ECOUTES, to haul aft the sheets.

Border plat les ECOUTES, to haul the sheets flat aft, or close aft.

ECOUTILLE *qui s'emboîte*, a hatchway with a scuttle which covers its border,

ECOUTILLES, the hatchways and scuttles in a ship's deck.

ECOUTILLES *à huit pans*, ECOUTILLES *du mât*, the holes and partners of the mast.

ECOUTILLON, a scuttle, or small hatchway; also its cover.

ECOUVILLON, the spunge of a cannon.

ECOUVILLONNER, to spunge the inside of a cannon; to clean or cool it with a wet spunge.

ECRITURES, the papers of a ship, comprehending journals, registers, passports, &c.

ECRIVAIN, the clerk of a ship of war; also the supercargo of a merchant-ship.

ECRIVAIN *emploié aux constructions*, the clerk of the cheque of a dock-yard.

ECRIVAIN *de la corderie*, the clerk of the rope-yard.

ECUBIERS, the hawse-holes; also the hawse-pieces, through which those holes are cut.

ECUEIL, a dangerous rock or shoal.

ECUELLE *de cabestan*, the iron socket or sawcer of the capstern.

ECUME, the froth or foam of a breaking sea.

ECUMER *la mer*, to scour or infest the sea, as a pirate.

ECUSSON, ECU *des armes*, a compartment or scutcheon upon the stern, fore-castle, or belfry, upon which the arms of the ship's owner, or of the province or city from which her name is derived, are painted or carved. These are more peculiar to the French and Dutch than English vessels.

EFFACER, to bring the broadside to bear upon some adjacent object, by clapping a spring upon the cable.

EFFLOTER, to part company, or separate at sea, as

from a fleet or other ship.

EGOUTTOIR, a grating, or drain, wherein to lay cordage after it is tarred.

EGUILLES *de tré*. See AIGUILLES.

EGUILLETTES, or rather AIGUILLETTES, the futtock-riders.

EGUILLETTES, knittles, or small robands; also the loops or buttons of a bonnet.

EGUILLETTES *de mâts*. See ENTENNES.

EGUILLETTES *de pontons*, the cleats, or timber-heads on the gunnel of a pontoon, whereto the relieving-tackles are hooked in the act of careening a ship.

ELANCEMENT, or QUETE, the rake of a ship: the former of these terms is always applied to the stem, and the latter to the stern-post. See QUETE.

ELARGIR, to give chase; also to fly from a pursuing enemy.

*S'*ELEVER, to stand out to sea; also to claw off from a lee-shore.

*S'*ELEVER *en latitude*. See HAUTEUR.

ELINGUER, to sling a cask, bale, or box.

ELINGUES, slings of any kind.

ELINGUES *à pattes*, can-hooks.

ELINGUET, the pawl of a capstern or windlas.

ELME, a meteor, called by English seamen a corposant. See FEU *Saint-Elme*.

EMBANQUÉ, to be upon a fishing-bank, as those of Newfoundland.

EMBARDER, to sheer on one side or the other; to

yaw, or steer obliquely. See ELANCER.

EMBARGO, an imbargo.

EMBARQUEMENT, an embarkation.

EMBARQUER, to ship, to put goods, stores, &c. on shipboard.

*S'*EMBARQUER, to embark, or enter a ship.

EMBELLE, the gangway, or that part of the gunnel which is in the waist of a ship from the gangway to the chess-tree, or fore-castle.

EMBODINURE, or EMBOUDINURE, the puddening of an anchor.

EMBOSSER, to anchor, or moor a ship.

EMBOSSURE, a knot formed on the end of a rope, to which a laniard is fastened; also a bend, by which one rope is fastened to another.

EMBOSSURES, a general name for moorings, stoppers, lashings, and laniards.

EMBOUCHURE, the mouth of a river; also the entrance or opening of a bay or gulph.

EMBOUFFETÉ, clinch-work.

EMBOUQUER, to enter into a streight or passage, through several islands.

EMBRAQUER, to haul, or rowse any rope into a ship; to haul aboard a rope.

EMBROUILLER *les voiles*, to brail up, clue up, or take in the sails.

EMBRUMÉ, foggy weather.

EMMARINÉ, hardened to the sea; as

Matelot EMMARINÉ, a case-hardened or weather-

beaten tar; a veteran sailor.

EMMARINER *un vaisseau*, to mann a ship, or furnish her with seamen.

EMMIELLER *un étai*, to worm a stay.

EMMORTOISER, to fill up a mortise with its tenon.

EMPANNER. See METTRE *en panne*.

EMPATER, to make a scarf; to scarf two pieces of timber together.

EMPATURE, the scarf of two ends of plank or timber.

EMPECHÉ, *un manœuvre* EMPECHÉ, foul, or entangled; an epithet applied to a rope, or tackle, in that situation.

EMPENNELLE, a small anchor sunk ahead of a larger one, to which it is fastened by a small hawser, or tow-line, to prevent the large anchor from loosening, or coming home to the ship.

EMPENNELLER, to carry out the *empennelle*.

EMPESER *la voile*, *la mouiller*, to wet the sails, in order to hold the wind better.

EMPIRANCE, the diminution of a ship's cargo, by waste, decay, or damage, when it is found deficient at the time of delivery.

EMPORTER, to carry away a mast; as, *le grand mât fut emporté*, the main-mast was carried away, or, overboard.

EMPOULETTE. See HORLOGE.

ENCABANEMENT, the tumbling-home of a ship's side, or narrowing of her breadth from the lower-deck-beam upwards to the gunnel.

ENCAPÉ, embayed, or entered between two capes.

ENCASTILLAGE, the elevation of the fore-castle and quarter-deck, together with all the height of a ship above the gunnel of her waist.

ENCASTILLÉ, deep-waisted, or frigate-built; as opposed to galley-built.

ENCLAVER, to let into a rabbit; as the garboard-streak is let into the keel.

ENCOGNURE, the elbow or angle of a knee or standard.

ENCOMBREMENT, cumbersome or unwieldy goods, that embarrass the stowage of a merchant-ship.

ENCOQUER, to fix or slide on, as an iron ring, block-strop, or the eye of a brace-pendant is fixed upon a yard-arm.

ENCOQUURE, the situation of an eye of a pendant, or studding-sail boom-iron, fixed on a yard arm.

ENCORNAIL, the sheave-hole in a top-mast-head, through which the top-sail-tye is reeved, to hoist or lower the top-sail along the mast.

ENCOUTURÉ, clinch-work. See also EMBOUffETÉ.

ENDENTÉ, dove-tailed, indented.

ENDORMI, out of the sailing-trim; spoken of a ship which has lost her usual velocity, or trim. See ERRE.

ENFILER *les cables en virant*, to heave in the cables by the capstern.

ENFLECHURES, the rattlings of the shrouds.

ENFLEMENT, a swell, a rough or swelling sea,

produced by a storm, &c.

ENGAGÉ, an indented servant, who engages to serve a limited time, to defray the expence of his voyage to a distant country.

ENGAGEMENT, the contract, or articles of agreement between the seamen and the commander of a merchant-ship.

ENGINS, frigates of war; a general name for those ships of war which are too small for the line of battle.

ENGRAISSEMENT, *joindre du bois par* ENGRAISSEMENT, to drive forcibly into a mortise; to fit a piece of wood so exactly, that no vacancy shall be left on any side.

ENGRENER *la pompe*, to pump the water out of a ship's bottom.

ENJALER *une ancre*, to stock, or fix the stock upon, an anchor.

ENLACURE, the bolting of a tenon into its mortise, by boring a hole and driving a bolt through both, to unite them more securely.

ENMANCHÉ, entered or arrived, into the channel.

ENSEIGNE *de vaisseau*, an officer under the lieutenant, who executes his duty in his absence; also the ensign of a ship.

ENTAILLE, the rabbit or mortise by which one piece of timber is let into another.

ENTENNES, the props, or out-riggers, fixed on the side of a sheer-hulk, to support the sheers.

ENTER, to join two pieces of wood, as by scarfing, rabbiting, or placing them butt-and-butt.

ENTERRER *les futailes*, to stow the water-casks of a ship in the ballast.

ENTRÉE *d'une riviere*. See EMBOUCHURE.

ENTREMISES, small wedges, or chocks, placed between the whelps of a capstern, to keep them firm in their places.

ENTREPOT, a commercial harbour, where a magazine or storehouse is established, for the reception and exportation of goods; also a factory, or society of merchants, in a trading sea-port.

ENTREPRENEUR, a contractor for building and furnishing a ship, completely fitted according to stated dimensions.

ENTRER *dans le port*, to sail into the harbour.

ENTRE SABORDS, the planks which form the intervals between the ports of a ship's side.

ENTRE-TOISE, the transoms of a gun-carriage, used at sea.

ENVERGUER, to bend a sail to its yard: this phrase is also frequently used for bending a stay-sail to its stay.

ENVERGURE, the dimensions of the sails with regard to their extent upon the yards: hence *une grande* ENVERGURE, implies very square sails.

ENVOIE, the order to the helmsman to put the helm a-lee, in order to bring the ship head to wind.

EPARS *du pavillon*, the flag-staff, or ensign-staff.

EPAVES. See CHOSES *de la mer*.

EPAULES *d'un vaisseau*, the bows of a ship.

EPAULEMENT *d'un tenon*, the shoulder of a tenon, which enters a mortise.

EPAURES, or EPAVRES, the ledges upon which the fore sheets and stern-sheets of a boat are framed.

EPÉES, handspikes. Se BARRES *de virevaut*.

EPERON, or POULAINE, the cut-water, or knee of the head, which is composed of several pieces, as *la gorgere*, *le digon*, *les jottereaux*, *la courbe capucine*, & *les herpes*. See GORGERE, &c.

EPINEUX, rocky above water; full of rocks and breakers.

EPISSER, to splice a rope.

EPISSOIR, or CORNET *d'épisse*, a marline-spike, or splicing fid of hard wood.

EPISSURE, a splice of any kind.

EPISSURE *courte*, a short splice.

EPISSURE *longue*, a long splice.

EPITE, a small pin or wedge, driven into the end of a tree-nail, to fill it.

EPITIÉ, a shot-garland, on the ship's side between the guns.

EPONTILLE, a stanchion. See BATAYOLLES.

EPONTILLES *d'entre pont*, the stanchions between decks.

EQUIPAGE, the crew of a ship of war, comprehending the officers, sailors, ordinary mariners, and boys; but exclusive of the captain, lieutenant, and ensign.

EQUIPAGE *d'attelier*, a general name for the machinery and furniture of a dock-yard, or

shipwright's wharf, as cranes, gins, screws, &c.

EQUIPAGE *de pompe*, the pump-gear, or furniture of the pumps.

EQUIPE, the number or set of boats belonging to one waterman or wherryman.

EQUIPEMENT, the fitting out of a ship, or furnishing her with men, provisions, stores, &c.

EQUIPER, to man, arm, and provide a ship with whatever is necessary to prosecute war, or commerce; exclusive, however, of the cargo itself.

ERISSON, a grappling, or anchor with four claws, used in low-built vessels, particularly galleys.

ERRE, the sailing trim of a ship, or the state by which she is best qualified for the purpose of sailing.

ERSE *de poulie*. See ESTROPE.

ERSES, or ÉTROPES *d'afût*, the strops or eye-bolts in the train of a gun-carriage, to which the relieving-tackles are hooked.

ESCADRE, a squadron of ships of war.

ESCALE. See ECALE.

ESCANDOLA, the cabin of the *argousin* of a row-galley.

ESCARBITE, a caulker's oil-box, or the case which contains thrums steeped in oil, to clean his irons when he is at work.

ESCARPÉ, steep-to; expressed of a shore which may be approached without danger.

ESCARPINE, a fire-arm, resembling a cohorn, used at sea.

ESCHILON. See ECHILON.

ESCOPE, or rather ECOPE, a skeet to wet the sails, or the ship's side. See ECOPE.

ESCOT, the aftmost lower corner of a lateen sail.

ESPALE, the aftmost bank or thwart of a row-galley.

ESPALIER, the person who rows with the handle of the oar, or who is at the inner extremity, and rises at every stroke to guide it.

ESPALMER, to pay the bottom of a vessel with soap, &c. after having breamed her.

ESPOIR, a small piece of artillery, formed of brass, mounted on the deck of a ship, more particularly the *caraques* of Portugal.

ESPONTON, a sort of half-pike, employed to defend a ship from the assault of boarding.

ESPOULETTE, a tin canteen, or case, to carry fine powder to the cannon, in the time of battle.

ESQUAINS, the quick-work, or the planks laid upon that part of a ship's side which is above the spirketting of the quarter-deck and fore-castle.

ESQUIF, a skiff, yawl, or small boat belonging to a ship.

ESSES, the forelocks which are driven through the axletrees of the gun-carriages, to confine the wheels in their proper places.

ESSIEU, or rather AISSIEU, *d'affut de bord*, the axis of a gun-carriage, by which it rests upon the wheels.

ESSUIEUX. See ECOUVILLON.

ESTAINS, the fashion-pieces of the stern.

ESTANCE *à taquets*, a Sampson's-post. See also PIÉDROIT.

ESTANCES. See EPONTILLES *d'entre-pont*.

ESTERRE, a small haven or creek.

ESTIME, the dead-reckoning.

*Erreur dans l'*ESTIME, the errors of a dead-reckoning.

ESTIVE, the trim or disposition of the cargo, by which the ship swims upright, inclining to neither side.

ESTOUPIN, ETOUPIN, or VALET, the vent of a cannon, formed of oakum.

ESTRAN, a name sometimes given to a flat and sandy sea-coast.

ESTRAPADE *marine*, a naval punishment. See CALE.

ESTRAPONTIN, an Indian hammock. See HAMAC.

ESTRIBORD, or STRIBORD. See STRIBORD.

ESTROPER, to reeve a rope through any block.

ESTROPES, a general name for block-strops.

ESTROPES *d'affut*. See ERSES.

ESTROPES *de marche-pieds*, the stirrups of the horses.

ETABLI *sur ses amarres*, settled, moored, or stationed in a port.

ÉTAI, the stay of a mast.

ÉTAI *du grand mât*, or *grand etai*, the main-stay.

ÉTAI *du grand mât de hune*, the main-top-mast-stay.

ÉTAI *du grand perroquet*, the main-top-gallant-stay.

ÉTAI *du mât d'artimon*, the mizen-stay.

ÉTAI *du mât de hune d'avant*, the fore-top-mast-stay.

ÉTAI *du misaine*, or *du mât de misaine*, the fore-stay.

ÉTAI *de perroquet d'artimon*, or *de foule*, the mizen-top-mast-stay,

ÉTAI *de voile d'étai*, a stay-sail-stay.

Faux-ÉTAI, a preventer-sail.

ETALER, to anchor during the interval of a contrary tide, in a foul wind, with intent to pursue the course the next favourable tide.

ETALINGUE, the part of a cable which is bent to the anchor.

ETALINGUER, to bend the cable to its anchor.

ETAMBOT, the stern-post of a ship.

ETAMBRAIES, the holes or scuttles in a ship's decks, through which the masts are let down; also the partners of the mast.

ETAMINE, buntine; a cloth of which a ship's colours are made.

ETANCHER, to stop a leak; also to pump the water out of a ship.

ETANÇONS, a sort of stanchions.

ETAPE, a mart, or place of public sale for merchandise; also a commercial port.

ETARCURE, the drop or depth of a sail.

ETAT *d'armement*, a list, or register, containing the number of ships, and of officers, destined for a naval armament; as also the quality and

proportion of cordage, sails, and furniture of a ship, &c.

Capitaine du grand ETAT, a captain of a ship of the line of battle.

Capitaine du petit ETAT, a master and commander.

ETENDARD, the royal standard, carried by the principal galley of France.

ETÉSIES, or *vents* ETÉSIENS, trade-winds, or monsoons.

ÉTOUPE, oakum, or oakham.

ÉTOUPE *blanche*, white oakum, or that which is formed of untarred ropes.

ÉTOUPE *goudronnée*, black oakum, or oakum made of tarred ropes.

ETRAQUE, the limited breadth of a streak, or plank, used in ship-building.

ETRAQUE *de gabord*, the garboard-streak, or the breadth of the streak next to the keel.

ETRAVE, the stem of a ship.

ETRE *à flot*, the state of being buoyed up by the water.

ETRE *à la gamelle*, to mess with the common sailors.

ETRE *au dessus du vent*. See AVANTAGE *du vent*.

ETRE *banqué*, or *débanqué*, to be upon, or off, the grand bank of Newfoundland.

ETRE *dans les eaux d'un vaisseau*, to be in the wake of a ship.

ETRE *de bout au vent*. See ALLER *de bout au vent*.

ETRE *flanc à flanc*. See PROLONGER.

ETRE *pratique de la mer*, to be accustomed or inured to the sea.

ETRIER, the lower link of the chains of a shroud, which is bolted to the wales.

ETRIERS, strops formed of a piece of rope. See ESTROPES.

ETUVE, a stove in a dock-yard, fitted with furnaces and cauldrons, for tarring cordage, &c.

EVENT, the vent of a cannon, or difference between the diameter of the bore and the diameter of the shot.

EVENTER *les voiles*, to fill the sails.

EVITÉE, the channel of a river, or the breadth of a channel.

EVITÉE, a birth, or sufficient space to let a ship swing round at the length of her mooring.

EVITÉE is also the birth or space between two ships at anchor, or between one ship and some neighbouring object; likewise the sweep or swing of a ship round her anchor, at the length of her cable.

EVITER *à marée*, to stem the tide or current.

EVITER *au vent*, to carry the head to windward, to stem the wind.

EVOLUTIONS, the movements of a fleet in forming the line of battle, or the orders of retreat, or sailing.

EXERCICE, the naval exercise, or the preparatory practice of unmooring, setting sail, stowing the anchors, &c.

EXERCICE *du canon*, the exercise of the great guns.

EXPEDITION *maritime*, a cruise or long voyage at sea.

F.

FABRIQUE, the particular built or structure of a ship, either with regard to her figure, or the place where she was fabricated.

FABRIQUER, to build or construct a ship.

FAÇONS, the narrowing of a ship's floor afore and abaft.

FAGOT. See BARQUE.

FAIRE *abattre*. See ABATTRE.

FAIRE *abordage*. See ABORDAGE.

FAIRE *aiguade*, or FAIRE *de l'eau*, to water a ship, or procure the provision of water necessary for a voyage, &c.

FAIRE *bon bord*, or *bonne bordée*, to make a good board or tack, when turning to windward.

FAIRE *canal*, to sail through a streight or narrow channel. This phrase is more peculiar to the gallies than other vessels.

FAIRE *capot*, to overset, or overturn, at sea.

FAIRE *chapelle*. See CHAPELLE.

FAIRE *chaudiere*, to cook and prepare the seamens victuals.

FAIRE *courir*, or *recourir la bouline*, or *toute autre manœuvre*, to let run, or over-haul the bowline, or any other rope.

FAIRE *dégrat*, to quit a station, on the banks of Newfoundland, where there are few fish, in order to search for a better fishing place.

FAIRE *des feux*, to hang out lanthorns, as signals of distress, in different places of a ship, in the night.

FAIRE *du bois*, *du biscuit*, *du vin*, *de la farine*, &c. to furnish a ship with the provision of wood, bread, wine, flour, &c.

FAIRE *eau*, to leak, to make water.

FAIRE *escale*, to touch at any intermediate port in the course of a voyage.

FAIRE *feu des deux bords*, to cannonade, or fire on an enemy, from both sides of a ship.

FAIRE *filer un cable*, to pay out a larger scope of cable.

FAIRE *force de voiles*, to make sail, to croud sail.

FAIRE *force de voiles & rames*, to croud sail and exert all the force of the oars.

FAIRE *gouverner*, to cunn the ship, or observe that the helmsman steers the ship right.

FAIRE *honneur à une roche ou a quelqu'autre danger*, to give birth to a rock or other dangerous object in a ship's course.

FAIRE *la course*. See ALLER *en course*.

FAIRE *la grande bordée*, to set the half-watch, or the watch of half the ship's crew, as at sea.

FAIRE *le petit bordée*. See BORDÉE.

FAIRE *le nord*, *le sud*, &c. to stand to the northward, southward, &c.

FAIRE *pavillon*, to carry a broad pendant, as the commodore or commander in chief of a squadron, &c.

FAIRE *pavillon*, or *banniere d'une nation*, to hoist or shew the colours.

FAIRE *pavillon blanc*, to display a flag of truce.

FAIRE *petites voiles*, to be under small sails, to carry little sail.

FAIRE *plus de voiles*, to make sail, to make more sail.

FAIRE *quarantaine*, to perform quarantine.

FAIRE *route*, to stand onward on the course.

FAIRE *sa route en droiture*. See ALLER *en droiture*.

FAIRE *servir*, to fill the sails; to make sail, after having lain by for some time.

FAIRE *servir les voiles*, to brace about and fill.

FAIRE *son quart*. See QUART.

FAIRE *téte*, to carry the head to a current or wind.

FAIRE *une descente*, to invade, or make a descent upon, an enemy's country.

FAIRE *voiles* or *voile*, to depart and set sail; to be under sail.

FAIS COURIR, keep her full! the order to the helmsman to steer the ship so as not to shake in the wind when close hauled.

FAIT, fixed, or set-in; an epithet applied to the wind, when it is supposed to be settled for a time.

FAIX, or FAIX *de pont*. See ILOIRES.

FALAISE, a steep and bold shore.

FALAISER, to break or burst over the rocks, &c. understood of the waves upon a sea coast.

FANAL, a light-house on the sea-coast. See PHARE.

FANAL is also the poop or quarter-lanthorn of a ship.

FANAL *de hune*, the top-lanthorn.

FANAL *de soute*, the light-room of a ship's magazine.

FANAUX *de combat*, the lanthorns used between the guns, in time of battle.

FANAUX *pour signaux*, signal-lanthorns.

FANON, the balance of the mizen.

FARAILLON, a small sand-bank.

FARAIS, a sort of nets for fishing of coral.

FARDAGE, the dinnage laid in a ship's hold, when she is to be laden with a cargo of corn, fast, &c.

FARE. See PHARE.

FARGUES, or FARDES, the sides of a ship's waist, from the main-deck upwards to the gunnel.

FASIER, to shiver the sails. See BARBEYER.

FAUBER, a swab. Whence

FAUBERTER, to swab a ship's decks, &c.

FAUSSE *écoute*. See ÉCOUTES *de bonnettes en étui*.

FAUSSE *étrave*, or rather CONTRE *étrave*, the stemson.

FAUSSE *galerie*, a quarter-badge.

FAUSSE *quille*, a piece of timber placed on the top of the keel, in the interval between the dead-wood afore and abaft: also the false keel.

FAUSSES *lances*, wooden guns, fixed on a ship's side to deceive an enemy in time of war.

FAUX *coté*, the side of a ship which heels most when she is lap-sided, or is not trimmed upright by her cargo.

FAUX *étai*, a preventer-main-stay.

FAUX *étais*, a general name for the stay-sail-stays.

FAUX *étambot*, the back of the stern-post.

FAUX *feux*, signals made by false fires.

FAUX *pont*, the orlop-deck, or platform.

FAUX *racage*, a preventer-parrel, used to confine the yard to the mast, in case the parrel should be shot away in battle. This machine is never used in English shipping.

FAUX *ringot*. See SAFRAN.

FAUX *sabords*, false ports, painted in a ship's side, to deceive an enemy. See FAUSSES *lances*.

FAYFENA, a sort of Japonese galley, which usually rows with about thirty oars.

FELOUQUE, an Italian felucca.

FEMELLES, the googings used to hang the rudder on the stern-post.

FÉMELOTS, the googings of a boat's rudder, &c.

FER, a name given to an anchor in a row-galley.

FER *de chandelier de pierrier*, the socket in which the swivel of a pedrero rests and traverses.

FER *de girouette*, the spindle which supports the vane at the mast-head.

FERLER, to furl, hand, or stow the sails.

FERMETURE. See the subsequent article.

FERMURES, the planks of a ship's side in the intervals between the wales.

FERRURE, the iron-work of a ship, as chains, bolts, spikes, nails, &c.

FERRURE *de chaloupe*, the iron-work employed to fit the mast, boom, and rudder of a long-boat.

FERRURE *de gouvernail*, the pintles and googings of a ship's rudder.

FERRURE *de sabords*, the hinges of the gun-ports.

FERS *d'arcboutans*, or *boute de hors*, the goose-neck of a studding-sail-boom; also the fork of a fire-boom.

FERS *pour les criminels*, bilboes, or fetters, to confine criminals.

FESSES, a name usually given to the buttocks, or prominent quarters, of a Dutch flight or cat.

FEU *grégeois*, an artificial fire, or inflammable composition, used sometimes to burn an enemy's ship in battle.

FEU *saint Elme*, a corposant, sometimes called Castor and Pollux.

FEUX *d'artifice*, artificial fires used at sea.

FICHURE, a fish-gig, or staff with several grains or prongs, used to strike fish at sea. See FOESNE.

FIGALE, an Indian vessel with one mast, usually rowed with oars.

FIGULES, or FIGURES. See ENFLECHURES.

FIL *de carret*, a rope-yarn.

FIL *de voile, de tré, ou de trévier*, twine for sail-making.

FILADIERE, a small flat-bottomed boat used on the Garonne.

FILANDRES, sea-weeds which adhere to a ship's bottom that has been long at sea.

FILARETS, rails used to extend the nettings on a ship's quarter, waist, or fore-castle.

FILE *bouline*, check the bowline! the order to ease-off, or let go the bowline, when the ship veers before the wind.

Ne FILE *plus, amarre*, keep fast the cable! stopper the cable! veer no more!

FILER, to slacken, or lower gradually.

FILER *du cable*, to veer out, or veer away the cable.

FILER *de l'écoute*, to ease-off a sheet.

FILER *le cable bout par bout*, to veer away the cable to the end, to veer out the cable end for end.

FILER *les manœuvres*. See LARGUER.

FILER *sur ses ancres*, to pay out more cable to the anchors.

FILER *toute l'écoute*, to let fly a sheet, as in a squall of wind which endangers the ship.

FILET, a sort of moulding on a ship's side.

FILET *de merlin*, a marling; a small line so called. See MERLIN.

FILEUX, or TAQUET. See TAQUET.

FIN *de voiles*, swift of sailing.

FISCAL, or *Avocat*-FISCAL, an officer whose duty is similar to that of the judge-advocate of a court-martial at sea.

FISOLERES, small boats used by the Venetians, one of which is often carried by the waterman who manages it, upon his shoulders.

FISOLLE, or FICELLE, whipping-twine; also a fox, formed of a single rope-yarn.

FLAMBEAU *de mer*, a title given to a book of sea-charts, coasts, soundings, &c.

FLAMME, a broad-pendant, displayed as a mark of distinction, ornament, or signal.

FLAMMEROLES. See FEU *saint Elme*.

FLANC *de vaisseau*, the side of a ship.

Etre FLANC *à* FLANC, to lie alongside of, to be broadside-and-broadside.

FLASQUES, the cheeks or sides of a gun-carriage.

FLECHE *de l'eperon*. See HERPES and LISSES *de poulaine*.

FLETTE, a sort of punt, or flat-bottomed boat, used for the passage of a river, or carrying goods, &c.

A FLEUR *d'eau*, level with the surface of the water.

FLEURS, those parts of a ship which lie at the floor-heads, or the upper-ends of the floor-timbers.

FLIBOT, a small Dutch vessel, which usually carries about one hundred tons, and has a main-mast and fore-mast, without any top-mast.

FLIBUSTIERS, or CORSAIRES, freebooters or bucaneers.

Florer *un vaisseau*, or *lui donner les* FLEURS, to pay a ship's bottom; to give her a clean bottom by careening, &c.

FLOT, FLOTS, the surge or waves of the sea.

Abandonner un vaisseau à la merci des FLOTS, to let a ship drive at the mercy of the waves and winds.

FLOT, the flood-tide.

Demi-FLOT, half-flood.

Il y à FLOT, the tide flows, it is flowing water.

Etre à FLOT, to float, to be afloat upon the water.

Ligne de FLOTTAISON, a line described on the bottom of a ship, by the surface of the water in which she floats.

FLOTTE, a fleet of ships.

FLOTTER, to swim or float upon the surface of the water.

FLOTTILLE, a small squadron of Spanish ships, usually stationed in America.

FLUTE, a flight or fly-boat, called also PINQUE, but differing in shape from the English ship so called.

FLUX & REFLUX, the tides of flood and ebb.

FOC, a jib.

Le grand Foc, the standing jib.

FOESNE, a forked instrument with several prongs and a long handle to strike fish; it is usually termed grains, or fish-gig, by the English mariners. See FICHURE.

FOIT *de mât*, the height of a mast, expressed of a very high or taunt mast.

FONCET, a long flat-bottomed barge, for carrying goods in a river, &c.

FOND, the ground or bottom of the sea.

FOND *d'affut*, the sole or bottom of a gun-carriage.

FOND *de bonne tenüe*, good holding ground, or good anchoring-ground.

FOND *de cale*, the hold of a ship.

FOND *de cours ou cure*, a bottom of fine sand.

FOND *de la hune*, the platform or flooring of the top.

FOND *de mauvaise tenüe*, bad anchoring ground.

FOND *de roche*, rocky ground.

FOND *de son*, a bottom where the sand appears like bran.

FOND *de voile*, the bunt of a sail.

Point de FOND, out of soundings.

FOND *d'aiguilles*, a bottom or ground abounding with pointed shells.

FOND-*haut, ou haut*-FOND, a shoal or high ground, or sand bank.

FOND *d'un basse voile*, the foot of a lower sail.

Prendre FOND, *toucher, relacher*, to anchor or touch at a place in passing.

Aller à FOND, to sink, to go to the bottom.

Plat-FOND *d'un vaisseau*, the floor or bottom of a ship.

FOQUE *de beaupré*, the jib, or flying-jib. See FOC.

FORBAN, a pirate. See PIRATE.

FORCE *de voiles*, *fair* FORCE *de voiles*, to make sail, to croud sail.

FORCER *de rames*, *faire* FORCE *de rames*, to row strongly, so as to redouble the efforts of the oars.

FORCER *des voiles*, to croud sail, to carry a press of sail.

FOURCHETTE, a pair of sheers, or machine to mast or dismast a ship.

FORME, a wet dock.

FORME *en talud*, a slip, or declivity on the banks of a river, where ships are built.

FORMES *de vaisseaux*. See BALOIRES.

FORT *de virer*, a term amongst the French common sailors, which answers to, avast-heaving.

FORTUNE *de mer*, the accidents or disasters of the sea, occasioned by pirates, shallows, &c.

FORTUNE *de vent*, a tempest or violent storm, in the dialect of Provence.

Voile de FORTUNE, the square or lug-sail of a galley or tartane, in the Mediterranean. See TREOU.

FOSSE, a creek or small haven on the sea-coast, where ships may come to anchor.

FOSSE is also a place out of soundings on the edge of a bank.

FOSSE *au lion*, the boatswain's store room, in the fore part of a ship.

FOSSE *aux cables*, the cable stage, or cable tier, in the orlop, &c.

FOSSE *aux mâts*, a place where the masts are kept afloat in salt water, in a dock-yard.

FOUETTER, to strike or slap back against the mast; expressed of the sails of a ship, when they are first taken aback.

FOUGON, the cobose, grate, or fire-place of a ship, in the language of Provence.

FOUGUE, *mât de* FOUGUE, *ou à foule*, the mizen-mast.

Vergue de FOUGUE, *ou foule*, the cross jack-yard.

FOUGUE, or *perroquet de Fougue*, the mizen-top-sail.

FOULOIR, an instrument which serves as a rammer and spunge of a cannon.

FOUR, a sort of breast-hook or knee, used to strengthen the bows of a boat.

FOURCATS, the crotches, placed in the after and fore hold, as floor-timbers.

FOURCHE *de potence de pompe*, the ears of a pump.

FOURCHES *de carene*, breaming-hooks, or forks used to hold the flaming furze or faggots to a ship's bottom when graving.

FOURRER, to serve the cables, as with rounding, keckling, plat, &c.

FOURRURE, a general name for service of leather, plat, canvas, or ropes.

FOYER, a light-house, a light or fire on the sea coast, to direct shipping in the night. See PHARE.

FRAICHEUR, a fresh wind or steddy breeze.

FRAICHIR, to freshen, or blow stronger; expressed of an increasing gale.

FRAIS, a light or small breeze.

FRANC *d'eau*, pumped out, or free of water.

Rendre le navire FRANC *d'eau*, to pump the water out from a ship's bottom; to free her by the pump.

FRANC-*funin*, a white hauser or large untarred rope, used for several purposes.

FRANCHE-*bouline*, upon a bowline, upon a wind, close hauled.

FRANCHIR *la lame*, to head the sea, to sail against the setting of the sea.

FRANCHIR *l'eau*. See *Rendre le navire* FRANC, &c.

FRANCHIR *une roche*, to pass over or forge off from a rock, after having struck, touched, or rested upon it.

FRAPPER, to fix on, or set up the standing-rigging: also to make fast, when expressed of *large* ropes; as *amarrer*, to belay, is used in the same sense for *smaller* ones.

FRÉGATE, a frigate of war.[60]

FRÉGATE *d'avis*, a sloop of war, packet-boat, or tender.

FRÉGATE *légere*, a light or small frigate, carrying from 30 to 20 guns.

FREGATÉ, *frigate built*, or formed with a deep waist.

FREGATON, a sort of Venetian ketch,

FREINS. See REFREINS.

FRELER, to furl, or hand the sail. See FERLER.

FREQUENTER *un port*, to trade often to one harbour.

FRET, the freight or hire of a ship; called also *fretement*.

FRETER, to freight or hire a ship.

FRETEUR, the proprietor or owner of a ship, to whom the freight for the merchandize is paid.

FRIBSUTIER. See FLIBUSTIERS.

FRISER *les sabords*, to line the gun-ports with bays or kersey, to prevent the water from entering at sea.

FRISONS, cans or jugs.

FRONTEAU, the breast-work, a moulding ornamented with sculpture, and sometimes a sort of balustrade, reaching athwart the ship from one side to the other, and serving to terminate the quarter-deck and poop at the fore-end, and the fore-castle both afore and abaft.

FRONTON. See MIROIR.

FUNER *un mât*, to fix the standing-rigging on the mast-head.

FUNIN, cordage of a certain size, which is particularly used for the running-ropes, and sometimes for the standing-rigging. See FRANC-*funin*.

FURIN, the offing, the high sea, deep water; as, *Mettre un vaisseau en* FURIN, to carry or conduct a ship out to sea, or over the bar, &c. of a harbour into deep water.

FUSEAUX, or TAQUETS *de cabestan*. See TAQUETS.

FUSÉE *dans un brulot*, the pipe or channel of the train in a fire-ship.

FUSÉE *d'aviron*, a mouse on the middle of an oar, to confine it in the strop or grommet.

FUSÉE *de vindas, ou de cabestan volant*, the main-piece or body of the windlass, into which the

handspecks are put.

FUSÉES *de tournevire*, the mouses of the viol.

FUSTE, a low and capacious vessel navigated with sails and oars.

FUT *de girouette*, the vane-stock.

FUTAILLE, the water and provision-casks of a ship.

G.

GABARE, GABARRE, a sort of flat-bottomed lighter or barge, used in the river Loire, to lade and unlade shipping.

GABARIER, a lighter-man, or the person who conducts the *gabare*.

GABARI, a sort of model to represent the outline and thickness of the frames of a ship's timbers. See COUPLE.

Premier GABARI, or rather *maître* GABARI, the midship-frame.

GABARIS *de l'arriere*, the after-frames.

GABARIS *de l'avant*, the fore-timbers or frames.

GABIE, the top, in the dialect of Provence.

GABIER, the captain of the main, or fore-top.

GABORD, the garboard-streak, or plank next to the keel in a ship's bottom.

GABURONS. See JUMELLES.

GACHER, to row, or advance a boat with oars.

GAFFE, a boat-hook. See CROC.

GAFFER, to hook and draw any thing near with a boat-hook.

GAGNER *le vent*, or GAGNER *au vent, &c.* to gain the wind of, to get to windward of. See AVANTAGE *du vent*.

GAGNER *sur un vaisseau*, to fore-reach or gain upon; to gain ground of some ship in company.

GAGNER *un port, un havre, un degré de latitude*, to secure a harbour, or arrive at a rendezvous without interruption.

GAILLARD, or CHATEAU, the elevation of the quarter-deck and fore-castle.

GAILLARDELETTE, or GALAN, the flag of the fore-mast.

GAILLARDET, a sort of broad pendant displayed at the fore-mast-head.

GAINE *de flamme*, the canvas edging fixed on the head of a pendant, to contain the stock.

GALAUBANS, the back-stays of the top-masts and top-gallant-masts.

GALÉACE, or GALÉACE, a galléasse, or great galley of Venice.

GALERE, a row-galley.

GALERE *patrone*, the second of the galleys of France, Tuscany, and Malta.

GALERIE, the gallery or balcony of a ship's stern, or quarter.

GALERIES *du fond de cale*, certain passages formed

close to the cieling in the hold of a ship of war, for the discovery of leaks. See ACCOURSIE.

Fausse GALERIES, the badges of the quarters in a small ship.

GALERNE, a north-west wind.

GALET, a sea-coast abounding with flints.

GALETTE, round and flat sea-biscuit.

GALION, a galleon, or Spanish ship of war of the Indian fleet.

GALIOTE, a half galley; also a Dutch fishing vessel.

GALIOTE *à bombes*, a bomb-ketch.

GALIOTE *servant de yacht d'avis*, a packet, or advice-boat.

GALOCHE, a snatch-block; also a hole made in the coamings of a hatchway, for the cable to rest when the hatches are laid.

GALOCHE likewise implies the stock or frame into which the feet of the sheet-kevels are fixed by the ship's side.

GAMBES *de hune*, the futtock-shrouds.

GAMELLE, a bowl or platter to hold the sailors victuals; also a mess or company of them who eat together.

Etre à la GAMELLE. See ETRE, &c.

GANTERIAS. See BARRES *de hune*.

GARANT, a tackle-fall, or the part upon which they pull in hoisting, &c.

GARBIN, the south-west wind, in the dialect of Provence.

GARCETTES, a general name for all sorts of platted cordage; as,

Maîtresse-GARCETTE, the bunt-gasket, or middle-gasket of a yard.

GARCETTES *de bonnettes*, the keys or buttons of the bonnets.

GARCETTES *de fourrures de cables*, plat for serving the cables.

GARCETTES *de ris*, the reef-points of a sail.

GARCETTES *de tournevire*, the nippers of the cable, by which it is attached to the viol.

GARCETTES *de voiles*, the gaskets which serve to furl the sails.

GARCONS *de bord*, the ordinary seamen in a ship of war or merchantman.

GARDES, or QUART, the watch.

GARDE *au mât*, a person who looks out at the mast-head.

GARDE-*corps*, the side, or quarter-nettings of a ship.

GARDE-*côte*, a ship of war which cruises on the coast of a nation, to protect it from the insults of the enemy or pirates.

GARDE *des côtes*, a military guard, employed to defend the coasts in time of war.

GARDE-*feux*, powder-chests, or cartridge-chests.

GARDE *de la marine*, a midshipman, or naval cadet.

GARDE-*magasin*, an officer similar to the store-keeper of a dock-yard.

GARDE-*ménagerie*, a ship's poulterer, a person who takes care of the beasts, fowls, &c. in a ship.

GARDER *un vaisseau*, to dog, pursue, or watch the motion of an enemy's ship, so as to prevent her from escaping: also to guard and protect a ship.

GARDIEN *de la fosse à lion*, the boatswain's yeoman.

GARDIENNERIE, or CHAMBRE *des canoniers*, the gun-room. See SAINTE-BARBE.

GARDIENS, *matelots*-GARDIENS, the ordinary men of a dock-yard, under the command of the master attendant.

GARES, certain small docks or retreats, formed on the side of a narrow canal, to contain boats, that others may pass the more easily.

GARGOUSSE, or GARGOUCHE, the cartridge of a cannon or other fire-arm.

GARGOUSSIERES, a cartridge-box, or cartouch-box, for small arms.

GARITTES, the top-brims, or top-rims.

GARNIR, or rather GRÉER. See GRÉER.

GARNIR *le cabestan*, to rig the capstern, by fixing the viols, bars, pins, and swifter, to be ready for heaving.

GARNITURE, the standing, and running-rigging of a ship, together with the services of the yards.

GATTE, the manger of a ship.

GAVITEAU, a buoy, in the dialect of Provence. See BOUÉE.

GENOU *de la rame*, the loom of an oar.

GENOUX *de fond*, the lower futtocks of the timbers.

GENOUX *de porques*, the lower futtock-riders.

GENS *de l'équipage*. See EQUIPAGE.

GENS *de mer*, a general name for mariners.

GENS *du munitionnaire*, the steward's crew or assistants.

GERSEAU, a block-strop. See ESTROPE.

GIBELOT, the standard which fastens the cut-water to the stem; called also, and more properly, COURBE *capucine*.

GINDANT. See GUINDANT.

GIROUETTES, vanes of the mast-head.

GIROUETTES *quarées*, very broad vanes.

GISSEMENT, the bearings of coasts or latitudes, with respect to each other, or to some distant object.

GIST. See the preceding article.

GLAÇONS, or *bancs de glace*, flakes, or islands of ice.

GOLFE, a gulf of the sea, as of Mexico, of Lyons, &c.

GONDS, the gudgeons by which the rudder is hung to the stern-post. See FERRURE *de gouvernail*.

GONDOLE, a gondola of Venice.

GONDOLIERS, the master and crew of a gondola.

GONNE, a sea-cask somewhat larger than a barrel.

GORET, GORRET, a hog, or large brush to scrub the ship's bottom under water.

GORETER, to hog a vessel, to apply the hog.

GORGERE, *ou* TAILLEMER, the foremost and lowest part of the cut-water, or knee of the head.

GOUDRON, or GOUDRAN, tar.

GOUDRONNER, to tar a ship, or pay her sides with tar.

GOUFFRE, a gulf, race, or whirlpool; as the race of Portland, &c.

GOUJURE, the notch or channel cut round the outside of a block or dead-eye, to receive the strop or rope which is fixed therein.

GOUJURE *de chouquet*, the hole on a cap, through which the haliards of a sail is sometimes reeved.

GOULET, the strait entrance of a harbour.

GOUPILLE, the forelock of a bolt. See CLAVETTE.

GOURDIN, a cobbing-board, used to punish the slaves in the gallies.

GOURMETTE, a ship-boy, servant, or apprentice, in the dialect of Provence; also a watchman appointed by the merchants to take care of the goods in a lighter till they are shipped or landed.

GOURNABLES, tree-nails.

GOURNABLER *un vaisseau*, to drive the tree-nails into a ship's sides.

GOUTIERE, or TIRE-POINT, the water ways of the decks.

GOUVERNAIL, the helm or rudder of a ship.

GOUVERNE *ou tu as le cap, ou à tel air de vent*, thus boy, thus! or, steddy as you go! the order to steer the ship exactly as she stems, or carries her head.

GOUVERNEMENT, the navigation or steerage of a ship.

GOUVERNER, to steer a ship or boat.

GOUVERNER *au nord*, to steer northward.

GOUVERNEUR, *ou* TIMONNIER, the helmsman, the steersman.

GRAIN *de vent*, a sudden squall of wind or rain, or of both.

GRAIN *pesant*, a heavy or violent squall.

GRAND *mât*, the main-mast of a ship or boat.

GRAPPIN, a grappling or grapnel.

GRAPPIN *à main, ou* GRAPPIN *d'abordage*, a fire-grappling, or grappling of the yard-arm.

GRAPPINER, to warp a vessel towards a flake of ice, by grapplings and ropes.

GRAS *de mer*, discoloured water at the mouth of a river, &c.

GRASSE-*bouline*. See BOULINE.

GRATTER *un vaisseau*, to scrape a ship; whence,

GRATOIR, a scraper.

GRAVE, a platform of flints, &c. whereon to dry fish in Newfoundland.

GRÉEMENT, a general name for the rigging, comprehending also the masts, yards, and the sails when they are bent.

GRÉER, to rig a ship, or fit her with rigging, blocks, yards, sails, &c.

GRELIN, a hauser, or stream-cable.

GRENADE *à main*, a grenade of iron or glass.

GRENIER, the floor-cieling of a ship, or a cieling which reaches only from the kelson to the floor-heads.

Charger en GRENIER. See CHARGER, *&c.*

GREVE, a flat, low, and sandy shore.

GRIBANE, a small vessel navigated on the coast of Normandy, and carrying a main-mast and fore-mast, without any tops.

GRIGNON, sea-bread called rusks, common in Holland and Denmark.

GRIP, a small vessel resembling a schooner or shallop.

GROS *d'un vaisseau*, the breadth, or extreme breadth of a ship.

GROS *temps*, a hard gale of wind, blowing weather, foul or squally weather.

GROSSE *avanture*, bottomry.

GRUE, a crane with a wheel, used on wharfs and keys.

GUÉRLANDES. See GUIRLANDE.

GUET *de la mer*. See GARDE *des côtes*.

GUI, the main-boom of a sloop; also the fore-boom of a schooner.

GUINDAGE, the act of hoisting with tackles in general, but more particularly with regard to the lading or unlading a ship; also the money paid to those who are employed in such exercises.

GUINDAGES likewise imply the tackles, and other machines used in lading, &c.

GUINDANT *d'un pavillon*, the hoist or height of an ensign or flag.

GUINDAS, the windlass. See VIREVAUT.

GUINDER, to sway up a top-mast.

GUINDERESSE, a top-rope, used to sway up, or lower the top-mast.

GUIRLANDES, the breast-hooks in a ship's bow.

GUISPON, a brush used to pay the ship's bottom with soap, tar, &c.

GUITERNE, a prop or shoar to support the sheers which are employed to mast a ship, or take out her masts.

GUITRAN, a sort of bitumen, or pitch, used to pay a ship's bottom.

GUMES, or GUMERES, a general name given in Provence to all large ropes; as hausers, cables, &c.

H.

HABIT *de bord*, sea-cloaths, as jackets, trowsers, &c.

HABITACLE, the binacle.

HACHE *coignée*, an ax or hatchet, used by ship-wrights, &c.

HACHE *d'armes*, a pole-axe or battle-axe, used for boarding an enemy's ship.

HACHER, to hew or chop with an axe.

HALAGE, the tracking or towing a ship from one place to another.

HALE *à-bord*, the boat rope, or guess-rope of a boat's moorings.

HALE-*bas*, a down-haul, or down-haul tackle.

HALE-*bouline*, a fresh-water sailor.

HALER, to haul or pull upon any rope.

HALER *le vent*, to haul the wind, or come nearer to its direction.

HALER *à la cordelle*, to warp a ship from one place to another.

HALEUR, a person who tracks a boat by a rope reaching ashore and fastened round his waist.

HAMAC, a hammoc.

HANCHE, the quarter of a ship.

HANGARD, a shed or store house in a dock-yard, wherein the masts and pieces of timber are covered from the weather, and ranged in order.

HANSIERE. See AUSSIERE.

HARPIN, a boat-hook. See CROC.

HARPON, a harpoon, used for striking whales.

HARPONNEUR, an harponeer, who strikes the whale.

HARPONS, are also sharp cutting-hooks, lashed to the yard-arms to destroy the enemies rigging, in the act of boarding.

HAUBAN *de voile d'etai*, the guy of a lower-studding-sail-boom, or of the main-boom of a brig, sloop, or schooner.

HAUBANER, to fasten the stay of a gin, triangle, or such sort of machine, to a stake or peg.

HAUBANS, the shrouds of the masts.

HAUBANS *de beaupré*, the standing-lifts of the sprit-sail-yard.

HAUBANS *de chaloupe*, the gripes or lashings of the boats, by which they are fastened to the decks at sea.

HAVRE, an haven, or harbour.

HAVRE-*brut*, an harbour formed by nature.

HAVRE *de toutes marées*, a port accessible at any time of the tide.

HAUSSER *un vaisseau*, to raise a distant ship by approaching her gradually in chace.

HAUSSIERE. See AUSSIERE.

HAUT & *bas*, the order to the men at the pump to take long strokes, which will not so readily fatigue them as the short ones, which are quicker.

HAUT-*pendu*, a small cloud charged with a heavy squall.

HAUTE-*mer*, the offing.

Vaisseau en HAUTE-*mer*, a ship in the offing.

HAUTE-*marée*, *le vif de l'eau*, *pleine-marée*, high-water, a spring-tide, a spring-flood.

HAUTE-*somme*, contingent-money, expended on account of any extraordinary charges.

HAUTES-*voiles*, the top-sails and top-gallant-sails.

HAUTEUR, *ou* LATITUDE, the distance of any place in degrees, from the equinoctal. See LATITUDE.

HAUTEUR *de l'étambot*, the height of the stern-post.

HAUTEUR *de l'étrave*, the height of the stem.

HAUTEUR *entre deux ponts*, the height between decks.

HAUTS *d'un vaisseau*, the heights or eminences of a ship.

Mettre les mâts de hune HAUTS, to sway up the top-masts, to get the top-masts an end.

HAUTURIER, or *pilote*-HAUTURIER, a pilot who directs the ship's course by celestial observations.

HAYE, HAIE, a ridge of rocks, a chain of rocks under water, or near the surface of the water.

HEAUME, the tiller, or bar of the helm in small vessels.

HELER *un vaisseau*, to hail or accost a ship at a distance.

HERPE *de plat-bord*, the harping on each side of the bow.

HERPES *de poulaine*, rails of the head, stretching from beneath the cat-head towards the cut-water. See *Lisses de* POULAINE.

HERPES *marines*, a general name for whatever is thrown upon the sea-coasts of value, as coral, amber, &c.

HERSE *de poulie*. See ESTROPE.

HERSES *d'affut*. See ERSES.

HERSILIERES, certain knees placed horizontally on the quarters or bows of a ship, close to the gunnel.

HEU, a large hoy, or sailing lighter.

HEUSE, the spear of a pump, together with its box.

HILOIRES. See ILLOIRES.

HISSE, HISSE, hoist away! hoist heartily!

HISSER, ISSER, to hoist or pull up any thing by a tackle.

HISSER *en douceur*, to hoist handsomely, or gradually.

HIVERNER, to winter, or lie up in a port during the winter season.

HOIRIN. See ORIN.

HOLA, hoa the ship a hoy! an acclamation to hail or accost a ship at a distance.

HOLA-HO, a cry which answers to yoe-hoe.

HOMME, a name frequently given as a token of distinction to an able or expert seaman.

HONNEUR, *fair honneur*, to give a good birth to, to

keep aloof, or at a distance from; as a rock, or shoal, or some other ship,

HOPITAL, an hospital-ship, that attends on a fleet to receive the sick.

HORIZON, the horizon.

HORIZON *fin*, a clear horizon.

HORIZON *gras, ou embrumé*, a cloudy horizon.

HORLOGE, an half-hour glass for regulating the watch.

HOUACHE, or SILLAGE, the wake or track of a ship in the sea, made by her passage through it.

HOUCRE. See HOURQUE.

HOULES, *ou lames de mer*, the waves of a swelling or breaking sea.

HOULEUX, a rolling and turbulent sea.

HOUPÉE, the rise or swell of a wave.

Prendre la HOUPÉE, to watch the swell, as in mounting from a boat into a ship, when the boat rises.

HOURAGAN. See OURAGAN.

HOURSE, or OURCE, the vangs of a mizen-gaff or yard.

HOURDI. See *Lisse de* HOURDI.

HOURQUE, a Dutch howker, a particular sort of hoy.

HOUVARI, a strong land-wind in the West-Indies, accompanied with rain, thunder, and lightning.

HUCHE, a ship with a high poop, stern, or round-house, on the quarter-deck, as a Dutch flight.

HUNE, the top.

HUNES *de perroquet*, the top-mast cross-trees.

HUNIER, a top-sail.

Le grand HUNIER, the main-top-sail.

Le petit HUNIER, the fore-top-sail.

Avoir les HUNIERS *à mi-mât*, to have the top-sails half-mast up.

Avoir les HUNIERS *dehors*, to have the top-sails set.

Mettre le vent sur les HUNIERS, to brace the top-sails to the wind, or to lay them a-back on the mast.

Amener les HUNIERS *sur le ton*, to lower the top sails down upon the cap.

HUTTER, to lower the lower yards down a port-last, and peek them up so as to hold less wind, when a ship rides at anchor in a storm.

HYDROGRAPHE, an hydrographer, employed by the state to teach navigation in the sea-ports.

J.

JAC, or JACHT. See YACHT.

JACQ. See PAVILLON.

JALOUX, a name given in Provence to the quality of rolling violently at sea; or of being crank.

JAMBES *de hune*. See GAMBES *de hune*.

JARDEN, a name sometimes given to the gallery or balcony of a ship.

JARLOT, the rabbit, or channel, cut in the stem afore, and in the stern-post abaft, &c. and into the keel, to receive the ends or edges of the planks which cover the timbers.

JAS, or JOUAILS *d'ancre*, the anchor-stock, or the two pieces of which it is composed.

JATTE, the manger. See GATTE.

JAVEAU, a bank, or small island, formed in a river by a mass of gravel or mud.

JAUGE, the tonnage or burthen of a vessel.

JAUGER, to measure, or take the dimensions of a ship, in order to discover her tonnage, or the space contained in her hold, &c.

JAUMIÉRE, the hole in a ship's counter or stern, which contains the rudder-head, and in which it is turned by the tiller; the lower part of it is usually covered with a piece of tarred canvas nailed to the rudder, to prevent the entrance of water.

JET *de voiles*, a complete suit of sails for all the masts, yards, stays, &c.

JET also implies any part of the cargo, &c. thrown over-board in a storm.

Faire le JET, to throw over-board the cargo, or any part of it, in a dangerous storm, in order to lighten the vessel, so as to prevent shipwreck or foundering; on which occasion the master usually draws up a protest against the weather, &c. on his arrival in port.

JETTÉE, a pier, or mole-head, formed by a heap of stones sunk at, or near, the entrance of a harbour.

Also a great wharf or key.

JETTER *à la mer*, to throw any thing over-board.

JETTER *dehors le fond du hunier*, to foot the top-sail out of the top.

JETTER *du bled, ou autres grains à la bande*, to trim the corn, salt, or such like materials, to the other side of the ship, on any particular occasion.

JETTER *l'ancre*, to let go the anchor, to drop anchor.

JETTER *la sonde, ou le plomb*, to sound, or heave the lead.

JETTER *un navire sur un banc, ou sur un rocher, ou à la côte*, to run a ship ashore, upon a bank, rock, or coast, to avoid an enemy.

JEU *du governail*, the play of the helm or rudder.

ILLOIRES, two ranges of planks running fore and aft in a French ship, for the whole length of the deck on each side of the hatches, in the same place where the carlings are in an English ship of war.

INCOMMODÉ, disabled by the loss of masts, sails, or rigging. See DÉSEMPARÉ.

INGÉNIEUR *de la marine*, an officer who conducts the fortifications of a sea-port, either for attack or defence; also a person employed to survey coasts, draw sea-charts, and teach the theory of navigation.

INONDER, to overflow a country by an inundation of the sea.

INSPECTEUR *des constructions*, an officer whose duty is nearly similar to that of our surveyors of the navy.

INTENDANT *de marine*, an officer who, by his duty and authority, resembles our resident-commissioner of a dock-yard. See COMMISSAIRE *generál de la marine*, who is his deputy, and where his office is fully explained.

INTENDANT *des armées navales*, an officer appointed to regulate the justice, police, and finances of a naval armament.

INTENDANT *général de la marine*, a commissioner-general of all the royal dock-yards and ports of the kingdom.

INTERLOPRES, smugglers, or contraband traders.

INTÉRRESSÉS. See CHARGEURS.

INVESTIR, to touch or stop at any port in a voyage, also to be driven into a road or harbour.

JOL, a Danish yawl.

JONCTION *de deux flotes, ou de deux armées navales*, the conjunction of two fleets of ships of war, or merchantmen.

JONQUE, a Chinese junk.

JOTTES, the fore-part of a ship's bow, contained between the cat-head and the stem.

JOTTEREAUX, the cheeks of the head, or knees which are fastened to the cutwater, and to the bows, on each side of a ship's stem.

JOTTEREAUX *de mât*, the cheeks of the mast.

JOUER *le gouvernail*, to play the helm, or traverse it from side to side in light winds.

JOUER, to fetch way; as,

Le mât JOUE, the mast fetches way.

JOUES *de virevaut*, the cheeks of the windlass.

JOUETS, certain clamps, or plates of iron, used to prevent the bolt-heads from cutting the timber into which they are driven; as,

JOUETS *de pompe*, the iron clamps nailed on the cheeks or ears of the pump, through which the bolts are thrust.

JOUETS *de sep de drisse*, plates of iron nailed on the *sep de drisse*, to preserve it from the iron pins of the jear-block.

JOUR, a light-port; also the interval left between two pieces of timber, to prevent them from chafing each other.

JOURS. See SEJOURS.

ISLES *d'avau le vent*, the Leeward Islands of the West Indies.

Isles *du vent*, the Windward Islands of the West Indies.

ISSAS. See DRISSE.

ISSER. See HISSER.

ISSONS, thick white ropes, used as jears to the lower yards.

ISSOP, or ISOP, hoist away! sway away! the order to hoist up any thing.

ITAQUE, the tye of any yard, to whose lower-end the haliards are fastened; but more particularly a top-sail tye.

ITAQUE *de palan*, the runner of a tackle.

JUMELLER *un mât*, to fish a mast, or fasten fishes upon it.

JUMELLES, the fishes of the lower mast.

JUSSANT, the ebb-tide.

L.

LABOURER, to raise, or harrow the surface of the ground with the ship's keel, in passing over a shallow.

L'ancre LABOURE, the anchor comes home, shifts, or loosens from its hold.

LAC, a great lake of fresh water.

LAGAN. See CHOSES *de la mer*.

LAGON, a sort of bay.

LAGUE *d'un vaisseau*, the path, tract, or way of a ship, either before or behind her. See SILLAGE.

LAISSES & *relais*, a sort of bank thrown up by the waves of the sea, upon any coast.

LAMANAGE, coasting-pilotage, or the act of piloting a vessel into or out of any harbour or river.

LAMANEUR, a harbour or river-pilot.

LAMES *de la mer*, the waves or billows of the sea.

La LAME *vient de l'avant*, the sea comes a-head.

La LAME *vient de l'arriere*, the sea comes a-stern, the sea follows the ship.

La LAME *prend par le travers*, the sea strikes the ship

upon the broad-side; expressed of a ship when she lies in the trough of the sea.

Courir au devant de la LAME, to scud before the sea.

LAMPES *d'habitacle*, the lamps of the binacle.

LAMPION, a small lamp, used to enter the ship's magazine.

LANCER, to sheer or yaw to the starboard or larboard side of the course, by the negligence or incapacity of the steersman.

LANCER *un vaisseau à l'eau*, to launch a ship from the stocks into the water.

LANCER *une manœuvre*, to belay a rope to a cleat, or timber-head.

LANGUE *de voile*, the goaring of a sail, or that part which is next to the leech.

LANTERNE *à gargousses*, a cartridge-case, to carry the cartridges, from the ship's magazine to the artillery, in the time of battle.

LANTERNE *à mitrailles*, a case, box, or canister, filled with case-shot, or langrage, wherewith to charge a cannon.

LANTIONE, a sort of row-galley, navigated on the coast of China.

LARDER *la bonêtte*. See BONETTE *lardée*.

Au LARGE! sheer off! the order given by the centinel on a ship's gangway to any adjacent boat, to keep aloof.

Courir au LARGE! *se mettre au* LARGE, to stand off to sea; to bear out from the coast towards the offing.

LARGUE, the offing, sea-room, out at sea.

Vent LARGUE, a large, or quartering wind.

LARGUER, to relax, or loosen, expressed of a ship that strains violently in a high sea, so as to open in several places.

LARGUER *une amarre*, to cast off, or let go a belayed rope.

LASSER, or LACER *une voile*, to reef a course with a reef-line.

LATINE, *voile* LATINE, a lateen sail.

LATITUDE, latitude.

LATTES *à baux*, the ledges placed between the beams.

LATTES *de caillebotis*, the battens or laths of the gratings.

LATTES *de galere*, a sort of broad thin beams, used to support the decks of a gallery.

LAZARET, a lazaretto, or building to receive persons while performing quarentine, &c.

LÉ, the fair way of a channel, harbour, or river.

LEBESCHE, the south-west wind, in the dialect of Provence.

LEGE, light, without a cargo of any kind; understood also of a ship which is not sufficiently ballasted.

LEST, a general name for any sort of ballast.

LEST *bon*, or *bon* LEST, good ballast, or ballast which lies firmly in the hold, without disordering the pumps; as shingle, gravel, &c.

LEST *de plongeurs*, a weight used by the divers in the coral-fishery: it is fastened securely to their

waists, to balance them in the water, and keep them steady, so as to traverse the waves easily, without being tossed about.

LEST *gros*, or *gros* LEST, heavy ballast, composed of large stones, or pigs of iron.

LEST *lavé*, washed shingle ballast.

LEST *mauvais*, bad ballast, as sand, salt, &c.

Le LEST *roule*, the ballast shifts.

Voiles à LEST, port-sails, or pieces of canvas depending, from the port-hole of the ship into which the ballast is thrown, to the side of the ballast-lighter, to prevent the ballast from falling into the water.

LESTAGE, the ballasting of a ship, or furnishing her with ballast.

LESTER, to ballast a vessel, or furnish her with ballast.

LESTEUR, a ballast-lighter.

LETTRES *de reprisailles*, letters of mart.

LETTRE *de mer*, a passport.

LEVÉE, a swelling sea.

Il y a de la LEVÉE, the sea rises, there is a broken or boiling sea.

LEVE-*rame*, unship the oars! the order to the rowers to lay in their oars.

LEVER *l'amure*, to tack, or shift the tack, to put about.

LEVER *l'ancre*, to weigh the anchor.

LEVER *l'ancre avec la chaloupe*, to weigh the anchor by the buoy-rope in the long-boat. See ANCRE.

LEVER *l'ancre d'affourche avec le navire*. See LEVER *l'ancre, &c.*

LEVER *la fourrure du cable*, to take the plat, or other service, off from the cable.

LEVER *le lof de grand voile*, to haul up the weather clew-garnet of the main-sail.

LEVER *les terres*, to survey the coasts, in order to draw a chart thereof.

LEVER *un objet avec la boussole*, to set a distant object by the compass to discover its bearing.

LEVIER, a lever formed of a handspike or crow.

LEVIER *à croc*, a clawed-handspike.

LIAISON, the connecting or fastening together the several members or pieces of timber of which a ship is composed.

LIBOURET, a line or snare for fishing of mackarel.

LIEN *de fer*, an iron hoop used on several occasions in ship-building.

LIEN *du governail*, the iron hoop which encircles the head of the rudder above the mortise of the tiller, to strengthen it in that place.

LIEU, a league, or measure of three miles, common in navigation.

LIEURES, the lower futtocks of a boat. See GENOUX.

LIEUTENANT-*amiral*. See VICE-AMIRAL.

LIEUTENANT-*général des armées navales*, a rear admiral in the French navy.

LIEUTENANT *de vaisseau*, the lieutenant of a ship of war.

LIGNE, a line of battle.

Marcher en LIGNE, to sail in a line.

LIGNE *d'eau*, a water-line.

LIGNE *d'eau du vaisseau chargé*, the load-water line.

Vaisseau percé d'un coup de canon, à la LIGNE *de l'eau*, or *à fleur-d'eau*, a ship which has received a shot between wind and water.

LIGNE *de fond*, a sounding-line, or lead-line.

LIGNE *du fort*, the extreme breadth of a ship.

LIGNES, small cords or lines, used on several occasions at sea.

LIGNES *d'amarrage*, seisings, or lashings; also the cable-bends.

LINGUET, the pawl of a capstern.

LIOUBE, the scarf by which a jury-mast is attached to the stump of a mast that has been carried away.

LISSE, or CARREAU, a name sometimes, but improperly, given to the wales in general: it is only applied with propriety to the upper ones, known by the name of rails, and to the wing-transom. See CEINTES.

LISSE *de hourdi*, the wing-transom.

LISSE *de la rabbatue*, the sheer-rail, or drift-rail.

LISSE *du plat-bord*, the waist-rail.

LISSE *de pont*. See BARRE *du pont*.

LISSES *de porte-aubans*, the channel-rails.

LIT, the bed or channel in which a river runs.

LIT *de marée*, a tide-way, a part in the seas where a

current flows, or where there is a flux and reflux of the tide.

LIT *du vent*, the source or direction of the wind.

LIURE, the gammoning of the bowsprit.

LIVRE *à livre*, a phrase which implies a participation of gain or loss of every owner of a ship's cargo, in proportion to his share.

LOCH, or LOK, a log and line.

LOF, the weather-side of a ship, or that which is to windward of the masts.

Aller à LOF, to sail close to the wind.

Bouter le LOF, to trim all sharp, to spring the luff.

Etre au LOF, to be upon a wind, or close-hauled.

Tenir le LOF, to keep the wind, or weather-gage of, to keep to windward of.

LOF *au lof*, luff boy, luff! the order to steer the ship close to the wind.

LOF *tout*, put the helm a-lee!

LOF *pour lof*, hard a-weather! the order to the helmsman to veer, or wear, and bring the wind on the other side of the ship.

LOF is also the weather-clue of a sail; hence,

Léve le LOF *de la grand voile*, or *léve le grand* LOF! haul up the weather-clue of the main-sail!

LOGE, the birth or cabin of an inferior officer.

LOIER, the wages or pay of a seaman.

LONGIS, the tressel-trees of the tops, &c.

LONGUEUR *de la quille, portant sur terre*, the length of the keel upon a right line.

LONGUEUR *de l'étrave à l'étambord*, the length of a ship at the height of the stem, or the distance between the top of the stem and the top of the stern-post.

LONGUEUR *du cable*, a measure of 120 fathoms, usually called a cable's length at sea.

LOQUETS *d'écoutilles*, the hoops or clasps of the scuttles.

LOVER, or ROUER, to coil away a cable. See ROUER.

LOUVOYER, to ply to windward.

LOUVOYER *sur onze pointes*, to lie up, within eleven points of the other tack, or to fall five points and a half from the wind.

En LOUVOIANT *le vaisseau panche sur le côté*, to heel greatly, or incline to one side, as the ship sails upon a wind.

LOXODROMIE, an oblique course in navigation, or a course which crosses the meridians at equal and oblique angles.

LOXODROMIQUES, tables of difference of latitude and departure.

LUMIERE *du canon*, the touch-hole of a cannon.

LUMIERE *de pompe*, the hole in the side of a pump, through which the water is discharged upon the deck, or into the pump-dale.

LUNETTE *d'approche, ou de long vue*, a telescope, or perspective-glass.

LUZIN, a small line called housing, or house-line.

M.

MACHEMOURE, bread dust, formed of rusk, or broken biscuit.

MACHINE *à mater*, the sheers of a sheer-hulk, or other machine for masting a ship.

MACLES, nettings of the quarters or sides of a ship.

MAESTRALISER, a name given to the west-variation of the magnetical needle, in the Mediterranean.

MAGASIN *général*, a store-house, or magazine, to contain naval stores in a dock-yard.

MAGASIN *particulier*, a store-house which contains the rigging and cordage used for the king's ships, magazines, &c.

MAGASINS, the store-ships which attend on a fleet of men of war.

MAHONNE, a sort of Turkish galeasse.

MAILLE, the keys or buttons by which a bonnet is fastened to its sail.

MAILLES, the intervals, or spaces, left between a ship's timbers.

MAILLET *de calfas*, a calking mallet.

MAILLETAGE, the sheathing of a ship's bottom with scupper-nails.

MAIN *avant*, the order to pull on a rope hand over hand.

MAJOR, an officer who has the charge of mounting, regulating, and relieving the marine guard, in a ship, &c.

MAITRE-*canonnier*, the master-gunner of a ship.

Second MAÎTRE-*canonnier*, the gunner's mate.

MAÎTRE *de chaloupe*, the coxswain, or patroon of the long-boat.

MAÎTRE *de l'équipage*, or MAÎTRE *entretenu dans le port*, an officer whose duty resembles that of our master-attendant in a dock-yard; inasmuch as he has charge of whatever relates to the equipping, mooring, or securing of ships; as well with regard to rigging, arming, and fitting them for sea, as to the careening and floating them out of the docks.

MAÎTRE *de grave*, a person appointed to take care of the salt cod, when drying upon the stakes at Newfoundland.

MAÎTRE *de hache*. See CHARPENTIER.

MAÎTRE-*mateur*, the master mast-maker.

MAÎTRE *des ponts & des pertuis*, a master wherry-man, or waterman, whose office it is to conduct the craft of a harbour through bridges, or in any dangerous place.

MAÎTRE *de ports*, an harbour-master, or officer, appointed to take care of a port, and its booms, and places of anchorage; to arrange the shipping conveniently therein, and regulate their moorings with regard to each other: he has also the command of the ordinary-men employed about the rigging, careening, &c.

MAÎTRE *de ports*, is also an officer resembling our tide-surveyors of the customs in an out-port.

MAÎTRE *de quai*, a principal wharf-master, or officer, appointed to regulate the affairs of wharfs and keys, and the shipping moored along-side

thereof; to see that the fires are extinguished at night, and that no fires be made in any ship or boat during the night; to appoint the proper places for ballasting and unballasting vessels; as also for careening, caulking, and repairing them, and tarring their rigging; to place the light-houses, beacons, and buoys, where necessary; to examine once a month, and after every storm, the usual channels of passage for shipping, to see whether the ground has not shifted.

MAÎTRE *de vaisseau*, or CAPITAINE, the master, or commander of a merchant-ship.

MAÎTRE *de vaisseau de guerre*, the master of a ship of war.

MAÎTRE-*valet*, the ship's steward.

MAL *de mer*, sea-sickness.

MALEBESTE, *malebéte*, or *petarasse*. See PETARASSE.

MALINE, a spring-tide.

MAL-*sain*, foul ground, bad anchor-ground.

MANCHE, a great channel; as, *la* MANCHE *Britannique*, the English channel; *la* MANCHE *de* Bristol, the channel of Bristol, &c.

MANCHE *à eau, ou* MANCHE *pour l'eau*, a canvass or leathern hoase, to convey water from the deck, into the casks which are stowed in the hold.

MANCHE *de pompe*, the pump-hoase.

MANEAGE, a name given to those employments, or labours, for which the crew of a ship can demand no additional pay of the merchant; such are the lading a ship with planks, timber, or green, or dried fish.

MANEGE *du navire*, the general trim of a ship, with regard to the situation of the masts, of the center of gravity, of the sails; and to the efforts of the wind and sea.

La lune à MANGÉ, *la lune* MANGERA, the moon has eat them up, or will eat them up; understood of the clouds: a cant phrase, usual amongst common sailors, to express the dissipation of the clouds on the rising of the moon.

Etre MANGÉ *par la mer*, to be in the hollow or trough of a high sea, which often breaks aboard.

MANGER *du sable*, to flog the glass, or cheat the glass; expressed of the steersman, who turns the watch-glasses before they have run out, to shorten the period of his watch.

Tems MANIABLE, moderate weather, and wind favourable for sea.

MANIVELLE. See MANUELLE.

MANNE, a sort of hand-basket, used on several occasions in a ship.

MANŒUVRE, the working of a ship, or the direction of her movements, by the power of the helm, and the disposition of the sails to the wind.

MANOEUVRE *basse*, the work or employment which may be performed upon deck, by the effort of the ropes upon the sails and yards.

MANOEUVRE *fine*, a dextrous management of the ship in working her.

MANOEUVRE *grosse*, heavy and laborious work in a ship; as the embarkation of the artillery and cables, and stowing of the anchors.

MANOEUVRE *hardie*, a difficult or dangerous

undertaking in a ship.

MANOEUVRE *haute*, the employment of the sailors in the tops, at the mast-heads, and upon the yards.

MANOEUVRE *tortue*, a lubberly or aukward manner of working a ship.

MANOEUVRER, to work a ship, or direct the movements of a fleet.

MANŒUVRES, a general name given to the rigging, sails, blocks, and cordage of a ship: but more particularly to the standing and running ropes.

MANOEUVRES *à queue de rat*, ropes which taper to the end; as the main and fore-tacks.

MANOEUVRES *en bande*, slack ropes which are unemployed.

MANOEUVRES-*majors*, a name usually given to the largest ropes in a ship; as the ground-tackling, and the principal stays.

MANOEUVRES *passees à contre*, ropes leading forward; as those of the mizen-mast.

MANOEUVRES *passées a tour*, ropes leading aft.

MANŒUVRIER, an able or expert sea-officer; or one who is perfectly skilled in working a ship by every method of sailing.

MANQUER, to fly loose; understood of a rope which is broke, or loosened from the place where it was made fast, so as to be blown out to leeward, &c.

MANTEAUX, two folding-doors in a bulk-head.

MANTELETS, the covers of the ports in a ship's side; called also ports in English, although

improperly.

MANTURES, the rolling waves of the sea. See HOULES, LAMES, and *Coup de* MER.

MANUELLE, the whipstaff of a helm; an instrument which is now entirely disused.

MAQUILLEUR, a decked boat, used for the fishery of mackarel.

MARABOUT, a sail hoisted in the gallies in stormy weather.

MARAIS *salans*, salt pits on the sea coast, or reservoirs to contain sea-water, for the purpose of making salt.

MARANDER, a phrase of the common sailors in the channel, which implies to steer easily.

MARCHE-PIED, the horse of any yard.

MARCHE-PIED is also a space about three fathoms broad, left on the banks of a river, whereon to draw their boats ashore, &c.

MARCHER. See *Ordre de* MARCHE.

MARCHER *dans les eaux d'un autre vaisseau*, to sail in the wake or track of another ship; to follow another ship.

MARCHER *en colonne*, to sail in a line, or column.

MARÉAGE, the hire or pay of a sailor for any particular voyage.

MARÉES, the tides. See FLUX & *reflux*.

Mortes MARÉES, neap-tides, or dead-neap.

MARÉES *qui portent au vent*, a wind-tide, or tide which runs to windward.

MARÉES & *contre-marées*, tide and half-tide.

La MARÉE *est haut*, it is high-water.

MARÉE *qui soutiennent*, a tide which counteracts the wind, with regard to a ship's course, enabling her to turn to windward better.

MARGOUILLET, a bull's eye, or wooden traveller.

MARGUERITES, a name given to jiggers, or such sort of purchases, used to pull a rope with greater effort.

Faire-MARGUERITE, to clap a messenger on the cable when the anchor cannot be purchased by the voyal.

MARIN, a sea-faring man of any denomination.

MARINE, implies in general the knowledge of maritime affairs: also the persons employed in the sea-service, &c.

Gens de MARINE, seamen, fishermen, &c.

Officiers de MARINE, sea-officers.

MARINIER, a name generally given to sailors; but more particularly to lightermen.

MARITIME, marine: of, or belonging to, the sea.

Batteaux MARNOIS, a yacht, hoy, or smack, employed on the rivers of Marne and Seine.

MARQUES, the sea-marks observed by the pilots upon any coast; as mountains, spires, windmills, &c.

MARSILIANE, a square-sterned ship, navigated on the gulf of Venice, and along the coasts of Dalmatia. They are of several sizes; the largest carrying about 700 tons.

MARTEAU *à dents*, a claw-hammer used by ship-

wrights.

MARTICLES, or *lignes de trélingage*, a crow-foot, or complicated span.

MARTICLES is also a name given by some to the furling-lines of small sails.

MARTINET, is properly the runner or tye which is fastened to the dead-eye of a crow-foot, used as a topping-lift for the mizen-yard.

MARTINET is also a general name for the haliards, or tail of a crow-foot.

MASCARET, a violent eddy of the tide.

MASLES, the pintles, by which the rudder is hung upon the stern-post. See FERRURE *de gouvernail*.

MASSE, a large iron maul, used by ship-wrights to drive the tree-nails and bolts into the ship's side: also a very long tiller used in some lighters.

MASULIT, a sort of Indian boat, whose sides are composed of the bark of trees, and which are calked with moss.

MAT, a mast. The principal masts of a ship are,

Le grand MAT, the main-mast,

MAT *de misaine*, the fore-mast,

MAT *d'artimon*, the mizen-mast.

MAT *d'un brin*, a mast formed of one piece only; such are the bow-sprit and top-masts of all ships, and all the masts of a small vessel.

MAT *forcé*, a mast which, is sprung.

MAT *jumellé*, *reclampé* or *renforcé*, a mast which is fished in a weak place, or opposite to a spring.

MATS *de rechange*, spare top-masts, or masts in

reserve.

Aller à MATS *& à cordes*, *Mettre à* MATS *& à cordes*, *se mettre à sec*, to try, or scud under bare poles.

MATS *venus à bas*, masts which are carried away.

MATS *de hune hauts*, to have the top-mast an end, or swayed up.

MATAFIONS, knittles, or small robands.

MATÉ *en caravelle*, fitted with pole top-masts.

MATÉ *en chandelier*, masted upright. Expressed of a ship whose masts are stayed so as neither to hang forward or aft.

MATÉ *en frégate*, the bent or inclination of the masts, when they rake forward, or stoop towards the head.

MATÉ *en fourche*, or *à corne*, masted for a boom and gaff; as a schooner or sloop.

MATÉ *en galere*, to be masted as a galley, with only two masts without any top-mast.

MATÉ *en semaque*, masted for a sprit which crosses the sail diagonally.

MATELOT, a sailor, or mariner; a man before the mast.

MATELOTAGE, the hire, wages, or pay of seamen.

Il est un bon MATELOT, he is an able seaman.

Vaisseau MATELOT, a good company-keeper, or a ship that sails well, and keeps her station in a fleet; also the ships, in a fleet of men of war, which are appointed seconds to the admirals or commanding officers.

MATELOTS-*gardiens*, the ordinary-men of a royal

dock-yard, and its harbour or dock, including also the carpenters and calkers appointed to watch in the ships of war.

MATER, to fix or place the masts of a ship.

MATEREAU, a small mast, or end of a mast.

MATEUR, a mast-maker. See MAÎTRE-*mateur*.

MATURE, the art of masting ships; also a general name for the masts themselves.

La MATURE, the mast-shed, or the place where the masts are made.

MAY, a sort of trough bored full of holes, wherein to drain cordage, when it is newly tarred.

MAUGERES, or MAUGES, the scupper-holes.

MECHE, the match by which a cannon is fired.

MECHE *de cabestan*, the middle-piece, or body of the capstern.

MECHE *de mât*, the main or middle-piece of a lower-mast, which is composed of several pieces, as usual in many ships of war.

MECHE *du gouvernail*, the principal piece of a rudder.

MECHE *d'une corde*, the middle strand of a four stranded rope.

MEMBRES *de vaisseau*, the frames of a ship, or the pieces of which the ribs are composed, as floor-timbers, top-timbers, and futtocks.

MER, the sea; whence,

Pleine-MER, full sea.

Haute-MER, high water. See MARÉE.

MER *sans fond*, a part of the sea where there is no anchoring-ground.

La MER *à perdu*, the sea is fallen, it is falling-water.

La MER *brise*, the sea breaks, or foams, by striking a rock or shore.

La MER *brûle*, the sea burns, as in a dark and tempestuous night.

La MER *est courte*, the sea runs short, broken, or interrupted.

La MER *est longue*, the sea runs long and steddy, or without breaking.

La MER *étale*, the sea is smooth, as in a calm.

La MER *mugit*, the sea roars, as being turbulent.

La MER *rapporte*, the spring-tides have begun, or commenced.

La MER *roule*, the sea rolls.

La MER *se creuse*, the sea rises and runs cross.

La MER *va chercher le vent*, the wind rises against the sea.

Il y à de la MER, the sea runs high. When the violence of the waves are abated, they say, in a contrary sense, *Il n'y à plus de* MER.

Jetter à la MER, to throw overboard.

Mettre à la MER, or *faire voiles*, to put to sea, or set sail.

Tenir la MER, to keep the sea, or hold out in the offing.

Tirer à la MER. See BOUTER *au large*.

Recevoir un coup de MER, to ship a sea.

MERLIN, marline, or merline.

MERLINER *une voile*, to marle a sail to the foot-rope.

Arbre de MESTRE, the main-mast of a row-galley.

METTRE *à bord*, to bring, or carry aboard.

METTRE *à la voile*, to get under sail, to set sail.

METTRE *un navire en rade*, to carry a ship into any road.

METTRE *à terre*, to carry, or put ashore, to disembark.

METTRE *la grande voile à l'échelle*, to get the main-tack down with a passaree.

METTRE *les basses voiles sur les cargues*, to haul up the courses in the brails.

METTRE *les voiles dedans*, METTRE *à sec, ou* METTRE *à mâts & à cordes*, to take in, furl, or hand all the sails.

METTRE *le linguet*, to paul the capstern, or put in the paul.

METTRE *un matelot à terre*, to set ashore one of the crew, to turn adrift or maroon a sailor.

METTRE *un ancre en place*, to stow an anchor on the bow.

MEURTRIERES, *ou* JALOUSIES, the loop-holes in a ship's sides or bulk-heads, through which they can fire musquetry on the enemy.

MI-*mat.* See HUNIER.

MINOT, *boute-dehors*, *defense*, the davit of a ship: also a fire-boom.

MINUTE, a nautical, or astronomical mile.

MIRE & *coins de* MIRE, the coins, or aiming wedges of a cannon.

Prendre sa MIRE, to take aim with a cannon, to level, or point a cannon, or other fire-arm, to its object.

MIRER, to loom, or appear indistinctly, as the land under a cloud on the sea-coast.

MIROIR. See ECUSSON.

MISAINE, the fore-mast.

MISAINE, or *voile de* MISAINE, the fore-sail.

MITRAILLES, langrage shot, or small pieces of iron, or old nails, with which cannon are sometimes charged in a sea-fight.

MODELE. See GABARIT.

MOIS *de gages*, the monthly pay, or wages of a sailor.

MOLE *de port*, a pier, or mole-head, raised across the mouth of a harbour, to break off the force of the sea.

MOLER *en pouppe, ou poger*, to bear away and bring the wind aft, in the dialect of Provence and Italy.

MOLLIR, *une corde*, to slacken, douse, or ease off a taught rope.

MONSON, or MOUSON, a monsoon, or trade-wind of India.

MONTANS *de poulaine*, the timbers of the head, or upright rails, which are usually ornamented with sculpture.

MONTANS *de voute*, the stern-timbers.

Le MONTANT *de l'eau*, or *le flot*, flowing water, the

flood tide.

MONTÉ, mounted, or equipped with a certain number of guns, or men; as,

Vaisseau MONTÉ *de 50 ou 60 canons*, a ship mounting 50 or 60 guns.

Vaisseau MONTÉ *de trois cent hommes*, a ship manned with three hundred hands, or whose complement consists of three hundred.

MONTER *le gouvernail*, to hang the rudder.

MONTER *au vent*, to spring the luff, or haul the wind.

MONTURE, the arming a ship for war, or mounting her with cannon, and other fire-arms, and manning her.

MOQUE, a heart, or dead-eye of a stay.

MOQUE *de civadiere*, a sprit-sail-sheet block.

MOQUE *de trélingage*, the dead-eye of a crow-foot.

MORDRE, to bite, or hold fast; understood of the claw or flook of an anchor which is sunk in the ground.

MORNE, a name given in America to a cape or promontory.

MORTAISE, a hole or mortise, cut to receive the end of a piece of timber, called the tenant or tenon.

MORTAISE *de gouvernail*, the hole in the rudder-head which contains the tiller.

MORTAISE *de poulie*, the channel, or vacant space in a block formed to contain the sheave.

MORTAISE *du mât de hune*, the fid-hole of a top-

mast.

MORTE-*d'eau*, or MORTE-*eau*, nip tides, or neap-tides; also dead low water.

MORTIER, a mortar, employed to throw bombs or carcases from a ketch.

MOUFFLE *de poulie*, the shell of a block. See ARCASSE.

MOUILLAGE, anchoring-ground.

Mauvais MOUILLAGE, foul ground, bad anchor-ground, or foul bottom.

MOUILLE, let go the anchor! the order to let the anchor fall from the cat-head to the bottom.

Bien-MOUILLÉ, well moored, or moored in a good birth and anchor-ground.

Vaisseau MOUILLÉ *à un ancre de flot, & un ancre de jussant*, a ship moored with one anchor to the flood, and another to the ebb.

Vaisseau MOUILLÉ *entre vent & marée*, a ship moored between wind and tide.

MOUILLER, or MOUILLER *l'ancre*, to let go the anchor, to come to an anchor, or simply, to anchor.

MOUILLER *à la voile*, to let go the anchor whilst the sails are yet abroad.

MOUILLER *en croupiére*, to moor with a spring upon the cable, in order to cannonade a fort, &c.

MOUILLER *en patte d'oie*, to moor with three anchors a-head, equally distant from each other, and appearing like the foot of a goose.

MOUILLER *l'ancre de touei*, to moor with the boat,

or to carry out an anchor.

MOUILLER *les voiles*, to wet the sails; a practice usual in light winds.

MOUILLER *par la quille*, an ironical expression to signify that a ship is fast a-ground: Our seamen then say, every nail in her bottom is an anchor.

MOULINET, a small windlass, as that of a long-boat, or lanch.

MOULINET *à bittord*, a spun-yarn-winch.

MOURGON, a diver, in the dialect of Provence. See PLONGEUR.

MOUSSE, *garçon be bord*, a ship-boy; one of the prentices, or officers servants.

MOUTONNER, to foam; expressed of the waves in a tempest or turbulent sea.

MOYEN-*parallel*, the middle latitude in navigation, or the parallel that holds the middle place between the latitude departed from, and the latitude arrived in.

MULET, a sort of Portuguese vessel with three masts, and lateen sails.

MUNITIONAIRE, an agent-victualler, or a contractor for sea provisions.

Commis du MUNITIONAIRE. See COMMIS.

N.

NACELLE, a skiff, or small boat, without masts or sails, used to pass a river.

NAGE, the row-lock of a boat. See also AUTARELLE.

NAGE *à bord*, come aboard with the boat! the order given to the rowers in the longboat, to bring her aboard, or along-side.

NAGE *à faire abattre*, pull to leeward! the order to the rowers in a boat, to tow the ship's head to leeward.

NAGE *au vent*, pull to windward, or tow the ship to windward!

NAGE *de force*, pull chearly in the boat! hooroa in the boat!

NAGE *qui est paré*, pull with the oars that are shipped.

NAGE *sec*, row dry! the order to row without wetting the passengers.

NAGE *stribord, & scie bas-bord*, pull the starboard-oars, and hold water with the larboard oars! the order given to turn the boat with her head to the left.

NAGER, RAMER, or VOGUER, to row, or pull with the oars, in a boat or small vessel.

NAGER *à sec*, to touch the shore with the oars in rowing.

NAGER *tant d'avirons par bande*, to row so many oars on a side.

NAGER *de bout*, to row standing, or with the face towards the boat's head.

NAGER *en arriere*, to back a-stern with the oars.

NAGER *la chaloupe à bord*, to row the long-boat aboard.

NATES, mats used to line the sail-room, bread-room, or the hold when a ship is laden with corn, to preserve the contents.

NAVETTE, a small Indian vessel.

NAUFRAGE, shipwreck.

NAUFRAGÉ, shipwrecked.

NAVIGABLE, navigable, capable of navigation.

NAVIGATEUR, a mariner, or seaman.

NAVIGATION, the theory and practice of navigation.

NAVIGATION *impropre*, coasting, or sailing along shore.

NAVIGATION *propre*, the art of sailing by the laws of trigonometry. See PILOTAGE.

NAVIGER, to sail, or direct a ship's course at sea.

NAVIGER *par terre*, or *dans le terre*, to be ashore by the dead-reckoning; to be a-head of the ship by estimation.

NAVIGER *par un grand cercle*, to sail upon the arch of a great circle.

NAVIRE, a ship. See also VAISSEAU.

Beau NAVIRE *en rade*, a good roader.

NEUVE, a sort of small flight, used by the Dutch in the herring-fishery, and resembling a buss. See BUCHE.

NEZ, the nose, beak, or head of a ship.

NOCHER, a name formerly given to a pilot.

NOCTURLABE, a nocturnal.

NOIALE. See TOILE.

NOIÉ, an epithet which answers to clouded, or indistinct; being expressed of an horizon, when it cannot be discovered by an observer, when taking an altitude.

NOIRCIR, to blacken, or daub with a mixture of tar and lamp-black; as the wales and black-strakes of a ship, the yards, cutwater, &c.

NOLIS, or NOLISSEMENT, a name given in Provence and the Levant to the freight or cargo of a ship.

NON-*vue*, no sight of, out of sight; a phrase which implies the fog or haze of the weather, that prevents a ship from discovering contiguous objects, as the shore, rocks, &c.

NORD, the north, or north point.

NORD-EST, the north-east.

NORD-EST *quart à l'est*, north-east by east.

NORD-ESTER, to vary towards the east; expressed of the east-variation of the compass.

NORD-OUESTER, to decline towards the west; spoken also of the magnetical needle.

NOYALE. See NOIALE.

NOYÉ. See NOIÉ.

NUAISON, a trade-wind, or the period of a monsoon.

O.

OCCIDENT, or OUEST, the west.

OCEAN, a name generally given in France, to the Western, or Atlantic Ocean.

OCTANT, the octant, or quadrant invented by Hadley.

OEIL, YEUX, *ou* TROUS, the holes in the clews of a sprit-sail to let out the water which falls into its cavity when the ship pitches.

OEIL de *bœuf*. See YEUX.

OEIL *de bouc*, a water-gall, or weather-gall.

OEIL *de pie*, or YEUX *de pie*, the eye-let holes wrought in the reef of a sail, through which the points are reeved.

OEIL *de roue*, the hole in the truck, or wheel of a gun-carriage, through which the axle passes.

OEILLET, an eye-splice on the end of any rope.

OEILLET *d'étai*, the eye of a stay which goes over the mast-head.

OEILLETS *de la tournevire*, the eyes in the two ends of a voyal, which are lashed together with a laniard when the voyal is brought to the capstern.

OEILS, the eyes, or hauses of a ship. See ECUBIERS.

OEUVRE-*mortes*, the dead-work of a ship, or all that part which is above water, comprehending the fore-castle, quarter deck, and poop.

OEUVRE *vives*, the quick-work, or all that part of a ship which is under water.

OEUVRES *de marée*, the graving, calking, or repairing a ship's bottom, when, having been laid on the ground, the tide has ebbed from her, so as to leave the bottom dry.

OFFICIERS *bleu*. See BLEU.

OFFICIERS-*généraux*, the general officers in the French navy, as the admirals, vice-admirals, rear admirals, and commodores.

OFFICIERS *de port*, the officers of a dock-yard, appointed to see that the shipping are properly moored, masted, rigged, repaired, calked, and otherwise equipped with whatever is necessary, according to their destination.

OFFICIERS *de santé*, officers who superintend the affairs of the quarantine in a port.

OFFICIERS-*majors*, the superior, or commissioned officers in a ship of war, as the captain, lieutenants, and ensign.

OFFICIERS-*mariniers*, the mechanical or warrant-officers in a ship of war, of which the principal are, the master, boatswain, gunner, carpenter, and sail-maker; as distinguished from the military officers, called *Officiers-majors*. See the preceding article.

O! *du navire, hola*! hoa the ship, a hoay! the manner of hailing or calling to a ship whose name is not known.

O! *du Soleil Royal hola*! hoa, the Royal Sun ahoay!

O! *d'en haut*, yoa-hoa, aloft there! mast-head there! &c. the cry from the deck to those who are aloft, to attend to some order.

O! *hisse, O! hale, O! saille, O! ride*, the method of

singing out, as a signal to hoist, haul, or rouse together, on a tackle or rope.

OINT, stuff, tallow, or such like material, used to pay the masts, tyes of the top-sail-yards, &c.

OLOFÉE, the act of spring the luff, or of hauling close upon a wind.

ORAGE. See TEMPETE.

ORDRE *de bataille*, the line or order of battle in a naval engagement.

ORDRE *de marche*, the order of sailing.

ORDRE *de retraite*, the order of retreat.

ORDRES *des vaisseaux*, the classes into which each rate of ships is subdivided, in the French navy. See RANG.

OREILLE *de lievre*, a three-sided, or triangular sail; as the stay-sails.

OREILLES *de l'ancre*, the broad parts of the fluke of an anchor.

ORGANEAU, the ring of an anchor. See ARGANEAU.

ORGUES, an organ, or machine, sometimes used in a sea-fight by privateers: it contains several barrels of musketoons, or small-arms, fixed upon one stock, so as to be all fired together.

ORIENTER *les voiles*, to trim the sails, or place them in the most advantageous manner, to receive the wind, and accelerate the ship's course.

ORIN, the buoy-rope of an anchor.

ORSE, the larboard-side, in the dialect of Provence. Also the order to luff.

ORSER, to row against the wind, or row head-to-

wind. This is likewise the language of the gallies.

ORTODROMIE, a course which lies upon a meridian or parallel.

OSSEC, the water-way, or well-room of a boat.

OSSIERES. See HAUSSIERES.

OUAGE, the track or wake of a ship. See HOUAICHE.

Tirer en OUAICHE, to take a ship in tow a-stern when she is disabled.

Trainer un pavillon ennemi en OUAICHE, to drag the colours or ensign of an enemy after the ship, so as to sweep the water therewith, as a sign of victory.

OVERLANDRES, small vessels navigated on the Rhine and Meuse.

OUEST, or OCCIDENT, the west point of the compass or horizon.

OUEST-*nord-ouest, &c.* See ROSE *de vents*.

OURAGAN, an hurricane.

OUVERT, *etre ouvert*, to have any object open in sailing past it; or to be opposite to any place, as a road, the entrance of a harbour, or river, &c.

OUVERTURE, an opening, or valley between two hills, beheld from the sea, and serving frequently as a land-mark.

OUVRIERS, the artificers, &c. in a dock-yard; or riggers of a ship.

OUVRIR, to open, or discover two objects separately at sea, when sailing at some distance from them.

P.

PACFI, *ou* PAfi, *le grand* PACfi, the main-course, or main-sail.

Le petit PACfi, *ou* PACfi *de bourcet*, the fore-course or fore-sail.

Etre aux deux PACFIS, to be under the courses.

PACIFIER, to become calm; also to fall, or grow smooth, when spoken of the sea.

PAGAIE, the paddle of a canoe.

PAGE *de la chambre du capitaine*, the cabin-boy.

PAGES. See MOUSSES *& garçons*.

PAILLES *de bittes*, long iron bolts thrust into holes in the bits, to keep the cable from starting off.

PAILLOT, the steward-room in a row-galley.

PAIS *somme*, a shoal or shallow.

PALAMANTE, a general name given to the oars of a row-galley; which are forty feet and six inches in length.

PALAN, a tackle of any kind. See ITAQUE and GARANT.

PALAN *à caliorne*, a three-fold tackle. See CALIORNE.

PALAN *à candelette*. See CANDELETTE.

PALAN *d'amure*, a tack-tackle.

PALAN *d'etai*, a stay-tackle.

PALAN *de misaine*, the fore-tackle.

Grand PALAN, the main tackle.

PALANQUE, the order to hoist, bowce, or set taught upon a tackle.

PALANQUER, to hoist, or bowce upon a tackle.

PALANQUIN, a jigger-tackle, tail-tackle, or burton.

PALANQUINS *de ris*, the reef-tackles.

PALANQUINS *simples de racage*, the nave-lines.

PALANS *de bout*, the sprit-sail haliards.

PALANS *de canon*. See DROSSE *de canon*, & PALAN *de retraite*.

PALANS *de retraite*, the relieving tackle, &c. of the ordnance.

PALARDEAUX, plugs made to stop holes in any part of a ship; as hause-plugs, shot-plugs, &c.

PALE, or PALME, the blade or wash of an oar.

PALÉAGE, the act of discharging any thing with shovels, baskets, &c. as corn, salt, or such like material; for which employment the ship's crew can demand no additional pay. See also MANEAGE.

En PANNE, lying-by, or lying-to with some of the sails aback.

Mettre en PANNE, to lay a ship to, or turn the head to windward, in order to lie by with some of the sails laid to the mast.

PANNEAU, a scuttle, or cover of any hatchway in the deck.

PANNEAU *à boîte*, the cover of a scuttle, with a border round its edge.

PANNEAU *à vassole*, a great hatch, without a border.

Le grand PANNEAU, the main hatch.

PANTAQUIERES, or PANTOCHERES, the cat-harpings, and crane lines of the shrouds.

En PANTENNE, fluttering or shivering in great disorder; expressed of the sails, when out of trim, in a storm.

Amener les voiles en PANTENNE, to haul down the sails with the utmost expedition; as in a squall of wind.

PANTOIRES, pendants on the mast-heads or yard-arms, wherein to hook preventer-shrouds, or yard-tackles.

PAPIERS & *enseignemens*, the papers of a ship, comprehending the bills of lading, manifest, coquets, &c.

PAQUE-BOT, or PAQUET-BOT, a packet-boat, or packet-vessel; as those which pass between Dover and Calais, &c.

Faire la PARADE, to dress a ship, or to adorn her with a number of flags, pendants, and other colours, which are displayed from different parts of the masts, yards, and rigging.

PARADIS, or BASSIN, the basin of a dock, or an inner harbour.

PARAGE, a space of the sea appointed to cruise, or rendezvous in; also a part of the sea near any coast.

Vaisseau mouillé en PARAGE, a ship anchored in an open road, or in the offing.

PARC, an inclosure for containing the magazines and store-houses in a royal dock-yard.

PARC *dans un vaisseau*, a cot or pen, wherein cattle are inclosed in a ship.

PARCLOSSES, limber-boards.

PARCOURIR *les coutures*, to survey or examine the seams of a ship's sides or decks, and caulk where it is found necessary.

PARÉ, ready, clear, or prepared for any thing.

PARE *à virer*, see all clear to go about! the order to prepare for tacking.

PAREAU, or PARRE, a sort of large bark in the Indies, whose head and stern are exactly alike, so that the rudder may be hung at either end.

PARER *un cap*, to double a cape. See DOUBLER.

PARER *un ancre*, to prepare the anchor for letting it go.

Se PARER, to clear for action, to prepare for battle.

PARFUMER *un vaisseau*, to smoke a ship, and sluice her with vinegar between decks, in order to purify her, and expel the putrified air.

PARQUET, a shot-locker on the deck; also a place where shot are kept on a gun-wharf. See EPITIÉ.

PARTAGER *le vent*, to share the wind with some other ship, or hold way with her, without gaining or losing ground, or without weathering, or falling to leeward.

PARTANCE, the time of departing, or sailing from a place; also a place from whence a ship departs.

Coup de PARTANCE, a signal-gun for sailing.

Banniere de PARTANCE, the signal displayed for sailing.

PAS, a strait or narrow channel, as

PAS *de Calais*, the Streights of Dover.

PASSAGERS, the passengers of a ship.

PASSE, a canal, channel, or small streight.

PASSE-*port*, a sea-pass or passport. See CONGÉ.

PASSER, to perish, or be lost at sea; as by over-setting, or foundering.

PASSER *au vent d'un vaisseau*, to pass to windward, or gain the wind of another ship.

PASSER *sous le beaupré*, to pass under the bowsprit. This phrase, which is usual amongst English as well as French seamen, implies to go a-head of, or before a ship, and cross her course.

PASSE-*vogue*, the effort of rowing briskly, or very hard.

PASSE-*volant*, a false muster on the ship's books; also a wooden gun, which may terrify a ship at a distance. See FAUSSES-LANCES.

PATACHE, an armed tender, or vessel which attends a ship of war or fleet; also a packet-boat.

PATACHE *d'avis*, an advice-boat. See FRÉGATE *d'avis*.

PATARAS, a preventer-shroud; also a spare-shroud, to be hooked on occasionally.

PATARASSE, a calking iron.

PATRON, the master or commander of a merchant-ship, or boat, in the dialect of Provence.

PATRON *de chaloupe*, the cockswain, or coxen, of a long-boat.

PATTE *d'oie*. See MOUILLER *en patte d'oie*.

PATTES *d'ancre*, the flukes of an anchor.

PATTES *d'anspects*, the claws of a gunner's handspike.

PATTES *de bouline*, the bowline bridles.

PATTES *de voiles*, the tabling of the sails at their edges or bolt-ropes.

PAVESADE, a quarter-cloth, or waist-cloth. See BASTINGAGE.

PAVILLON, the flag of a ship. Also a general name for colours.

PAVILLON *de beaupré*, the jack.

PAVILLON *de chaloupe*, the flag carried in a barge or long-boat, when a superior officer is aboard.

PAVILLON *de combat*, the signal for engagement.

PAVILLON *de conseil*, the signal for a general council.

PAVILLON *de pouppe*, or *enseigne de pouppe*, a ship's ensign.

PAVILLON *en Berne*. See BERNE.

Baton de PAVILLON, the ensign staff, flag-staff, or jack-staff.

Vaisseau PAVILLON, or simply, PAVILLON, the flag-ship.

Amener le PAVILLON, to strike the flag or colours.

Etre sous un tel PAVILLON, to be under such a flag, or commanding officer.

Faire PAVILLON *blanc*, to display a flag of truce.

PAUMET, a sail-maker's palm.

PAVOIS, or rather PAVESADE. See PAVESADE and

BASTINGAGE.

PAVOISER, to spread the waist-cloths.

PAUSES, a sort of long and wide boats used to embark merchandise at Archangel, in Moscovy.

PECHER *un ancre*, to hook, and heave up from the bottom, another anchor, with that of the ship, when several anchors lie near to each other, as in a common road.

PEDAGNE, or PEDAGNON, the stretchers of a row-galley. See also BANQUETTES.

PELLES, corn shovels, or ballast-shovels, used in trimming a ship's hold.

PENDANT, or FLAMME. See FLAMME.

PENDEUR, or PENDOUR, the pendant of any tackle, runner, &c.

PENDOUR *de caliorne*, the winding tackle-pendant.

PENDOURS *de balancines*, the spans of the lifts.

PENDOURS *de bras*, the brace-pendants at the yard-arms.

PENES, pitch-mops. See BATON *à vadel*.

PENNE, the peek of a mizen, or lateen sail.

PENTURE, a googing, or the eye of a clamp, fitted to receive a goose-neck, or some bolt of iron which turns therein like a pivot in its socket.

PENTURES *de gouvernail*, the googings of the rudder. See FERRURE *de gouvernail*.

PEOTE, a light nimble Venetian wherry, used frequently as an advice-boat, to carry expresses.

PERCEINTES. See PRÉCEINTES.

PERCEUR, a person who bores the holes for the tree-nails, or bolts, in a ship's-side.

PERROQUET, a top gallant-sail.

Mettre les PERROQUETS *en banniere*, to let fly the top-gallant sheets, as a particular signal to some ship in company.

PERROQUETS *volans*, flying-top-gallant-sails.

PERRUCHE, the mizen-top-gallant-sail.

PERTUIS, a dam, or channel of water, confined by a sluice.

PERTUISANE, a sort of pike or halbert, used to defend a ship from being boarded.

PESER, to hang upon, or haul downward on any rope over-head.

PESER *sur un levier*, to heave, or purchase with a handspike.

PHAIOFNÉE, a sort of Japonese barge, or yacht, to carry the nobility, &c.

PHARE, or *tour à feu*, a watch-tower, or light-house on the sea-coast.

PIC *à pic sur son ancre*, close a peek upon the anchor.

PIECE, a cannon. See CANON.

PIECE *de charpente*, a general name for any pieces of timber properly hewed, to be used in the construction of a ship.

PIECES *de chasse*, the chase-guns, or head-chases.

PIED *de vent*, a clear spot of the sky, appearing under a cloud to windward.

PIED-*marin*, sea shoes; expressed of a man who has

got sea-legs, or who treads sure and firm at sea, as being accustomed thereto.

PIÉDROITS, the Samson's posts, erected in the hold from the kelson to the lower-deck hatchways, and notched with steps.

PIERRIER, a petrero, or small cannon, sometimes used in sea-fights, and generally charged with musquet-shot, or swivel balls.

PIÉTER *le gouvernail*, to mark the stern-post with feet, in order to discover how many feet of water the ship draws abaft.

PILIERS *de bittes*, the bitts of a ship.

PILLAGE, the plunder taken from any enemy after engagement.

PILON, or *petit écore*, a shore which is steep to, and but little raised above the sea.

PILOTAGE, the navigating, conducting, or steering of a ship.

PILOTE, a sea-pilot, or the conductor of a ship's course by the art of navigation; also the master of a ship. See HAUTURIER.

PILOTE *côtier*, or PILOTE *de havre*, a coasting, or harbour pilot. See LAMANEUR.

PILOTE *hardie*, a daring or enterprising pilot.

PILOTER, to pilot a ship into, or out of, a harbour or river.

PINASSE, a square-sterned vessel, called in England a bark.

PINASSE *de Biscaye*, a Biscayan barca-longo.

PINCEAU *à goudronner*, a tar-brush.

PINCES *de bois*, a sort of curved handspikes. See RENARD.

PINCER *le vent*. See ALLER *au plus pres*.

PINNULE, the sight vanes of any instrument, for observing or setting a distant object at sea.

PINQUE, a pink, or narrow-sterned ship, with a flat floor.

PIPRIS, a sort of canoe used by the negroes in Guinea, and the Cape de Verds.

PIRATE, a pirate, or free-booter; see also CORSAIRE.

PIRATER, to rob at sea; to infest or scour the sea as a pirate.

PIROGUE, an American canoe.

PISTON, the spear-box of a pump.

PITONS *à boucles*. See CHEVILLE *à boucles*.

PIVOT, an iron point which turns in a socket; as the foot of the capstern.

PIVOT *de boussoule*, the brass center-pin of the compass.

PLAGE, a shallow or flat shore, without any capes or head-lands to form a road or place of safety for shipping at anchor.

PLAIN, a flat, or shoal; whence,

Aller au PLAIN, to run ashore.

PLANCHE, the gang-board of a boat.

Mets la PLANCHE, the order to put out the gang-board from the boat's stern to the shore, to walk out upon.

PLAQUES *de plomb*, sheet lead, used for several

purposes aboard-ship.

PLAT *de la varangue*, the flat or horizontal part of a floor-timber.

PLAT *de l'equipage*, or *un* PLAT *des matelots*, a mess or company of seven sailors who eat together. The word literally signifies a bowl or platter, in which the whole mess eat at the same time.

PLAT *des malades*, the sick mess, under the care of the surgeon.

PLAT-*bord*, the gunnel, or gun-wale of a ship.

PLAT-*bord* also means wash-board or weather-board.

PLAT-*bord a l'eau*, gunnel-in, or gunnel-to; expressed of a ship that inclines so much to one side, as to make the gunnel touch the surface of the water by crowding sail in a fresh wind.

PLATE-*bands d'assuts*, the clamps of a gun-carriage, which are used to confine the trunnions therein.

PLATE-*forme de l'éperon*, the platform or grating within the rails of the head.

PLATE-*formes*, an assemblage of oak-planks, forming a part of the deck, near the side of a ship of war, whereon the cannons rest.

PLATINES *de lumiere*, the aprons of the cannons.

PLI *de cables*, a fake of the cable.

Filer un PLI *de cable*, to veer away one fake of the cable.

Vaisseau qui PLIE *le côté*, a crank ship.

PLIER, to bend or supple the planks of a ship by heat and moisture.

PLIER *le côté*, to lie over in the water, to heel extremely when under sail.

PLIER *le pavillon*, PLIER *les voiles*, to gather up the fly of the ensign, or furl the sails.

PLOC, the hair and tar put between the bottom planks of a ship and the sheathing, to fill up the interval, and preserve the bottom from the worms.

PLOCQUER, to apply the sheathing-hair to the ship's bottom.

PLOMBER *un navire*, to try whether a ship is upright, or to what side she heels, by a plumb-line and level.

PLONGEUR, a diver, whose employment it is to bring any thing up from the bottom, as spunges, coral, &c.

PLONGER, to duck, or immerse any thing in the water; also to plunge or dive into the water, &c.

PLUMET *de pilote*, or *panon*, a feather-vane, or dog-vane.

POGE, *ou* POUGE, the order to put the helm a-weather, in order to fill the sails, or bear away. This is the language of Provence. See ARRIVE-*tout*.

POINT, a ship's place, as pricked upon a nautical chart.

POINT *d'une voile*, the clew of a sail.

POINTAGE *de la carte*, the pricking of a course and distance upon the chart, to discover the ship's place.

POINTE, a point of land projecting into the sea; a low-cape, or promontory.

POINTE *de l'éperon*, the beak of a prow, or cut-water.

POINTE *du compas*, a point of the magnetical compass.

POINTE *du nord, ou du sud, &c.* the north or south point.

POINTER, to direct or point a gun to its object.

POINTER *à couler bas*, to point a gun so as to sink a ship.

POINTER *à démater*, to point a gun so as to dismast a ship.

POINTER *à donner dans le bois*, to level the cannon so as to hull a ship, or strike the hull.

POINTER *la carte*, to prick the chart. See POINTAGE.

POINTURE, the balance of a sail, or that part which is fastened by balancing it in a storm; as the peek of the mizen, &c.

POITRINE *de gabords*, the filling, or convexity of a ship's bottom, as approaching the mid-ships from the stem and stern-post.

POLACRE, a polacre, or ship so called.

POLICE *d'assurance*, a policy of insurance.

POLICE *de chargement*. See CONNOISSEMENT.

POMMES, the trucks, or acorns placed on the flag-staffs, or spindles of the mast-head.

POMMES *de girouettes*, the acorns placed over the vanes.

POMMES *de raque*, or *de racage*, see RAQUE.

POMME *de pavillon*, the truck placed on the top of the flag-staff, or ensign-staff.

POMOYER, to under-run a cable with the long-boat.

POMPE, the pump of a ship.

Affranchir, ou franchir la POMPE, to free the ship, by discharging more water with the pumps than has entered by the leaks. See AffRANCHIR.

A la POMPE, pump ship! the order to pump out the water from a ship's bottom.

Charger la POMPE, to fetch the pump.

Etre à une, ou à deux POMPES, to have one or both pumps constantly employed to free the ship.

La POMPE *est engorgée*, the pump is choaked or foul.

La POMPE *est éventée*, the pump blows, or is split so as to be rendered unserviceable.

La POMPE *est haute, ou la* POMPE *est franche*, the pump sucks, or is dry.

La POMPE *est prise*, the pump is fetched.

La POMPE *se décharge*, the pump has lost water. See DÉCHARGE.

POMPE *à la Vénitienne*, a Venetian pump.

POMPE *de mer*. See TROMPE.

POMPE-*en bon etat*, POMPE *libre*, a good pump, or pump in good trim.

POMPES *à roue & à chaines*, chain pumps.

POMPES *du maître-valet*, hand-pumps, used for water casks, oil-casks, wine-casks, &c.

PONENT, the west, in the language of Provence: also a name given to the Western Ocean.

PONT, the deck of a ship.

PONT *à caillebotis, ou à treilles*, a grating-deck.

PONT *coupé*, a deck open in the middle, as in some small vessels that have only part of a deck towards the stem and stern.

PONT *courant devant arriere*, a deck flush fore and aft.

PONT *de cordes*, a sort of netting to cover a ship's waist, and prevent the impression of boarders.

PONT *volant*, a spar-deck, or platform.

Faux-PONT, the orlop deck.

Premier-PONT, or *franc-tillac*, the lower, or gun-deck.

Second PONT, the middle-deck of a ship with three decks, or the upper deck of one with two decks.

Troisieme-PONT, the upper-deck of a ship with three decks.

PONTÉ, decked, or furnished with a deck; as opposed to undecked or open.

PONTON, a pontoon, for careening or delivering ships; also a sort of bridge of boats, composed of two punts, with planks laid between them; likewise a ferry-boat.

PONTONAGE, the hire of a ferry-boat or ponton.

PONTONNIER, the master of a ponton, or lighterman.

PORQUES, riders.

PORQUES *acculées*, the after floor-riders.

PORQUES *de fond*, floor-riders.

Allonges de PORQUES, futtock-riders.

PORT, a haven, port, or harbour.

PORT-*brute, ou havre brute*, a natural harbour, or port formed by nature.

PORT *de vaisseau*, the burthen or tonnage of a ship.

PORT *de barre*, an harbour with a bar, that can only be passed at, or near high-water.

PORT *d'entrée*, or PORTE *de tout marée*. See HAVRE.

Avoir un PORT *sous le vent*, to have a harbour to leeward, or under the lee.

Fermer le PORTS, *ou* PORTS *fermés*, to lay an embargo upon all the shipping of a harbour. See ARRET.

PORTAGE, the space or room in a ship's hold allowed to any officer, &c. to contain his venture, or private trade.

PORTE-*bossoir*. See SOU-BARBE.

PORTE *d'écluse*, the flood-gates of a sluice.

PORTE *gargousse*. See LANTERNE *à gargousse*.

PORTE-*haubans, ou ecotards*, the channels, or chain-wales of a ship.

PORTELOTS, the thick stuff which encircles the side of a lighter under the gunnel.

PORTE-*plein les voiles*, or simply, PORTE-*plein*! keep full! the order to the man who steers, to keep the sails full, and prevent them from shivering in the wind.

PORTE-*vergues*, or rather *herpes*, the rails of the head, reaching from the cat-head towards the cut-water. See HERPES.

PORTE-*voix*, a speaking-trumpet.

PORTER, to sail, or conduit a ship.

PORTER *à route*, to stand onward, upon the course.

PORTER *au sûd, &c.* to stand to the southward, &c.

PORTEREAU, the flood-gate of a sluice.

POSTE, the quarters where the men are stationed in time of battle.

POSTILLON, an express-boat, or post-boat.

POT *à brai*, a pitch-pot.

POT-*à-feu*, a fire-pot, or stink-pot.

POT *de pompe*, the lower pump-box. See also CHOPINETTE.

POTENCE *de brinquebale*, the cheeks of the pump.

POUDRIER, an half-hour watch-glass.

POUGER, or *moler en pouppe*, to bear up, in the dialect of Provence.

POULAINE, *eperon*, the knee of the head, or cutwater.

POULAINES, the props which support a ship's stem, when she is on the stocks.

POULIE, a block of any kind to reeve a running rope through.

POULIE *coupée*, or *à dents*, a snatch block. See also GALOCHE.

POULIE *détropée*, a block shaken out of its strop.

POULIE *de grand drisse*, one of the main jear blocks.

POULIE *de guinderesse*, a top-block.

POULIE *de palan*, a tackle-block.

POULIE *d'itague du grand hunier*, the main-top-sail

tye-block.

POULIE *double*, a double block.

POULIE *simple*, a single block.

POULIES *de caliornes*, winding tackle-blocks, or blocks furnished with three sheaves.

POULIES *de drisse de misaine*, the fore jear-blocks.

POULIES *d'écoutes de hune*, top-sail-sheet-blocks, fitted also to contain the lower-lifts.

POULIES *de retour d'écoutes de hune*, the quarter-blocks for the top-sail sheets.

POUPPE, the after-parts of a ship, both above and below. See ARCASSE, ARRIERE, DUNETTE, &c.

Vaisseau à POUPPE *quarrée*, a square-sterned ship; such as are all ships of war.

Mettre vent en POUPPE, to bear away before the wind.

Mouiller en POUPPE, to moor by the stern, or get out an anchor a-stern.

Vent en POUPPE, a stern-wind, or wind right aft.

POUSSE-*barre*! heave chearly! heave heartily! the order or exhortation to those who heave at the capstern, to push forcibly on the bars.

POUSSE-*pied*, or ACCON, a small boat used to catch shell-fish, &c. See ACCON.

PRAME, a pram, lighter, or barge of burden.

PRATIQUE, in a naval sense, implies free intercourse or communication with the natives of a country, after having performed quarantine.

PRÉCEINTES, the wales of a ship.

PRÉLART, or PRÉLAT, a tarpauling.

PRENDRE *chasse*. See CHASSER.

PRENDRE *hauteur*, to take the altitude of the sun, or a star. See HAUTEUR.

PRENDRE *les amures*, to get aboard the tacks. See AMURER.

PRENDRE *terre*. See TERRE & *terrir*.

PRENDRE *vent devant*, to be taken with the wind a-head.

PRENDRE *un bosse*, to make sail, or clap on the stopper.

PRENDRE *un ris*, to take in a reef.

PRENEUR, *vaisseau* PRENEUR, the vessel that has taken a prize.

PRES & *plein*, full and by! the order to the steersman to keep the ship close to the wind, without shaking.

PRESENTER *le grande bouline*, to snatch the main-bowline, or put it into the snatch-block.

PRESENTER *au vent*, to sail as the ship stems, without making lee-way.

PRESSER, to press, or constrain into small compass; as cotton, wool, or such like material.

PRETER *le coté*, to range abreast of a ship, in order to give her the broadside. See EFFACER.

PREVOT *général de la marine*, a provost marshal of the marine, or officer whose duty resembles that of the judge-advocate of naval courts-martial.

PREVOT *marinier*, the swabber of a ship, who also chastises the criminals, as being usually the most

abandoned of the crew: this part of his duty is performed in English ships by the boatswain.

PRIME *d'assurance*, insurance paid by the merchant for insuring the ship's cargo.

PRISE, a prize, or ship taken from the enemy at sea.

PROFIT, *avantureux*, the interest acquired by bottomry. See BOMERIE.

PROFONTIÉ, a ship that draws much water, or takes a large volume of water to float her.

PROLONGER *un navire*, to lay a ship along-side of some other.

PROMONTOIRE, a cape, head-land, or fore-land.

PROUE, the prow of a ship, see AVANT.

Donner la PROUE, to appoint the course, or rendezvous of the gallies.

PROVISIONS, a general name for the provisions, and the warlike stores, or ammunition of a ship.

PUCHOT. See TROMPE.

PUISER, to leak, or make water at sea.

PUISER *pour le bord*, to ship seas, or take in water, either over the gunnel, or at the ports in the side.

PUITS. See ARCHIPOMPE.

PUY, a great depth of the sea on a level bottom.

Q.

QUAI, a wharf or key on the side of a harbour or river.

Amarré à QUAI, *rangé à* QUAI, moored along-side of the key or wharf.

QUAIAGE, wharfage.

QUAICHE, a ketch, or ship so called.

QUARANTAINE, quarantine.

Faire QUARANTAINE, to perform quarantine.

QUARANTENIER, a rope of the size of a rattling-line, used as a lashing, &c.

QUARRÉ *de reduction*, see QUARTIER *de reduction*.

QUARRÉ *naval*, the naval square, a scheme drawn on a ship's quarter-deck, to represent the division of a fleet into three columns, and exhibit the station of each particular ship in the order of sailing; it is used to direct and regulate the movements of each ship with regard to the rest, and preserve the whole fleet in uniformity.

QUART *de rond*, *saloire*, *tamisaille*, the transom, upon which the tiller traverses in the gun-room. See TRAVERSE.

QUART, the watch kept aboard ship, comprehending the time of its continuance, and the people employed to keep it.

QUART *bon*, or *bon* QUART, keep a good look out afore! look well out afore there!

QUART *du jour*, the day-watch.

Prendre le QUART, to set the watch.

Au QUART, *au* QUART! the watch, hoay! the starboard watch, hoay! the manner of calling the

watch to relief.

Faire bon QUART *sur la hune*, to keep a good look-out in the tops.

Le premier QUART, or QUART *de tribord*, the starboard-watch. See TRIBORDAIS.

Second QUART, or QUART *de bas-bord*, the larboard-watch. See BASBORDAIS.

QUARTS *de vent*, the quarter-points of the compass, or those which lie on each side of the cardinal and intermediate points, and are distinguished in English by the word *by*; as N by E, N E by N, &c.

QUARTIER *Anglois*, or QUART *de nonante*, a Davies's quadrant.

QUARTIER *de reduction*, a sinical quadrant, used by the French pilots in working their days works, to discover the ship's place.

QUARTIER-*maître*, an officer resembling the boatswain's mate of an English ship.

Vent de QUARTIER, *ou vent largue*, a large, or quartering wind.

QUERAT, the planks of a ship's bottom, comprehended between the keel and the wales.

QUETE, the rake of a ship abaft, or the rake of the stern-post.

QUEUE *d'une armée navale*, the rear of a fleet of ships of war.

QUEUE *de rat*, tapering to the end; expressed of such ropes as are pointed, or tapering towards the end, as the tacks, &c.

QUILLE, the keel of a ship.

QUILLE-*fausse*. See FAUSSE-QUILLE.

QUINTAL, an hundred weight.

R.

RABANER, to fit a sail with rope-bands and earings, ready for bending to its yard.

RABANS, a general name given to earings, gaskets, knittles, and rope-bands.

RABANS *d'avuste*, a sort of braided knittles, like those formed to point a rope.

RABANS *de ferlage*, the gaskets employed to furl the sails to their yards.

RABANS *de pavillon*, the rope-band of a flag or ensign.

RABANS *de pointure*, the head-earings, or reef-earings of a sail.

RABANS *de têtiere*, the rope-bands of any sail.

RABATTUES, the intervals between the drift-rails of a ship; this term is peculiar to ship-wrights.

RABLES, the floor-timbers of a boat.

RABLURE, the rabbit or channel cut in the keel, stem, and stern-post, to receive the edges of the garboard-streaks, and the ends of the planks afore and abaft.

RACAGE, a parrel with ribs and trucks.

RACAMBEAU, a traveller, or small iron ring, which sometimes encircles the mast of a long-boat, serving as a parrel to the yard or gaff.

RACCOMMODER, to repair or refit a ship's rigging. See RADOUBER.

RACHE *de goudron*, the dregs of bad tar.

RACLE, or GRATOIR, a scraper, used to clean a ship's side, deck, or bottom.

RACLE-*double*, a two-edged, or double scraper.

RACLE-*grande*, a large scraper, used to clean the ship's bottom under water.

RACLE-*petite*, or *petit* RACLE, a small scraper, employed to scrape the planks, &c. above the water.

RACLER, to scrape the sides, &c. of a ship.

RADE, a road, or road-stead.

RADE *foraine*, a free road, or road where ships of all nations are permitted to anchor.

RADEAU, a raft.

RADER, to arrive in a road.

RADOUB, the repair of a ship in a dock-yard, &c. or the employment of the artificers to close the breaches in her hull with planks, timber, or sheet-lead; as also to stop the leaks by calking, and pay the bottom with stuff.

RADOUBER, to repair a ship, or give her a repair.

RAFFALES, or RAFFALS, sudden and violent squalls of wind.

RAFRAICHIR *le canon*, to cool or refresh a cannon in battle, as with a wet-spunge, sometimes dipped

in vinegar.

RAFRAICHIR *la fourrure*, to freshen the hause.

Le vent se RAFRAICHIR, the wind freshens, or increases.

RAFRAICHISSEMENT, a supply of fresh provisions of all species.

RAISONNER *à la patache*, or *à la chaloupe*, to render an account of a voyage to a visiting boat, when arrived near any port, in order to obtain permission to enter the harbour.

RALINGUER, *Mettre en* RALINGUE, or *tenir en* RALINGUE, to shiver a sail in the wind. See FASIER.

RALINGUES, the bolt-ropes of a sail.

Mets en RALINGUE, or *fais* RALINGUER! luff her up in the wind, shake her up in the wind, let the sails touch! the order to the helmsman to steer the ship so as to let the sails shake with their edges to the wind.

RALLIER *un navire au vent*, to bring a ship to the wind after having yawed to leeward.

Se RALLIER, to approach any object at sea.

RAMBADES, two posts or platforms in the fore-part of a galley, whereon the musketeers stand to fire.

RAMBERGE, a sort of packet-boat, advice-boat, or tender.

RAME, an oar.

Plat, or *pale de la* RAME, the blade, or wash of an oar.

RAMER. See NAGER.

RAMEUR, a rower.

RANG, the rate of ships of war. As the division of the French navy into classes or orders differs from the arrangement of the English fleet, it appears necessary to mark that difference in this place.

The principal French ships of war are divided into three rates, each of which is subdivided into two orders. All the inferior ships, which are not comprehended in those rates and orders, are called frégates and *corvettes*. See FRÉGATE, &c.

A ship of the first order, of the first rate, carries from 110 to 120 guns.

Ships of the second order, of the first rate, carry from 110 to 90 guns.

Ships of the first order, of the second rate, carry from 90 to 74 guns upon three decks.

Ships of the second order, of the second rate, carry from 74 to 60 guns upon two decks, with the quarter-deck and fore-castle.

Ships of the first order, of the third rate, carry from 60 to 50 guns upon two decks, &c.

Ships of the second order, of the third rate, which are now generally called *frégates*, carry from 50 to 46 guns upon two decks, &c.

The *frégates* from 46 to 32 guns, have sometimes two tiers of cannon complete; but all those from 36 to 20, have in general but one tier of cannon, the rest being carried on the quarter-deck and fore-castle.

RANG *de rameurs*, a bank of rowers, or bank of oars.

RANGER *la côte*, or RANGER *la terre*, to coast, or range along-shore.

Ranger *le vent*, to claw the wind, or haul close to the wind.

Le vent se RANGE *de l'avant*, the wind hauls forward; the wind heads us, or takes us a-head.

RANGUE! stretch along, or, clap on here many hands! the order to the sailors to range themselves along, to haul upon any rope, tackle, &c.

RAPIDE, a fresh in a river.

RAQUE, a general name for trucks, but particularly the trucks of a parrel. See also *Pomme de* RACAGE.

Raque *de haubans*, a truck lashed to the shrouds, through which a running rope is reeved.

Raque *encouchée*, a truck encircled with a notch, to receive the spun-yarn by which it fastened to a shroud, stay, or back-stay.

Raque *gougée*, a truck hollowed on one side, so as to enclose the rope to which it is fastened.

RAQUÉ, chafed, or rubbed, expressed of a cable, or other rope, which is galled on the outside for want of service.

RAQUER, to fret, chafe, or rub.

RARRIVÉE, the movement of coming to, after having fallen off, when a ship is lying-by or trying.

RAS, a small vessel or boat without a deck.

RAS *à l'eau*, a low-built vessel, or one which carries her guns very little above the surface of the water.

RAS *de courant*. See RAT.

RASE, a composition of pitch and tar, used to pay a ship's seams.

RASER *un vaisseau*, to cut down a ship, or take off part of her upper-works, as the poop, quarter-deck, or fore-castle, in order to lighten her, when she becomes weak.

RASTEAU, or RATELIER, the rack or range of blocks sometimes placed on each side of the gammoning of a ship's bowsprit.

RASTEAUX, or RATEAUX, the cleats nailed on the middle of a yard, to confine the parrels, and tye, or jear-blocks, &c.

RASTEAUX, or *Rateliers à chevillots*, ranges, or cross-pieces, fastened to the shrouds, or otherwise, in which pins are fixed to belay the running-rigging.

RAT, a shipwright's floating stage, used for repairing or calking a ship's bottom, &c.

RAT, or RAS, a race, or dangerous whirlpool; as the Race of Portland, &c.

RAT. See COUET *à queue de rat.*

RATION, the allowance of bread, flesh, wine, pulse, &c. distributed to the different messes in a ship.

RATION *double*, a double allowance, given on any particular occasion of rejoicing.

RATION *et demie*, the allowance of a sea-officer in the French fleet.

RAVALEMENT, a platform on the poop of some ships, where the marines stand to discharge their small-arms.

REALE, the royal-galley, a name given to the principal galley of a kingdom. See GALERE *réale.*

REBANDER, a phrase amongst the common sailors, signifying to carry over to the other side of the ship.

REBANDER *à l'autre bord*, to stand upon the other tack, to steer a different course.

REBORDER, to fall aboard or along-side of a ship a second time.

RECHANGE, a general name for the stores of a ship; or the spare rigging, sails, &c. which are in reserve to supply the place of what may be lost or disabled.

RECLAMPER, to fish a mast or yard when it happens to be sprung.

RECONNOITRE *un vaisseau*, to approach a ship, in order to discover her strength, and of what nation she is.

RECONNOITRE *une terre*, to survey or observe the situation of a coast attentively.

RECOURIR *les coutures*, to run over the seams of a ship in calking; to calk them lightly and expeditiously.

RECOURIR *sur une manœuvre*, to under-run a rope or cable.

Faire RECOURIR *l'ecoute*, *la bouline*, *le couet de revers*, to haul in the slack of the lee-tack or bowline, or of the weather-sheet.

RECOUVRE! rouse-in, or haul aboard!

RECOUVRER, to rouse-in, or haul any rope into the ship, when it hangs slack in the water, or otherwise.

RECOUX. See REPRISE.

RECUL *du canon*, the recoil of a cannon.

REFAIT, squared, or prepared for use; expressed of a piece of timber hewn to its proper form and size.

REFLUX *de la mer*, the ebb-tide. See FLUX.

REFOULER, to stem the tide, or to sail against it.

La mer REFOULE, the tide ebbs; the water falls.

REFOULOIR, the rammer of a great gun, called also FOULOIR.

REFOULOIR *de cordes*, a rope rammer.

Se REFRANCHIR, to be freed by the pumps, or to have the quantity of water in a ship's hold diminished by pumping.

REFREIN, the repetition of the dashing and breaking against rocks, &c. expressed of the waves upon a sea-shore.

REFUSER, to fall off again, when in stays; expressed of a ship that will not go about, or stay; as,

Le vaisseau a REFUSÉ, the ship will not come to the wind, or will not stay.

REGATES, a course or race of boats in the great canal of Venice.

RELACHER, to bear away for, or put into a harbour, under the lee.

RELACHE, the harbour where a ship has taken refuge or shelter, as from a contrary wind.

RELAIS. See LAISSES.

RELEVEMENT, the sheer of a ship's deck, or the rising of the deck afore and abaft.

RELEVER, to put a ship afloat, after she had lain a-ground for some time; also to right a ship after she had lain upon a careen.

RELEVER *l'ancre*, to weigh the anchor again, and change its situation.

RELEVER *le quart*, or *le timonnier*, to relieve the steersman or the watch.

RELEVER *les branles*, to lash up the hammocks, in order to make a clear passage between-decks.

RELEVER *un côte*, to draw the plan or chart of a coast.

RELEVER *un vaisseau*, to steer by the compass, or shape the course by the compass.

REMÉDIER *à des voies d'eau*, to stop or stanch the leaks.

REMOLE, a dangerous whirlpool.

REMONTER, to sail up a river, as from the sea.

REMORQUER, to tow a ship by a boat, or other vessel with oars.

REMOULAT, a person who has charge of the oars in a row-galley.

REMOUX, the eddy, or dead water, left behind a ship's stern when she is under sail.

RENARD, a sort of handspike, or lever, with an iron claw, used to remove large pieces of timber in a dock-yard, &c.

RENARD is also a traverse-board.

RENCONTRE! shift the helm, or shift over the helm! the order to the steersman, to meet the ship, right the helm, or put it towards the side opposite to where it was before, in order to check the ship's sheer.

RENDEZ-VOUS, the rendezvous, or place of destination of a fleet of ships.

RENDRE *le bord*, to anchor, or come to an anchor in some road or harbour.

RENTRÉE. See RETRECISSEMENT.

RENVERSEMENT, the shifting a cargo from one ship to another.

Charger par RENVERSEMENT, to change or remove the cargo out of one ship into some other.

REPOUSSOIR, a driving-bolt, used by ship-wrights to knock out another from its station.

REPRENDRE *une manœuvre*, to sheep-shank, or shorten a rope.

REPRISE, a retaken ship.

RÉSINE, resin, used in paying a ship's bottom or sides.

RESSAC, the shock or breaking of a wave upon the shore, and its retreat into the sea.

RESSIF, or RECIF, a reef, or ridge of rocks under water.

RESTAUR, the restoration, or loss made good by an insurer.

RESTER, to bear upon any point of the compass; as, *un vaisseau nous* RESTE *au sud*, a ship bears south of us, &c.

RETENUE, fastened, or hardened home in its place; expressed of a piece of timber in ship-building; as,

Piece de bois qui a sa RETENUE, a piece of wood which is firmly wedged into its place, as by rabbiting, tenanting, &c.

Corde de RETENUE, a tackle-fall. See also CORD *de retenue* & ATTRAPE.

RETORSOIR, a spun-yarn winch. See MOULINET.

RETOUR *de marée*, the turn of the tide, or the beginning of the ebb.

RETRAITE *de pirates*, a nest of pirates, a harbour of free-booters.

RETRAITES *de hune*, or *cargues de hune*, the clue-lines, bunt-lines, and reef-tackles of the top-sails.

RETRANCHEMENT, a temporary or occasional apartment formed in a ship, besides her ordinary cabins.

RÉTRECISSEMENTS *des gabaris*, the tumbling-home of the top-timbers, where a ship grows narrower above her breadth. See REVERS.

REVENTER, to fill the sails again; to brace about, and fill.

REVERS, a general name for those pieces of timber whose convexity lies inward in a ship's bottom or sides; as,

Allonges de REVERS, the top timbers.

Genoux de REVERS, the lower futtocks in the fore and after parts of the ship.

Manœuvres de REVERS, the ropes which are out of use while they lie on the lee-side, as the lee-bowline, lee-tacks, &c.

REVIREMENT, the act of going about, by tacking or veering.

REVIREMENT *par la tête, ou par la queue*, to tack a fleet or squadron of ships of war by the van or rear, so that the foremost ships or the aftmost ships go about first, to preserve the order of the line.

REVIRER, to put about; to change the course of a ship.

REVIRER *dans l'eaux d'un navire*, to tack in a ship's wake, and stand on the same course, a-stern of her.

REVOLIN, a sudden gust of wind, which blows off the shore, as by rebound from the adjacent hills.

RIBORD, the second plank, or streak of planks, on a ship's bottom, counting from the keel. See GABORD.

RIBORDAGE, the damage due from one ship to another which has sustained any hurt from the misconduct or neglect of the former, as established by merchants.

RIDE, a laniard.

RIDER, to haul taught, or pull strait.

RIDER *la voile*. See RIS.

RIDES *de haubans*, the laniards of the shrouds.

RIDES *d'etai*, the laniards of the stays.

Longue RIME, or *donne longue* RIME! row a long stroke! the order to the rowers to pull with a long sweep.

Bon RIME! the order to the strokesman of the boat, or he who rows the after oar, to give a good stroke, for the rest to follow.

RINGEOT, or BRION, the fore-foot. See BRION.

RIS, the reef of a sail.

Prendre le RIS, to reef a sail, or take in a reef.

RISSONS, grapplings, with four claws, used as anchors in a galley.

RIVAGE, the banks of a river, or the sea-shore, upon which the tide ebbs and flows between high and low-water mark.

RIVER *un clou*, to rivet a nail.

ROC *d'issas*, or BLOC *d'assas*. See SEP *de drisse*.

ROCHER, ROC, or ROCHE, a rock, or key; a ridge, or reef of rocks in the sea, or on the coast.

ROCHES *cachées*, lurking rocks, or rocks under water.

RODE *de pouppe,* & RODE *de proue*, the stern-post, or stem of a galley.

ROINETTE, a marking-iron, to mark timber, or the casks which are shipped for a voyage.

RONDEUR, the curve, sweep, or compass of a piece of timber used in ship-building.

RONGÉ, worm-eaten; expressed of a ship's bottom, when it is much injured by the worms in a southern voyage.

ROSE *de vents*, or ROSE *de compas*, the card or face of a sea-compass.

ROSTER, to woold a mast, yard, or boom.

ROSTURES, the wooldings of a mast, &c.

ROUANE *de pompe*, a great pump-borer; whence,

ROUANER *une pompe*, to enlarge the bore or channel of a ship's pump.

ROUCHE *d'un vaisseau*, the hull of a ship, without masts or rigging.

ROUER *une manœuvre*, to coil a rope.

ROUER *à tour*, to coil a rope with the sun, i. e. according to the course of the sun in north-latitude.

ROUER *à contre*, to coil a rope against the sun.

ROUES *d'affut de canon*, the trucks of a gun-carriage.

ROUET *de poulie*, the sheave of a block.

ROUET *de poulie de chaloupe*, the sheave of a long-boat's davit; also the sheave on the top of her

stern-post, or stem for weighing an anchor.

ROULEAU, a roller, or cylindrical piece of wood placed under any weighty body, in order to move it with greater facility by means of handspikes, &c.

ROULER, to roll tumultuously; expressed of the waves of a swelling sea.

ROULIS *d'un vaisseau*, the rolling motion of a ship. See TANGAGE.

ROUTE, the course, or way of a ship; also the place of her destination.

ROUTE *fausse*, or *fausse-route*, the errors of a course, or the deviations from the right course, occasioned by the lee-way, drift, currents, chasing, &c.

A la ROUTE! steer the course! the order to the helmsman to keep the ship steddy in her course.

Porter à ROUTE, or *faire droit* ROUTE, to make a strait course; to sail onward, without touching at any port in the passage.

ROUTIER, a book, or collection of charts, bearings, distances, soundings, and perspective views of the coasts of any country.

RUBORD, or RIBORD. See RIBORD.

RUM, or REUN. See CALE.

Donner RUM *à une roche*. See FAIRE *honneur*.

RUMB *de vent*, a point of the compass. See AIR *de vent, &* ROSE *de vents*.

S.

SABLE, a watch-glass of any measure of time. See also HORLOGE.

SABLE *mouvant*, a quick-sand or shifting-sand.

SABORD, a gun-port in the ship's side; whence,

Fermer les SABORDS, to let fall, or shut in the port lids.

Faux-SABORD, a false port painted on a ship's side, and corresponding to a wooden gun, both which are calculated to deceive an enemy in time of war.

SABORDS *pour le lest*, ballast-ports.

SACHETS *de mítrailles*, grape-shot, or partridge-shot.

SAFRAN *de gouvernail*, the after-piece of a rudder, used to augment its breadth.

SAFRAN *de l'étrave*, an additional piece of timber fayed on the fore part of the cutwater, to enlarge it, immediately above the fore-foot, and enable the ship to hold the wind better.

SAILLE! a manner of shouting amongst the sailors, as a signal to pull or heave all at once.

SAIN, clear, safe, or clean; as,

Côte-SAIN, a clean bottom, or clear coast, which has no rocks or sands near it.

SAINT *aubinet*. See *Saint* AUBINET.

SAINTE-*barbe*, or *chambre des canonniers*, the gun-room of a vessel of war.

SAIQUE, a sort of Grecian or Turkish ketch.

SAISINE, a seising or lashing of any kind.

SAISINE *de beaupré*, or LIURE, the gammoning of the bowsprit. See LIURE.

SAISER, to seize or fasten any rope with a lashing, &c. See AMARRER.

SALE, foul; an epithet given to a coast full of dangerous rocks, shallows, and breakers.

Vaisseaux SALES, foul-ships, or shipping with foul bottoms.

SALUER, to salute, or do homage at sea, by offering a salute.

SALUER *à boulet*, a salute fired with shot, being an homage paid only to the king.

SALUER *de la mousqueterie*, to salute by firing a volley of small-arms.

SALUER *de la voix*, to salute with three chears, &c.

SALUER *des voiles*, to salute by lowering the sails.

SALUER *du canon*, to fire a salute of canon.

SALUER *du pavillon*, to salute, by striking or hauling-in the colours.

SALUT, a salute offered at sea by firing guns, &c.

Rendre le SALUT, to return the salute.

SAMEQUIN, a sort of Turkish merchant-ship.

SAMOREUX, a very long and flat-bottomed lumber-barge or lighter, for carrying masts and long planks on the Rhine, &c.

Navire qui a SANCI *sous ses amarres*, a ship which has foundered at her anchors.

SANCIR, to sink, or founder at sea.

SANDALE, a sort of lighter used in the Levant.

SANGLES, mats, or small panches formed of spun-yarn.

SAPINETTES, barnicles, a sort of shell-fish, that adhere to a ship's bottom which has been long at sea. See CRAVAN.

SARANGOUSTI, a sort of gum, used instead of pitch to pay the seams of a ship in the East-Indies.

SART, sea-weed, wreck, or tangles; the alga-marina.

SARTIE, the rigging of a ship, in the dialect of Provence.

SASSES, buckets to draw water, for washing the decks, &c.

SAUGUE, a fishing-boat of Provence.

SAUSISSON, the trough, or sausage, filled with powder, which communicates the flame from the train to the fire-pots or powder-barrels in a fire-ship.

SAUT, a water-fall in a river, which renders it unnavigable in that part.

Donner un SAUT *à la bouline*, to check the bowline.

SAUTE, an expression of command, which answers to away up, or away out to such a place! &c. as, Saute *sur la beaupré*! away out on the bowsprit! &c. SAUTE *sur la vergue!* go up to the yard, or out upon the yard, &c.

SAUTER, to veer, or shift suddenly; expressed of a wind when it changes to another point of the compass.

SAUVAGE, or SAUVEMENT, salvage, the payment of salvage.

SAUVE-*gardes*, the ridge-ropes which extend the nettings of a ship's head.

SAUVE-*gardes*, or *tire-veilles*, the horses, or man-ropes of the bow-sprit.

SAUVE-*gardes de gouvernail*, the rudder-pendants, with their chains.

SAUVE-*rabans*, the puddenings of the yards, which preserve the rope-bands from being galled by the top-sail sheets.

SAUVEURS, persons employed in recovering any stores, rigging, &c. from a wreck on the sea coast.

SCIER *à culer*, to back a-stern with the oars; to row stern foremost.

SCIER *sur le fer*, to support the cable of a galley by rowing with the oars, when she is at anchor in a storm, and in danger of driving ashore.

Mettre à SCIER, *ou mettre à culer*, to back the sails, or to lay them aback, so as to make the ship fall astern.

SCIE-*babord*, pull the larboard-oars, or pull to starboard!

SCIE-*tribord*, pull the starboard oars, or pull to port!

SCITIE, or SATIE, a particular kind of Italian bark with two masts.

SCORBUT, or SCURBOT, the scurvy, a well known marine distemper.

SCOUE, the extremity of a floor timber, where it is joined to the lower futtock.

SCUTE, a skiff, or small boat, belonging to a ship.

SEC, dry aground; the situation of a ship laid

ashore to be repaired, &c.

A SEC, or *à mâts & à cordes*, a-hull, or under bare poles. See METTRE *à sec*.

SECOND, or *vaisseau* SECOND. See MATELOT.

SECRET *d'un canon*, the train of a piece of ordnance, which communicates with the touch-hole.

SECRET *d'un brulot*, that part of the train where the match or fuse is laid by the captain in a fire-ship, as ready for inflammation.

SEILLURE. See SILLAGE.

SEIN, a small bay or gulf with a narrow entrance: also a SEIN, or capacious fishing-net of a particular construction, used on the sea-coast.

SEIN *d'un voile*, the bight, cavity, or belly of a sail.

SEJOUR, the space of time that a ship remains in any port at which she touches in the course of a voyage.

SELLE *de calfat*, a calking-box, which contains the instruments and materials used in calking a ship.

SEMAQUE, or SEMALE, a smack or fishing sloop.

SEMELLES, or DERIVES, lee-boards.

SENAU, a snow; also a small Flemish vessel rigged like a smack.

SENTINELLE *de chaloupe*, the keeper of the long-boat.

SEP *de drisse*, the knights, or knight-heads of the jears, with their sheaves: these machines are now entirely disused in English ships of war.

SERGENT, a wraining bolt, to bend a ship's planks

into their places. See ANTOIT.

SERRAGE, *ou* SERRES *de vaisseau*, a general name for those planks of a ship which are called *thick-stuff* by our ship-wrights.

Faux SERRAGE, loose planks, laid occasionally as a platform in a ship's floor when she has no ceiling.

SERRE-*bauquieres*, thick stuff placed under the clamps, upon which the ends of the beams rest.

SERRE-*bosse*, the shank-painter of the anchor.

SERRE-*goutieres*, the water-ways of a ship.

SERRER *de voiles*, to shorten sail.

SERRER *la file*, to close or contract the line of battle, by making the ships draw nearer to each other.

SERRER *le vent*, to haul the wind; to haul upon a bowline.

SERRER *les voiles*, to furl, or hand the sails. See FERLER.

Faire SERVIR, to fill the sails after they had been shivering or laid a-back for some time.

SEUILLETS *de sabords*, the port-fells, or lower part of the gun-ports.

Hauteur des SEUILLETS, the height of the port-fells from the deck immediately beneath them.

SIAMPAN, a small coasting-vessel of China, with one sail, and two, four, or six oars; extremely light and swift.

SIFFLEMENT, the whistling of a shot as it flies through the air when discharged from a cannon.

SIFFLET, a boatswains call.

SIGNAL, a general or particular signal used at sea.

SILLAGE, or *l'eau d'un vaisseau*, the track or wake of a ship; the trace which she leaves behind her on the surface of the sea.

Doubler le SILLAGE *d'un vaisseau*, to sail with twice the velocity of another ship; or, according to the sea-phrase, to sail two feet to her one,

SILLER, to run a-head; to have head-way through the sea, &c.

SIMAISE, or rather CIMAISE, a wave or ogee in the sculpture of the ship's mouldings.

SINGE, a sort of *gin*, or machine, with a roller or winch in the middle, which is turned by handspikes: and used to discharge goods from a boat or small vessel.

SINGLER. See CINGLER.

SITUATION *d'une terre*, the bearings and distances of a coast.

SLEE, a sort of sledge or cradle, laid under a ship's bottom in Holland, &c. when she is to be drawn ashore to be repaired or graved,

SOLDATS *de marine*, marines, or marine forces.

SOLDATS-*gardiens*, a division of marines stationed at a royal dock-yard.

SOLE, the bottom of a vessel which has no keel, as punts, horse-ferry-boats, and some barges of burthen.

Le SOLEIL *a baissé*, the sun has fallen, or, has past the meridian; an expression used when observing its altitude at noon.

Le SOLEIL *a passe le vent*, the sun has overtaken the wind: *i. e.* the wind being south, the sun, by

passing from south to S S W, is said to have passed the wind. Hence they say, in a contrary sense, *Le vent a passé le Soleil.*

Le SOLEIL *chasse le vent*, the sun chases the wind; a phrase which implies the change of the wind from the east to the west, by the southern board, before sun-set.

Le SOLEIL *chasse avec le vent*, the wind keeps pace with the sun; an expression that denotes the change of the wind according to the course and progress of the sun.

Le SOLEIL *monte encore*, the sun continues to rise.

Le SOLEIL *ne fait rien*, the sun stands still. Both these last phrases are peculiar to the operation of taking the meridian altitude.

SOLES, a name given to the bottom or transoms of a gun-carriage.

SOMBRER *sous voiles*, to overset in a squall of wind.

SOMMAILE, a bank or shoal. See BASSE.

SOMME, to deepen; as,

La mer a Sommé, the water deepens as the ship advances.

SONDE, or *plomb de sonde*, the sounding-lead; also the soundings, *i. e.* the sand, gravel, &c. that sticks to the bottom of the lead at the time of sounding.

Aller à la SONDE, *Aller la* SONDE *à la main*, to sail by the hand-lead, or by sounding the depth of the water with a hand lead as the ship advances.

SONDER, to sound; to heave the hand-lead, or deep-sea-lead.

SONDER *la pompe*, to sound the pump.

SONNER *le quart*, to ring the bell at the close of the night-watch.

SONNER *pour le pompe*, to strike the bell for pumping the ship, as at every hour, or half hour.

SONETTE, an engine somewhat resembling a gin, and used for driving piles.

SORTIR *du port*, to depart from a harbour; to sail out or put to sea.

SORTIR *le boute-feu à la main*, to set sail with the match in hand: expressed of a port whose entrance or opening is so commodiously situated, that a ship may sail from it with any wind, and be ready for engagement immediately after her departure.

SOU, or rather FOND, the bottom, or ground, at the depth of any part of the sea. See also FOND.

SOUABRE. See FAUBER.

SOU-*barbe*, a bracket or knee, usually ornamented with sculpture, and placed under the cat-head to support it.

SOUBERME, a fresh, or torrent increased by the freshes of a river.

SOUFFLAGE, the doubling of a ship, or covering her side with new wales and planks. See SOUFFLER.

SOUFFLAGE is also the new planking of a ship, or giving her a new skin, after the old planks are ripped off.

SOUFFLER, to double a ship with new planks and wales, so as to stiffen her when she is built too crank; or to prevent or diminish the efforts of an enemy's cannon.

SOUFFLER *les canons*, to scale the great guns, or cleanse them by blowing a little powder from them.

SOULIE, the bed of a ship, or the impression she has left in the mud on shore, after having lain aground during the ebb-tide.

SOULIER, the shoe of an anchor.

SOUN, or TSOUN, a large flat-bottomed ship, navigated on the rivers of China.

SOUQUE! hang, or swing upon! a phrase among the common sailors, spoken of a rope which they are pulling.

SOURCE *du vent*, the point of the compass in which the wind sits.

SOURDRE, to rise up, or brew; expressed of a cloud or squall issuing from the horizon towards the zenith.

SOURDRE *au vent*, to hold a good wind, to claw or eat to windward.

SOUS-*argousin*, an officer in the gallies, who assists the argousin in his duty. See ARGOUSIN.

SOUS-*barbe*. See *Sou-barbe*.

SOUS-*barbes*, short props or shoars, placed under the stem while the ship is yet on the stocks.

SOUS-*barque*, the upper-streak of a lighter, or the streak which lies close under the gunnel.

SOUS-*comite*, an officer in the gallies, who assists and relieves the COMITE; which see.

SOUS-*fréter*, to under-freight a ship, or hire her out to a second person, after having contracted for her freight to a first.

SOUTE, a store-room in the orlop of a ship, of which there are several; as,

SOUTE *au biscuit*, the bread-room; SOUTE *aux poudres*, the magazines, &c.

SOUTENIR, to support under the lee; expressed of a current which acts upon the lee-side of a ship, and counter-ballances the lee-way, when she is close-hauled, so as to keep her in the right course without falling to leeward.

SOUTENIR *chasse*. See *Soutenir* CHASSE.

Se SOUTENIR, to bear up against a scant-wind or current, without being driven much to leeward or down the stream.

SPARIES. See CHOSES *de la mer*.

SQUELETTE, the carcase or skeleton of a ship; or the ribs, with the keel, stem, and stern-post, after the planks are ripped off.

STAMENAIS, or rather GENOUX, the lower-futtocks.

STRAPONTIN, a sort of hammock, used in hot climates to sleep in.

STRIBORD, or TRIBORD, the starboard-side of a ship.

Avoir l'amure à STRIBORD, to have the starboard-tacks aboard, or to sail upon the starboard-tack.

SUAGE, a coat of tallow, soap, sulphur, &c. with which the bottom of a ship is payed, to enable her to sail smoothly through the water.

SUD, the south, or south-point. See ROSE *de vents*.

Etre au SUD *de la ligne*, to be in south-latitude, or to the southward of the equinoctial line.

SUPANNE, or *etre en* PANNE. See PANNE.

SUPER, to stop or close accidentally; expressed of a leak which is choaked, or filled with sea-weed, or such like material, that may have entered with the water.

SURCHARGER, to overload a ship.

SURJOUAILLÉ, or SURJAULÉ, foul of the anchor-stock; expressed of the cable.

Le cable est SURJAULÉ, the anchor is foul, having a turn of its cable under the stock.

SURLIER, to woold. See also ROSTER.

SURVENTE, a hard gale of wind, a tempest.

SURVENTER, to over-blow, or blow a storm.

SUSAIN, or SUSIN, a name sometimes given to the quarter-deck. See GAILLARD.

SUSPENTES, vulgarly called SURPENTES, the main and fore-tackle pendants.

SYRTES, shifting-sands, quick-sands, or shelves.

T.

TABERNACLE, or TENDELET, a place under the awning of a row-galley, where the captain sits to give his orders.

TABLEAU, the compartment, whereon the name is engraved or painted on the stern of a Dutch flight. See ECUSSON.

TABLETTE, the rising-staff; a form, or scale, used by shipwrights when erecting the frames of the timbers.

TABOURIN, the fore-castle of a galley, with the space underneath it, where the artillery are loaded and fired. See COVERT *de l'iscosele*.

TAILLE-*mer*, or *gorgere*, the lower part of a ship's cut-water, or of the prow in a galley.

TAILLES *de fond, &* TAILLES *de point*. See CARGUES *fond, &* CARGUES-*point*.

TAINS. See TINS.

TALINGUER, or ETALINGUER, to bend the cable to the anchor-ring.

TALLARD, a space between the *coursiere*, or middle gangway, and the gunnel, in a galley, where the slaves are placed to row their oars.

TALON *de la quille*, the after-end of the keel, into which the foot of the stern-post is tenanted: this is also called a ship's heel.

TALON *de rode*, the heel of the stern, or stern-post of a row-galley. See RODE.

Couper en TALUS, to hew a plank shelving, or with a slanting edge.

TAMBOUR, a drum; also the drummer, or person who beats it.

TAMBOUR *d'eperon*, the doubling of the cut-water, or the planks nailed on the outside of it, to defend it from the assaults of the waves.

TAMISAILLE, or TAMISE, the transom, upon which the tiller traverses in a ship's gun-room.

TAMPONS, wooden shot-plugs, employed to fill up

the holes made in a ship's side by the cannon balls of an enemy: also plates of iron, copper, or lead, used for the same purpose.

TAMPONS, or TAPONS *de canon*, the tompions of the great guns.

TAMPONS, or TAPONS *d'ecubiers*, hause-plugs.

TANGAGE, the act of pitching, or plunging with the fore and after ends of a ship.

TANGUER, to pitch or plunge deep in the water forward.

TANGUEURS, or GABARIERS, lightermen.

TAPABOR, a sea-cap, a sailor's cap or bonnet.

TAPEÇU, a sort of ring-tail, water-sail, or driver.

TAPONS *de canon*, &c. See TAMPONS.

TAQUETS, a general name for the larger cleats, or kevels, whereon the running-ropes are belayed.

TAQUET *à cornes*, a large cleat, which is nailed or lashed by the middle to a mast, plank, shroud, &c. and having two branches or arms, whereby to fasten a rope so as to be cast off suddenly when necessary.

TAQUET *à gueule, ou à dent*, a hollow or notched cleat, nailed at the two ends; these are chiefly used to fasten casks, or other weighty bodies, to the decks or sides of the ship.

TAQUET *de fer*, a wraining-bol. See ANTOIT.

TAQUET *de mât de chaloupe*, a small cleat, whereon the tack of a long-boat's main-sail is fastened.

TAQUETS *d'amure*, the chess-trees. See also DOGUE *d'amure*.

TAQUETS *de bittes*. See COURBES *de bittes*.

TAQUETS *de cabestan*, the whelps of the capstern. See FUSEAUX.

TAQUETS *d'echelle*, the steps which are nailed on the gangway, whereby to ascend or descend the ship's side.

TAQUETS *d'écoutes*, the kevels or great cleats, whereon the tacks and sheets of the courses are belayed.

TAQUETS *de hune à l'Angloise*, the cheeks of the bow sprit.

TAQUETS *de mâts*, the belaying-cleats of the lower-masts, which are usually furnished with several pins to fasten different running ropes.

TAQUETS *de ponton*, large hollow cleats fixed on the side of a pontoon, or sheer-hulk, to fasten the pendant of the relieving-tackle.

TAQUETS *de potence*, the cheeks of a common sea-pump. See POTENCE.

TAQUETS *simples*, cleats which are formed nearly in the manner of a wedge or quoin; they are usually nailed to the deck or sides, to support or wedge up any weighty body.

TARRIERE, an augre, or auger, used by shipwrights to bore the planks and timbers, in order to fasten them together with bolts and tree-nails.

TARTANE, a tartane, or small vessel, usual in the Mediterranean.

TEMPETE, a tempest, or violent storm.

TEMS, a general term for weather.

TEMS *affiné*, fine weather, clear weather, or a clear

sky. See AffiNE.

TEMS *à perroquet*, a top-gallant gale, top-gallant weather.

TEMS *de mer*, or *gros* TEMS, tempestuous weather.

TEMS *embrumé*, a fog; foggy weather.

TENAILLE, a wooden engine formed like a pair of pincers, and employed to confine the planks of a ship in their places, till they can be nailed or bolted to the timbers.

TENDELET, the tilt of a boat; also the awning or canopy in the after part of a galley.

TENIR *au vent*, to keep the wind; to sail close upon a wind.

TENIR *bon*, to stop or cease from any exercise or labour in a ship.

TENIR *la mer*, to keep the sea; to keep out in the offing. See *Tenir la* MER.

TENIR *le balant d'une manœuvre*, to make fast the bight of a rope when it hangs slack.

TENIR *le largue*, to sail large, or with a large wind.

TENIR *le lit du vent*, to have the wind right an end, or right in one's teeth.

TENIR *le lof*. See LOF & OLOFÉE.

TENIR le vent. See ALLER *au plus pres*.

TENIR *sous voiles*, to get under sail; to set sail ready for putting to sea.

TENIR *un bras*, to brace, or haul in the brace of, a yard.

TENIR *une manœuvre*, to make fast, or belay a rope.

TENIR, *or voir une terre*. See OUVRIR.

TENON, a tenant, or end of a piece of timber let into a mortise.

TENON *à queüe d'aronde*, a pivot, or tenant, formed like the spindle of a capstern.

TENON *de l'étambot*, the tenant on the heel of the stern-post which is let into the keel.

TENON *de mât*. See THON *de mât*.

TENONS *de l'ancre*, the nuts of an anchor.

TENUE, the gripe or hold which an anchor has of the ground where it is sunk. See FOND *de bon tenue*.

TERMES, the quarter-pieces of a ship, by which the side is terminated abaft.

TERRE *de beurre*, cape fly-away, a cant phrase applied to any illusive appearance of land in the horizontal clouds, after sun-set or before sun-rise.

TERRE *défigurée*, land which cannot be easily distinguished at sea, on account of the clouds which rest upon it.

TERRE *fine*, land which may be distinctly beheld from the sea.

TERRE *grosse*, or *grosse terre*, high land on, or near, the sea-shore.

TERRE *hachée*, a coast with an opening between two mountains.

TERRE *maritime*, the sea-coast, or sea-shore.

TERRE *Méditerranée*, an inland country.

TERRE *qui asseche*. See ASSECHER.

TERRE *qui fuit*, double-land, or land shut in behind

a cape or promontory.

TERRE *qui se donne la main*, land open to the sea, or accessible to shipping.

TERRES *basses*, low flat lands on the sea coast.

TERRES *hautes*, high land on the sea shore; a bold, or iron bound coast.

Aller TERRE *à terre*. See ALLER.

Dans la TERRE, or *Dans les* TERRES, in-land; up in the country.

Mangé par la Terre, land-locked; shut-in by the land.

Prendre TERRE, to arrive at the land.

Tout à TERRE, close in shore.

TERRE-*neuvier*, a Newfoundland cod-fisher.

TERRIR, to come to anchor; to arrive at the land after a long cruise.

TERTRE, an hommock, or hillock, rising on a level shore, and seen from the sea.

TESSEAUX. See BARRES *de hune*.

TETE *de l'ancre*, the cross of the anchor, where the shank terminates upon the arms.

TETE *de more*. See CHOUQUET.

TETE *de cabestan*, the drum-head of the capstern.

TETE *de potence de pompes*, the cheeks of the pump which support the brake.

TETE *du vent*, the rising, or springing up of a breeze.

Faire TETE, to hold well by the moorings; to be well moored.

TETIERE, the head of a sail.

THON *de mât*, the mast-head, or the space comprehended between the cap of the lower-mast and the tressel-trees beneath it: and so of the top-mast.

TIERS *point*, a triangular sail, as a lateen, or stay-sail. See LATEEN.

TILLAC. See PONT.

Franc-TILLAC, or rather *premier-pont*, the gun-deck, or lower-deck.

Faux-TILLAC, the orlop. See FAUX-*pont*, and FAUX-*baux*.

TILLE, the cuddy, or cabin of a lighter, or other undecked vessel; also the place where the helmsman stands in a Dutch flight.

TIMON, or rather BARRE *de gouvernail*, the tiller.

TIMONNIER, the helmsman, or steersman.

TINS, the blocks upon which the keel and floor-timbers of a ship are laid while she is building.

TIRANT *d'eau, d'un vaisseau*, the draught of water of a ship, or the depth of water which she draws to float her.

TIRE! the order to the boat's crew to row hard, or forcibly a-head.

TIRE *du vent*, or TIRE-*avant*, pull away; pull a head chearly!

TIRE-*soin*, the worm used to draw the charge of a cannon.

TIRER *tant de pieds d'eau*, to draw so many feet of water, in order to float. See TIRANT *d'eau*.

TIRER *à la mer*, to stretch out to sea.

TIRE-*veilles*, the man ropes, or entering-ropes of the side.

TIRE-*veille de beaupré*. See SAUVE-*garde*.

TOILE *noyale*, canvass, or duck, employed to make sails; sail-cloth.

TOILES *de sabords*, port-sails. See VOILES *à lest*.

TOISER, to measure by the fathom. See BRASSE.

TOLETS, or ESCOMES. See ESCOMES.

TOMBER, as a sea-term, implies to lean or incline; also to cease, or fail; as,

TOMBER *sous le vent*, to fall to leeward.

TOMBER *sur un vaisseau*, to fall aboard a ship to the leeward.

Le vent a TOMBÉ, the wind is spent, or decayed; it has become calm.

Le Mât TOMBE *en arriere*, the mail hangs, or rakes aft.

TONIES, a sort of Indian boats which are usually lashed together in couples, in order to carry sail the better. The two thus paired are called *Catapanel*.

TONNE, a can-buoy, placed over a shoal, rock, or sand, in a channel; also the nun-buoy of a ship.

TONNES, are also barrels fitted to cover the mast-head when it is unrigged, to preserve it from rain.

TONNEAU *futaille*, a tun, or tun weight, containing 2000lb. also a general name for all sorts of large casks, containing a measure equal to that weight.

TONNELIER, the cooper of a ship, who has the

charge of all the provision-casks to keep them in proper repair.

TONTURE, the sheet of the wales and decks of a ship.

TONTURE *des baux*, the round-up, or convexity of a ship's beams.

TORDES. See SAUVE-*rabans*.

TORON. See TOURON.

TORTUE *de mer*, a sort of transport-ship, formed with a high deck, for the convenience of carrying troops, passengers, and their effects, between decks.

TOSTE *de chaloupe*, the thwarts, banks, or seats of a boat, whereon the rowers sit to manage their oars.

TOUAGE, the warping a ship from place to place; also towing. See REMORQUER.

TOUCHE, the priming wire, or priming-iron of a cannon. See DÉGORGEOIR.

TOUCHER *terre*, or, simply TOUCHER, to run a-ground, or strike against a rock, shore, or sand-bank.

TOUCHER *à une côte, ou à une port*, to touch at any coast or harbour.

TOUCHER *un compas*, to touch the needle of a compass with a magnet.

TOUÉE, a name given to two or three hawsers bent upon an end, *i. e.* fastened at the end of each other, and to an anchor a-head, so as to ride a ship with more security.

TOUER, to warp a ship from one place to another in a harbour.

TOUR *à feu*, a light-house. See PHARE.

TOUR *de bitte au cable*, a turn of the cable about the bits; the bitting of a cable.

TOUR *de cable*, a foul hawse; a turn or elbow in the hawse. See CABLE and CROIX.

TOUR-*et-choque*, a weather-bit of the cable, or a turn and half-turn about the bits.

TOUR *marine*, a watch-tower, or block-house, on the sea-coast.

TOUR *de cable autour du virevaut*, the turns of the cable round the windlass; the act of passing it about the windlass.

TOURBILLON, a whirlwind upon the sea.

TOURET. See TOLETS & *echome*.

TOURILLONS, the trunnions of any piece of ordnance.

TOURMENTE, a tempest, or great storm. See TEMPETE.

TOURMENTER, when expressed of a ship, implies to labour or strain violently; when spoken of timber, it denotes to warp or twist.

TOURMENTIN, a name sometimes given to the sprit-sail top-sail. See PERROQUET *de beaupré*.

TOURNANT *de mer*, a whirlpool, or dangerous race in the sea.

TOURNANT, is also a stake or post sunk into the angles of a canal, for the convenience of warping vessels up or down.

TOURNER *le bord*. See VIRER.

TOURNER *sur son ancre*, to pass round the anchor;

understood of a ship that, riding by a single anchor, has probably encircled the place where it lies, so as to have swept it with her cable, and made a foul anchor.

TOURNEVIRE, the voyal of the cable. See CABESTAN.

TOURON, the strand of a rope, composed of a certain number of rope-yarns.

TOUT *le mond haut*! all hands, hoay! all hands upon deck hoay! a cry, or order of the boatswain, to summons all the sailors upon the upper-deck.

TOUT *le monde bas*, sit down close, all hands! the order to the ship's crew to lie snug upon deck or below, so as not to retard the ship's course by their motion upon deck, nor be discovered by the enemy, of whom they are in chase.

TRAIN *de bateaux*, a train of boats in tow.

TRAIN *de bois*, or FLOTE, a raft, or float of timber.

A la TRAINE, towing overboard; expressed of any thing towed in the sea by a rope when the ship is advancing, to wash it; or, if salt provisions, to freshen it.

TRAINÉE, a train of gun-powder.

TRAIT *de compas*, or TRAIT *de vent*. See RUMB.

Voile à TRAIT *quarré*, a square sail; such are the courses, top-sails, &c. of a ship.

TRAITE, the trade or commerce carried on between shipping and the inhabitants of any country where they arrive.

TRAMONTANE, the north-wind, in the dialect of the Mediterranean.

TRAPE, or ATTRAPE, a tackle-fall. See CORDE *de retenue*.

TRAVADE, a tornado, or thunder-gust; as those on the coast of Africa.

TRAVAILLER, when applied to a ship, is to roll or pitch heavily, as in a high sea; also to swell tumultuously, as the waves themselves. See ROLIS.

TRAVAILLEURS, the ordinary, or labourers, &c. employed to assist in fitting out shipping.

TRAVERS, in a naval sense, generally denotes athwart, abreast of, or along side of: it is also applied to any piece of timber which is laid across others and scored into them.

Se mettre par le TRAVERS, or *Passer par le* TRAVERS *de Torbay*, to cross or stand athwart Torbay, &c.

Le vaisseau est moüillé par nôtre TRAVERS, the ship has come-to, abreast of us.

La marée vient par le TRAVERS *du vaisseau*, the tide takes the ship athwart, or on the broad-side.

Mouillee par le TRAVERS *de Belleisle*, at anchor off Belleisle.

TRAVERSÉE, a passage from one port to another; an outward or homeward bound voyage.

TRAVERSE *misaine*! flat-in the fore-sheet! flat-in forward! the order to pull the lower-corners of the head-sails in towards the ship, in order to make her fall off when the sails shiver in the wind.

TRAVERSER, to become abreast of, to sheer alongside of.

TRAVERSER *l'ancre*, to get the anchor up along the bow, in order to stow it parallel to the gunnel.

TRAVERSER *la lame*, to head the sea; to sail against the setting of the sea,

TRAVERSIER, a small fishing vessel on the coast of Rochelle,

TRAVERSIER *de chaloupe*, the fore-beam or fore thwart of a long-boat.

TRAVERSIER *de port*, a wind that sets right into any harbour, so as to prevent the departure of a ship from it.

Mettre la misaine au TRAVERSIER, to bring the fore-tack to the cat-head; as when the wind is large.

TRAVERSIN. See TAMISAILLE.

TRAVERSIN *d'écoutilles*, a guttur-ledge, or cross-piece of a hatchway.

TRAVERSIN *d'élinguet*, the beam into which the pauls of the capstern are bolted.

TRAVERSIN *de herpes*, a ship's davit; see also MINOT.

TRAVERSIN *des bittes*, the cross-piece of the bits.

TRAVERSIN *du chateau d'avant*, the cross-piece of the fore-castle, which contains the kevels and cleats for belaying ropes.

TRAVERSIN *des affuts*, the transoms of the gun-carriages.

TRAVERSINS *de taquets*, the step or piece of timber in which the feet of the main and fore-sheet kevels are lodged.

TRÉLINGAGE, a crow-foot. See MARTICLES.

TRÉLINGAGE *des étais sous les hunes*, the crow-feet of the tops.

TRÉLINGAGE *des haubans*, the cat-harpings of the shrouds.

TRÉLINGUER, to reeve a crow-foot, or form any thing similar thereto, as the clue of a hammock, &c.

TRÉMUE, a trunk, or sloping passage formed in some merchant-ships for the cables, from the top of the fore-castle downward to the hause, and covered with a small grating.

TREMUE is also a hood, or companion, placed over the comeings of the hatches in merchant-ships, to keep the steerage warm, and prevent the rain or sea-water from falling into it.

TREOU, a square-sail, used to scud under in a storm, in small vessels, particularly sloops, tartans, galleys, &c.

TRÉPORT, or *allonge de pouppe*, a stern-timber, whose lower end corresponds with the top of the stern-post.

TRÉSORIER *général de la marine*, an officer whose duty resembles that of our treasurer of the navy.

TRESSE *de meche*, a twill formed of three matches turned round each other, to fire a cannon with more certainty and expedition.

TRESSES, a sort of knittles frequently used as seizings.

TRÉVIER, or *Maître-voiler*, the master sail-master of a ship.

TREUIL, a roller or winch of several kinds.

TRÉVIRER. See CHAVIRER.

TRIANGLE, a stage hung over a ship's side, to calk

the seams, or pay the planks: also a machine composed of three capstern-bars, whose ends are tied together, so as to form a triangle, to enclose any mast, along which it may be hoisted or lowered, to scrape the mast, or pay it with turpentine, resin, tallow, &c.

TRIBORD, the starboard side of the ship. See also STRIBORD.

TRIBORDAIS, starbowlines; a cant term for the starboard-watch.

TRIÉRARQUE, an officer formerly appointed to furnish a ship with soldiers, rowers, arms, and provisions.

TRINGLE, a thin lath, used occasionally to fill up the edges of a gun-port, deadlight, &c. and make it tight, so as to exclude the wind or water.

TRINGLE is also a batten of wood about two feet long, nailed against the butts or joints of a boat's planks, to strengthen them.

TRINGLER, to mark timber with a chalked or red line, in order to hew or bevel it to the exact form and scantlings.

TRINQUET, the fore-mast of a row-galley.

TRINQUETTE, a triangular fore-sail, as that of a sloop, and such vessels.

TRISSE *de beaupré*, the standing-lifts of the sprit-sail yard.

TRISSE *de racage*. See DROSSE *de racage*.

TROMPE, or *pompe de mer*, a water-spout.

TROMPETTE *marine*, a speaking-trumpet used at sea.

TROUS *d'amure de misaine*. See BOUTE-*de-lof*.

TROSSE *de racage*, a small tackle, formerly used as a nave-line.

TROUS *d'écoutes*, the sheave-holes, which are cut obliquely through a ship's side, wherein the main and fore-sheets are reeved.

TROUS *de la civadiere*. See OEIL.

TUGUE. See TEUGUE.

TUTELLE, the tutelary saint represented on the stern of a ship, and to whose protection she is consigned.

V.

VADROUILLE, a brush used to pay a ship's bottom with tallow or stuff.

VA *et vient*, a span or rope extended from one place to another, whereon to draw any thing along by the means of a traveller.

VAGANS, vagrants or hovellers, who infest the sea-coast in a tempest, in expectation of plunder from some shipwrecked vessel. See DEBRIS.

VAGUES, the waves or surges of the sea. See LAMES.

VAIGRER, to fix on the planks and thick-stuff of a ship's cieling to the timbers.

VAIGRES, *ou serres*, a general name for the clamps

and thick-stuff used in the cieling of a ship; as,

VAIGRES *de fond*, the thick-stuff placed next to the keel.

VAIGRES *d'empature*, the thick-stuff placed between the floor-heads and the *vaigres de fond*.

VAIGRES *de pont*, the clamps which support the ends of the beams.

VAIGRES *des fleurs*, the thick stuff placed opposite to the floor-heads.

VAISSEAU, a ship, or large vessel of war or burthen.

VAISSEAU *à la bande*, a ship lying along, or heeling gunnel-to, under a weight of sail in a fresh wind: this is frequently called lying down on the beam-ends, or broadside.

VAISSEAU *à l'ancre*, a ship at anchor.

VAISSEAU *à son poste*, a ship in her station, as appointed by the commanding officer.

VAISSEAU *beau de combat*, a roomy ship, advantageously built for battle, as carrying her lower tier high above the water, and having a good height between-decks.

VAISSEAU *corsaire*. See CORSAIRE.

VAISSEAU *démarré*, a ship unmoored, or whose anchors are weighed; also a ship broke adrift from her moorings.

VAISSEAU *gondolé*, a ship built with a great sheer.

VAISSEAU *qui a le côté droit comme un mur*, a wall-sided ship.

VAISSEAU *qui a la côté foible*, a streight-sheered

ship.

VAISSEAU *qui a le côté fort*, a round-sided ship.

VAISSEAU *qui-cargue*, a crank ship.

VAISSEAU *qui charge à fret*, a laden or loaded ship. See FRET.

VAISSEAU *qui se manie bien*, a good working ship; a ship that is easily managed and steered.

VAISSEAU *qui se port bien à la mer*, a good sea-boat.

VAISSEAU *ralongé*, a lengthened ship.

VAISSEAU *de bas-bord*, a low-built vessel navigated with sails and oars, as the gallies in the Mediterranean.

VAISSEAU *de haut-bord*, a general name for large ships.

VALANCINE. See BALANCINE.

VALETS *d'artillerie*, the boys which attend the great guns in a sea-fight, &c.

VALTURE, the lashing of the sheers; or a rope employed to lash two masts together in any particular place, when they are to be used as sheers.

VARANGUAIS. See MARTICLES.

VARANGUES, a general name for the floor-timbers; as,

VARANGUES *acculées*, the crotches or floor-timbers afore and abaft.

VARANGUES *demi-acculées*, the floor-timbers placed between the *varangues acculées* and the

VARANGUES *plates*, or VARANGUES *de fond*, the flat floor-timbers placed in the middle or broadest

part of a ship's floor.

VARECH, sea-wreck. Also the wreck of a ship. See CHOSES *de la mer*.

VARIATION, the variation of the compass. See DECLINAISON.

VARIATION *vaut la rout*, the variation is on the weather-side, or opposite the lee-way.

VASART, oozy, or slimy, expressed of a particular bottom or soundings at sea. See FOND.

VASSOLES, laths or battens placed between the ledges of the gratings.

VEGRES. See VAIGRES.

VEILLE *la drisse*! stand by the haliards! the order to have the top-sail-haliards ready to lower in case of a squall.

VEILLE *l'écoute de hune*! stand by the top sail sheets!

VEILLE *les huniers*. See VEILLE *la drisse*.

VEILLER, to watch, attend, or take care of any thing; as,

Il faut VEILLER *les mâts, & non le côté*, we must look to the masts, and not to the side; expressed of a ship, whose masts being good, will rather overset her, than be carried away. When the anchor is a cockbill, and ready to let go, they say, *Ancre est à la* VEILLE; and when the buoy floats over the anchor to shew its place, it is called *bouée à la* VEILLE.

VENT, the wind.

VENT *alizé*, a trade-wind, or monsoon.

VENT *arriere*, a wind right aft or astern.

VENT *d'amont*, a land-wind, or land breeze.

VENT *d'aval*, a foul wind which blows from the sea, &c.

VENT *de bouline*, a scant-wind, on which the ship cannot lie her course without being close-hauled.

VENT *de quartier*, a quarterly, or quartering wind[61].

VENT *en pouppe*. See VENT *arriere*.

VENT *en pouppe, largue la soute*; large wind, large allowance; an expression used by seamen on the commencement of a fair wind, after they had been put to short allowance in consequence of foul winds.

Le VENT *en pouppe fait trouver la mer unie*, a stern wind brings an easy sea; expressed of a ship when sailing afore the wind, in which situation she will be less strained by the agitation of the sea, than when she lies in the trough or hollow of it, side-ways.

VENT *largue*, a large wind.

VENT *routier*, a wind which serves to go and come upon the same line; such is the wind upon the beam.

VENTS *variables*, variable winds, or such as are without the tropics.

VENT *à pic*, the wind is right down; a witticism amongst sailors, to signify that there is a total cessation of wind, at which time the vanes hang right downward, instead of blowing out.

VENTER, to blow or spring up; understood of the wind.

VENTILATEUR, a ventilator used at sea.

VERBOQUET, a guy used by ship-wrights to steddy a piece of timber which they are erecting in a ship's frame.

VERGE *de girouette*, the spindle of the vane at any mast-head.

VERGE *de l'ancre*, the arm of an anchor.

VERGE *de pompe*, a pump-spear. See also BARRE *de pompe*.

VERGUE, the yard of any principal sail which traverses the mast at right angles.

VERGUE *à corne*. See CORNE *de vergue*.

VERGUE *de foule*, the cross-jack-yard.

VERGUE *en boute dehors*, the main-boom of a sloop-rigged, or schooner-rigged vessel.

VERGUE *traversée*, the sprit which traverses a boat's sail diagonally.

VERIN, an instrument nearly similar to a jack-screw, and used occasionally to launch a ship from the stocks.

VEUE, or VUE, *etre à vue*, *avoir la vue*, to be in sight of; to make or discover at sea, as the land, or some distant object. See NON-*vue*.

VEUE *par vue, & cours par cours*, sailing by the bearings, or distances of the land, on the sea-coast.

VIBORD, the quick-work, or that part of a ship's side which is comprehended between the drift-rails and the waist-rail.

VICE-AMIRAL, the vice-admiral of France.

VICTUAILLES, the provisions used for the subsistence of the ship's crew at sea, &c.

VICTUAILLEUR, a contractor, or agent-victualler.

VIF, alive, busy, all in motion; an epithet applied to a wharf, dock, or slip, where the artificers are all at work on the shipping.

VIF *de l'eau*, or *haute marée*, high water.

VIGIE, a lurking rock, or reef; a rock under the surface of the water.

VIGIER, to look out, or watch upon deck, or at the mast-head, &c.

VIGIER *une flotte*, to dodge, or watch the motions of a fleet.

VIGOTS *de racage*. See BIGOTS.

VINDAS, a sort of moveable capstern; also a windlass. See VIREVAUT.

VIRAGE, the act of heaving up any weighty body by a crab or capstern.

VIRER, to overset.

VIRER *au cabestan*, to heave the capstern, or heave at the capstern.

VIRER *de bord*, to go about, or put about-ship.

VIRER *vent arriere*, to veer, or wear.

VIRER *vent devant*, to tack, or put about head-to-wind.

VIREVAUT, the windlass of a ship or boat.

VIROLE, a little iron ring placed on the small end of a bolt which is driven through any part of a ship's decks or sides; it is used to prevent the fore-lock from cutting the wood.

VIROLET. See MOULINET.

VIRURE, a streak of planks continued from the stem to the stern-post.

VIRURE, is also the sheer of any plank in the ship's side.

VISITE *de vaisseau*, an examination of the cargo of a ship by the officers of the revenue.

VISITEUR, an officer resembling our tide-surveyors of the customs.

VITTES *de gouvernail*. See FERRURE.

VITTONIERES. See ANGUILLERES.

VIVIER, a fishing-boat, furnished with a well filled with water amid-ships, wherein to keep the fish alive.

VIVRES. See VICTUAILLES.

UN, *deux, trois*, an exclamation, or song, used by seamen when hauling the bowlines, the greatest effort being made at the last word. English sailors, in the same manner, call out on this occasion—haul-in—haul-two—haul-belay!

VOGUE, the rowing of a galley; the movement or course of a galley rowed with oars.

VOGUE-*avant*, the rower who holds the handle of an oar and gives the stroke.

VOGUER, to row, or give head-way to a galley by rowing.

VOILE, a sail; also a ship discovered at a distance.

Avec les quatre corps de VOILES, under the courses and top-sails.

Faire toutes VOILES *blanches*, to cruise as a pirate; to

make all fish that comes to the net.

Forcer de VOILES, to croud sail. See FORCER.

Ce vaisseau porte la VOILE *comme un rocher*, the ship carries her sail as stiff as a church, or without seeming to heel.

Les VOILES *sur les cargues*, the sails clewed up, or hauled up in the brails.

Les VOILES *sur le mât*, the sails laid to the mast, or aback. See COEFFÉ.

Régler les VOILES, to regulate or appoint what sail is to be carried, in order to keep company in a fleet.

Toutes VOILES *hors*, all sails set, all sails out, or standing.

Les VOILES *au sec*, sails loosed, to dry in the sun or wind.

Les VOILES *fouettent le mât*, the sails beat against the mast, as when first taken aback.

VOILE *Angloise*, a boat's sail with a diagonal sprit.

VOILE *d'eau*, a sort of water-sail used by the Dutch.

VOILE *défoncée*, a sail split or rent asunder in the bunt or middle.

VOILE *de fortune*. See TREOU.

VOILE *déralinguée*, a sail blown or torn from the bolt-rope.

VOILE *en banniere*, a sail, whose sheets being slackened or flown in a storm, flies loose, and flutters in the wind like a flag or ensign.

VOILE *en pantenne*, a sail shivering in the wind, for want of being properly trimmed.

VOILE *enverguée*, a sail bent to its yard.

VOILE *latine*, or VOILE *à oreille de lievre*. See LATINE.

VOILE *quarrée*, a square sail, or sail nearly square; such as are the courses, top-sails, and top-gallant-sails of all ships.

VOILES *basses*, or *basses* VOILES, the courses. See PACfi.

VOILES *de l'arriere*, the after-sails.

VOILES *de l'avant*, the head-sails.

VOILES *d'étai*, the stay-sails. See ÉTAI.

VOILERIE, a sail-loft, or place where sails are formed.

VOILIER, a sail-maker.

Bon VOILIER, or *mauvais* VOILIER, when expressed of a ship, implies a good or bad sailer, or one that sails swiftly or slowly.

VOILURE, the trim of the sails; also a complete suit of sails, with their furniture.

VOILURE, a general name for all sorts of sails belonging to a ship.

Meme VOILURE, the same sail set; expressed of two ships in company, which carry the same quantity and number of sails.

Regler sa VOILURE, to regulate the quantity of sail to be carried in order to keep company with some other ship or ships.

Toute la VOILURE *de l'avant*, all the head-sails.

Toute la VOILURE *de l'arriere*, all the after-sails.

VOIR *l'une par l'autre*. See OUVRIER & *tenir*.

VOIR *par proue*, to see or discover, a-head of the ship.

Donner la VOIX, to sing out; as in hauling, hoisting, heaving, &c.

VOLÉE, a platoon, or limited number of great guns in a broad-side, fired at once in a sea-fight.

VOLET, a little sea compass, used in a long-boat or cutter.

VOLONTAIRES, volunteers in a ship of war.

VOLTE, a particular course or route; also the movement of bearing away, or hauling the wind, to change the course, or bring the broad-side to bear upon an enemy.

VOUTE, or VOUTIS, the upper-counter of a ship, upon which the *ecusson* is placed.

VOYAGES *de long cours*, a long voyage, as those to China, or the Indies.

URETAC, a fore-tack-tackle, or preventer fore-tack.

VRILLE, a wimble, or drill, used by ship-wrights, &c. to bore holes.

US & *coutumes de la mer*, the usages and customs of the sea, which are partly regulated by the laws of Oleron.

USANCE, the agreement, or contract, made between the master, the owner, and freighters of a ship. See also the preceding article.

UTENSILS *du canon*, a general name for all the instruments used in charging and firing a cannon, as the rammer, the ladle, the linstoc, the spunge, &c.

UVOLFE, a dangerous whirl-pool, or race, known by the name of the Wolf, between two islands on the coast of Norway.

W.

WATREGANS, pronounced OUTREGANS, a sort of canals or ditches, filled with water, which are usually navigable for boats and small-craft.

WOLFE, or *Vulfe*, a whirl-pool, or race, on the coast of Norway.

Y.

YACHT, or YAC, a yacht.

YEUX *de bœuf*, bulls eyes, or wooden travellers; also the trucks of a parrel.

YEUX *de pie*. See OEIL *de pie*.

Z.

ZEPHIRE, or ZEPHIR, the west wind.

ZOPISSA, or *poix navale*, tar. See GOUDRON.

1. In regno Saracenorum quatuor prætores statuit, qui admiralii vocabantur. SIGEBERT.

2. Mr. Bigot de Morogues says from 4000 to 4500, and Mr. Hauksbee 5000.

3. “The change proposed here, of reducing the quantity of powder in all ship guns to one-third of the weight of the bullet, has for some time past been practised by the French in a much severer service, where the encreasing the velocity of the bullet could not at any time diminish its effect; the service I mean is battering in breach. For I learn, that of late years all their breaches, in the different sieges they have undertaken, have been made with this very charge, that is, their twenty four-pounders have been loaded with eight pounds of powder, and they have found, that though the penetration of the bullet is less with this charge than with a larger one, yet the other conveniences attending this smaller charge, are more than, sufficient to balance that particular.

“And here I must observe, that there have not been wanting persons of considerable name, who have asserted that the velocity of a twenty-four pound bullet was really greater with eight pounds of powder than with any large quantity, founding their opinion on the ridiculous persuasion, that whatever quantity was put in, no more than eight pounds of it took fire; but this supposition is destroyed by their own experiments, and their own reasonings and later experiments, with greater attention, put it beyond all doubt, that to the larger charge (at least as far as twenty pounds of powder) there corresponds a greater

velocity.

4. It is necessary to observe in this place, that Mr. Muller, whose opinion herein has been confirmed by various experiments, has, with little variation, adopted the sentiments of the above proposal, and strongly recommended them as a scheme of public utility.

5.

——Yon tall anchoring bark
Diminish'd to her cock; her cock a buoy, &c.

SHAKESPEARE

6. The wires of which the needle has hitherto been generally composed, were only hardened at their ends; now if those ends are not equally hard, or if one end be hardened up higher than the other, when they come to be put together, in fixing them to the card, that end which is hardest will destroy much of the virtue of the other; by which means the hardest end will have the greatest power in directing the card, and consequently make it vary towards its own direction; and, as the wires are disposed in the form of a lozenge, these cards can have but little force; so that they will often, when drawn aside, stand at the distance of several degrees on either side the point from whence they are drawn; for all magnetical bodies receive an additional strength by being placed in the direction of the earth's magnetism, and act proportionably less vigorously when turned out of it. Therefore when these kind of needles are drawn aside from their true point, two of the parallel sides of the lozenge will conspire more directly than before with the earth's magnetism, and the other two will be less in

that direction: by this means the two former sides will very much impede its return, and the two latter will have that impediment to overcome, as well as the friction, by their own force alone.

7. It is necessary to observe here, that the principal, and indeed the only circumstance in which Knight's compasses are superior to those which have hitherto obtained, is, that their needles being tempered much higher than usual, are thereby enabled to contain a much greater quantity of the magnetical stream, which is certainly a real advantage. But, on the other hand, experience sufficiently proves, and truth obliges us to remark, that the methods he has taken to ballance the card with more accuracy than had been formerly attempted, have rendered it by far too delicate to encounter the shocks of a tempestuous sea.

8. "At Java, in the streights of Sunda, when the monsoons blow from the west, viz. in the month of May, the currents set to the eastward, contrary to the general motion.

"Also between the island of Celebes and Madura, when the western monsoons set, viz. in December, January, and February, or when the winds blow from the N W. or between the north and west, the currents set to the S E. or between the south and east.

"At Ceylon, from the middle of March to October, the currents set to the southward, and in the other parts of the year to the northward; because at this time the southern monsoons blow, and at the other, the northern.

"Between Cochin-China and Malacca, when the western monsoons blow, viz. from April to

August, the currents set eastward against the general motion, but the rest of the year set westward; the monsoon conspiring with the general motion. They run so wrongly in these seas, that unexperienced sailors mistake them for waves that beat upon the rocks known by the name of breakers.

"So for some months after the fifteenth of February the currents set from the Maldivies towards India on the east, against the general motion of the sea.

"On the shore of China and Cambodia, in the months of October, November, and December, the currents set to the N W. and from January to the S W. when they run with such a rapidity of motion about the shoals of Parcel, that it seems swifter than that of an arrow.

"At Pulo Condore, upon the coast of Cambodia, though the monsoons are shifting, yet the currents set strongly towards the east, even when they blow to a contrary point.

"Along the coasts of the bay of Bengal, as far as the cape Romania, at the extreme point of Malacca the current runs southward in November and December.

"When the monsoons blow from China to Malacca, the sea runs swiftly from Pulo Cambi to Pulo Condore, on the coast of Cambodia.

"In the bay of Sans Bras, not far from the Cape of Good Hope, there is a current particularly remarkable, where the sea runs from east to west to the landward; and this more vehemently as it becomes opposed by the winds from a contrary direction. The cause is undoubtedly owing to some adjacent shore, which is higher than this." *Varenius.*

These currents constantly follow the winds, and set to the same point with the monsoon, or trade-wind, at sea. See MONSOON.

9. Lucan.

10. Vegetius.

11.

A ponderous mace, with studs of iron crown'd,
Full twenty cubits long he swings around. POPE.

12. See the note on the following page.

13. Potter's Archaeologia Graeca. De Morogues Tactique Navale.

14.

Ut primum rostris crepuerunt obvia rostra,
In puppim rediere rates, emissaque tela
Aera texerant, vacuumque cadentia pontum. LUCAN.

Which we may thus translate:

The beaks encounter with a thundering sound,
Then reeling, from the mutual shock rebound.
The javelins fly! an iron tempest sweeps
The darken'd air, and covers all the deeps!

15.

Seque tenent remis toto stetit æquore bellum.
Jam non excussis torquentur tela lacertis
Nec longinqua cadunt jaculato vulnera ferro;
Miscenturque manus, navali plurima bello;
Ensis agit; stat quisque suæ de robore puppis
Pronus in adversos ictus.—— LUCAN.

Thus translated by ROWE.

——Others by the tangling oars are held.
The seas are hid beneath the closing war,
Nor need they cast the javelins now from far;

With hardy strokes the combatants engage,
And with keen faulchions deal their deadly rage:
Man against man, and board by board, they lie.

"The famous machine called the Corvus, was framed after the following manner: They erected on the prow of their vessels a round piece of timber, of about a foot and a half diameter, and about twelve foot long; on the top whereof they had a block or pulley. Round this piece of timber, they laid a stage or platform of boards, four foot broad, and about eighteen foot long, which was well framed, and fastened with iron. The entrance was long-ways, and it moved about the aforesaid upright piece of timber, as on a spindle, and could be hoisted up within six foot of the top: about this was a sort of a parapet, knee high, which was defended with upright bars of iron, sharpened at the end; towards the top whereof there was a ring: through this ring, fastening a rope, by the help of the pulley, they hoisted or lowered the engine at pleasure; and so with it attacked the enemy's vessels, sometimes on their bow, and sometimes on their broad-side, as occasion best served. When they had grappled the enemy with those iron spikes, if they happen'd to swing broad-side to broad-side, then they entered from all parts; but in case they attacked them on the bow, they entered two and two by the help of this machine, the foremost defending the fore-part, and those that followed the flanks, keeping the boss of their bucklers level with the top of the parapet.

"To this purpose Polybius gives us an account of the first warlike preparations which the Romans made by sea. We may add, in

short, the order, which they observed in drawing up their fleet for battle, taken from the same author. The two consuls were in the two admiral galleys, in the front of their two distinct squadrons, each of them just a-head of their own divisions, and a-breast of each other; the first fleet being posted on the right, the second on the left, making two long files or lines of battle. And, whereas it was necessary to give a due space between each galley, to ply their oars, and keep clear one of another, and to have their heads or prows looking somewhat outwards; this manner of drawing up did therefore naturally form an angle, the point whereof was at the two admiral galleys, which were near together; and as their two lines were prolonged, so the distance grew consequently wider and wider towards the rear. But, because the naval as well as the land army consisted of four legions, and accordingly the ships made four divisions; two of these were yet behind: Of which the third fleet, or the third legion, was drawn up front-ways in the rear of the first and second, and so stretching along from point to point composed a triangle, whereof the third line was the base. Their vessels of burden, that carried their horses and baggage, were in the rear of these; and were, by the help of small boats provided for that purpose, towed or drawn after them. In the rear of all, was the fourth fleet, called the Triarians, drawn up likewise in rank or front-ways, parallel to the third: but these made a longer line, by which means the extremities stretched out, and extended beyond the two angles at the base. The several divisions of the army, being thus

disposed, formed, as is said, a triangle; the area within was void, but the base was thick and solid, and the whole body quick, active, and very difficult to be broken." *Kennett Antiq. Rome.*

16. De Morogues Tact. Navale.

17. "The use of powder was not established in battle, till the long wars of Francis I. and Charles V. From its invention to this period, both the machines in use before that discovery, and those which that discovery introduced, were used in war at the same time; and even some time after this period, both sorts of machines were continued in use." *Le Blond's Elements of War.*

18. De Morogues Tact. Navale.

19. "The carabine is a sort of musketoon, the barrel of which is riffled spirally from the breech, so that when the ball, which is forced into it, is again driven out by the strength of the powder, it is lengthened about the breadth of a finger, and marked with the riffle of the bore. This piece has an iron rammer.

"The barrel of the carabine is three foot long, including the stock. It has a much greater *range* than the fusil or musket, because the riffle of the barrel impedes the ball, which thereby makes the greater resistance at the first inflammation of the powder, and, giving time for the whole charge to take fire before it goes out of the bore, it is at length thrown out with greater force than from the common musket." *Le Blond's Elements of War.*

The coehorn is a sort of small mortar, fixed on a swivel, and particularly used to discharge grenadoes, or cast bullets from close quarters in

merchant vessels when boarded.

The fire-arrow, *dard à feu*, is a small iron dart furnished with springs and bars, together with a match, impregnated with powder and sulphur, which is wound about its shaft. It is intended to fire the sails of the enemy, and is for this purpose discharged from a musketoon or swivel-gun. The match being kindled by the explosion, communicates the flame to the sail against which it is directed, where the arrow is fastened by means of its bars and springs. As this is peculiar to hot climates, particularly the West-Indies, the sails being extremely dry, are instantly inflamed, and of course convey the fire to the masts and rigging, and finally to the vessel itself.

The powder-flask and stink pot are described in the article BOARDING: and the organ is no other than a machine consisting of six or seven musket barrels fixed upon one stock, so as to be fired all at once.

20. M. De Morogues.

21. The Gauls, says Vegetius, had the advantage of the Romans in their numbers: The Germans have their stature; the Spaniards their strength and numbers united; the Africans their artifice and opulence; the Greeks their policy and prudence; but the Romans have triumphed over all by their discipline.

22. M. De Morogues.

23. As a number of technical terms are introduced in these instructions, the land-reader who wishes to understand the subject, should refer to the several articles, all of which are inserted in this work.

24. The iron chambers are ten inches long,

and 3.5 in diameter. They are breeched against a piece of wood fixed across the ports, and let into another a little higher. When loaded, they are almost filled with corn-powder, and have a wooden tompion well driven into their muzzles. They are primed with a small piece of *quick-match* thrust through their vents into the powder, with a part of it hanging out. When the ports are blown open by means of the iron chambers, the port-lids either fall downward, or are carried away by the explosion.

25. The fire-barrels ought to be of a cylindrical form, as most suitable to contain the *reeds* with which they are filled, and more convenient for stowing them between the troughs in the fire-room. Their inside diameters should not be less than twenty-one inches, and thirty inches is sufficient for their length. The bottom parts are first well stored with short double dipped reeds placed upright; and the remaining vacancy is filled with fire-barrel composition, well mixed and melted, and then poured over them. The composition used for this purpose is a mass of sulphur, pitch, tar, and tallow.

There are five holes of ¾ inch in diameter, and three inches deep, formed in the top of the composition while it is yet warm; one being in the center, and the other four at equal distances round the sides of the barrel. When the composition is cold and hard, the barrel is primed by filling those holes with fuse-composition, which is firmly driven into them, so as to leave a little vacancy at the top to admit a strand of quick match twice doubled. The center hole contains two strands at their

whole length, and every strand must be driven home with mealed powder. The loose ends of the quick-match being then laid within the barrel, the whole is covered with a dipped *curtain*, fastened on with a hoop that slips over the head of the barrel, to which it is nailed.

The barrels should be made very strong, not only to support the weight of the composition before firing, when they are moved or carried from place to place, but to keep them together whilst burning: for if the staves are too light and thin, so as to burn very soon, the remaining composition will tumble out and be dissipated, and the intention of the barrels, to carry the flame aloft, will accordingly be frustrated.

The curtain is a piece of coarse canvas, nearly a yard in breadth and length, thickened with melted composition, and covered with saw-dust on both sides.

26. The reeds are made up in small bundles of about a foot in circumference, cut even at both ends, and tied together in two places. They are distinguished into two kinds, viz. the long and short; the former of which are four feet, and the latter two feet five inches in length. One part of them are singly dipped, i. e. at one end; the rest are dipped at both ends in a kettle of melted composition. After being immersed about seven or eight inches in this preparation, and then drained, they are sprinkled over with pulverised sulphur upon a tanned hide.

27. The bavins are made of birch, heath, or other brush-wood, which is tough and readily kindled. They are usually two or three feet in

length, and have all their bush-ends lying one way, the other ends being tied together with small cords. They are dipped in composition at the bush-ends, whose branches are afterwards confined by the hand, to prevent them from breaking off by moving about; and also to make them burn more fiercely. After being dipped, in the same manner as the reeds, they also are sprinkled with sulphur.

28. Quick match is formed of three cotton strands drawn into length, and dipped in a boiling composition of white-wine vinegar, salt-petre, and mealed powder. After this immersion it is taken out hot, and laid in a trough where some mealed powder, moistened with spirits of wine, is thoroughly incorporated into the twists of the cotton, by rolling it about therein. Thus prepared they are taken out separately, and drawn through mealed powder, then hung upon a line till dried, by which they are fit for immediate service.

29. Port-fires are frequently used by the artillery people in preference to matches, to set fire to the powder or compositions. They are distinguished into wet and dry port-fires. The composition of the former is salt-petre four, sulphur one, and mealed powder four. When these materials are thoroughly mixed and sifted, the whole is to be moistened with a little linseed oil, and rubbed between the hands till all the oil is imbibed by the composition. The preparation for dry port fires is salt-petre four, sulphur one, mealed powder two, and antimony one. These compositions are driven into small paper cases, to be used whenever necessary.

30. De Morogues Tact. Navale,
31. Bourdé. Manœuvrier.
32. Bourdé. Manœuvrier.
33. Beugner, Traité de la Manœuvre de Vaisseaux. Bourdé. Manœuvrier.
34. Saverien Dict. Marine.
35. Aubin. Saverien.
36. The cut-water is called *taille-mer* by the French.
37. Milton alludes to this situation, in his second book of *Paradise Lost*: where,

"The pilot of some small night-founder'd skiff,
"With fixed anchor——
"Moors by his side, under the lee."——

38. De Morogues. Tactique Navale.
39. Muller's Artillery.
40. Le Blond's Elements of War.

Extract of a letter from the commanding-officer of the artillery at Gibraltar, May 10, 1756.

"Happening to mention, before the governor and commodore Edgecumbe, that, in case of Gibraltar being attacked by sea, howitzers would be of great service, as I did not imagine any ship's side proof against a 10 inch shell, fired point-blank, or at a small elevation, with a full charge of powder; which being thought impossible by most present, it was agreed to try the experiment: accordingly a target, of about 6 feet square, of an equal strength and resistance with the strongest part of our largest men of war's sides, was made, and was just 3 feet thick of solid fir-timber: we fired at it out of a sea-service 10 inch howitzer, at 150 yards distance, and with 10 lb. of powder."

“The first shell just touched the top of the object, and lodged in the bank of sand behind it; the second grazed short three yards, and went through the lower corner of the object; but the third shell gave full satisfaction, going through the very centre of the object, and entering 5 feet into a solid bank of sand behind it.”

41. The regulations, with regard to pilots in the royal navy, are as follow: The commanders of the king’s ships, in order to give all reasonable encouragement to so useful a body of men as pilots, and to remove all their objections to his majesty’s service, are strictly charged to treat them with good usage, and in equal respect with warrant-officers.

“The purser of the ship is always to have a set of bedding provided on board for the pilots, and the captain is to order the boatswain to supply them with hammocs, and a convenient place to lie in, near their duty, and apart from the common men; which bedding and hammocs are to be returned when the pilots leave the ship.

“A pilot, when conducting one of his majesty’s ship’s in pilot-water, shall have the sole charge and command of the ship, and may give orders for steering; setting, trimming, or furling the sails; tacking the ship; or whatever concerns the navigation: and the captain is to take care that all the officers and crew obey his orders. But the captain is diligently to observe the conduct of the pilot, and if he judges him to behave so ill as to bring the ship into danger, he may remove him from the command and charge of the ship, and take such methods for

her preservation as shall be judged necessary; remarking upon the log-book the exact hour and time when the pilot was removed from his office, and the reasons assigned for it.

"Captains of the king's ships, employing pilots in foreign parts of his majesty's dominions, shall, after performance of the service, give a certificate thereof to the pilot, which being produced to the proper naval-officer, he shall cause the same to be immediately paid; but if there be no naval-officer there, the captain of his majesty's ship shall pay him, and send the proper vouchers, with his bill, to the navy-board, in order to be paid as bills of exchange.

"Captains of his majesty's ships, employing foreign pilots, to carry the ships they command into, or out of foreign ports, shall pay them the rates due by the establishment or custom of the country, before they discharge them; whose receipts being duly vouched, and sent with a certificate of the service performed, to the navy-board, they shall cause them to be paid with the same exactness as they do bills of exchange." *Regulations and Instructions of the Sea-service, &c.*

42. Hist. Denmark, by Saxo Grammaticus.

43. Saverien Dict. Marine.

44. The regulations with regard to prizes in the royal navy are as follow:

"I. When any ship or vessel is taken from the enemy, the hatches are to be immediately spiked up, and her lading and furniture secured from embezzlement, till sentence is passed upon her in some court of admiralty, empowered to take cognizance of causes of that

nature.

"II. The captain is to cause the officers of the prize to be examined; three or more of the company, who can give best evidence, to be brought to the said court of admiralty, together with the charter-parties, bills of lading, and other ship's papers found on board.

"V. When a privateer is taken, great care is to be had to secure all the ship's papers, especially the commission; but if there be no legal commission found on board, then all the prisoners are to be carried before some magistrate, in order to their being examined and committed as pirates."

N. B. The third and fourth articles relate to the finding any of the king's subjects in the prizes; and appear unnecessary in this place.

45. *Ricoche* signifies *duck* and *drake*, a name given to the bounding of a flat stone thrown almost horizontally into the water.

46. Muller's Artillery.

47. Le Blond's Elements of War.

48. Belidor. Bigot de Morogues.

49. Weight, or gravity, always operates equally on a falling body; for as it always subsists in an equal degree, it must perpetually act with equal force, or produce always the same effect in the same time. So if, in the first instant of falling, it communicates to a body a certain force sufficient to move a certain space, it must, in every following instant, communicate a force capable of moving it the like space, and by this means the velocity of a falling body is every moment accelerated; for if it has one degree the first instant, it will have two the second, three the third, and so on.

Hence it must move different spaces every instant, and by that means describe the curve-line above mentioned.

50. Le Blond's Elements of War.

51. The same gentleman observes, that a ship of two decks, such as are generally all those of the third and fourth rates, cannot be so strongly connected as one that is furnished with three: a vessel pierced for 15 guns on one side of her deck must necessarily be very long, and is sometimes apt to droop at the two ends; or, in the sea-phrase, to *break her back* under the enormous weight of her artillery.

52. The reader, who wishes to be expert in this manœuvre, will find it copiously described by several ingenious French writers, particularly L'Hôte, Saverien, Morogues, Bourdé, and Ozane; who have given accurate instructions, deduced from experience, for putting it in practice when occasion requires. As it is not properly a term of the British marine, a more circumstantial account of it might be considered foreign to our plan. It has been observed in another part of this work[53], that the French have generally exhibited greater proofs of taste and judgment in the sculpture, with which their ships are decorated, than the English; the same candour and impartiality obliges us to confess their superior dexterity in this movement.

53. See the article HEAD.

54. Le Blond's Elements of War.

55. Mr. Robertson, librarian of the Royal Society, favoured the author with an inspection of several curious remarks concerning the history of modern navigation; in which it

appears, that the most early discoveries with regard to the magnetical variation were made about the year 1570. Mr. Robert Norman, from a variety of observations made by him nearly at that time, ascertains it to have been 11° 15′ easterly, or one point of the compass.

56. Euler. De la Lande.

57. I had often seen water-spouts at a distance, and heard many strange stories of them, but never knew any thing satisfactory of their nature or cause, until that which I saw at Antigua; which convinced me that a water-spout is a whirlwind, which becomes visible in all its dimensions by the water it carries up with it.

There appeared, not far from the mouth of the harbour of St. John's, two or three water-spouts, one of which took its course up the harbour. Its progressive motion was slow and unequal, not in a strait line, but as it were by jerks or starts. When just by the wharf, I stood about 100 yards from it. There appeared in the water a circle of about twenty yards diameter, which to me had a dreadful though pleasing appearance. The water in this circle was violently agitated, being whisked about, and carried up into the air with great rapidity and noise, and reflected a lustre, as if the sun shined bright on that spot, which was more conspicuous, as there appeared a dark circle around it. When it made the shore, it carried up with the same violence shingles, staves, large pieces of the roofs of houses, &c. and one small wooden house it lifted entirely from the foundation on which it stood, and carried it to the distance of fourteen feet, where it settled

without breaking or oversetting; and, what is remarkable, tho' the whirlwind moved from west to east, the house moved from east to west. Two or three negroes and a white woman were killed by the fall of timber, which it carried up into the air, and dropt again. After passing through the town, I believe it was soon dissipated; for, except tearing a large limb from a tree, and part of the cover of a sugar-work near the town, I do not remember any farther damage done by it. I conclude, wishing you success in your enquiry, and am, &c.

W. M.

58. The swiftness of the wind in a great storm is not more than 50 or 60 miles in an hour; and a common brisk gale is about 15 miles an hour. *Robertson's Navigation.*

59. This manœuvre, according to the best of my information, is entirely unknown to our mariners; it is performed by lining, or doubling, the flukes of an anchor, with two pieces of plank, to strengthen them, and prevent their turning in a bad anchoring-ground.

60. According to the arrangement of the French navy, this class comprehends all vessels of war from 50 to 20 guns.

61. M. Saverien defines this to be a wind perpendicular to the ship's course, and, consequently, a wind *upon the beam*; but I have ventured to correct this explanation, by the authority of M. Aubin, who is certainly right in his description.

TRANSCRIBER'S NOTES

1. Added TABLE OF CONTENTS.
2. Did **not** correct either spelling or accents except as noted or to conform with predominant usage in this book.
3. Issues noted in the ERRATA sections were **not** corrected.
4. Added missing subsection headings —A in the English definitions and A in the French definitions.
5. Moved two paragraphs "In the fore-part of the ship, the dead-wood generally extends from ... the breadth of the keel" from after Dead-Water to after Dead-Wood.
6. Changed "part of he sail" to "part of the sail."
7. Changed "This last is appropropriated" to "This last is appropriated."
8. Changed "than it hot weather" to "than in hot weather."
9. Changed "1½" to "0½" for pounders in second section to agree with the first part of the table.
10. Changed "an the enemy" to "an

enemy."

11 Changed "the drive the tree-nails" to "to drive the tree-nails."

12 The entry for "Varangues demi-acculées, the floor-timbers placed between the varangues acculées and the" ended at the word "the".

13 Silently corrected typographical errors.

14 Retained anachronistic and non-standard spellings as printed.

*** END OF THE PROJECT GUTENBERG EBOOK AN UNIVERSAL DICTIONARY OF THE MARINE ***

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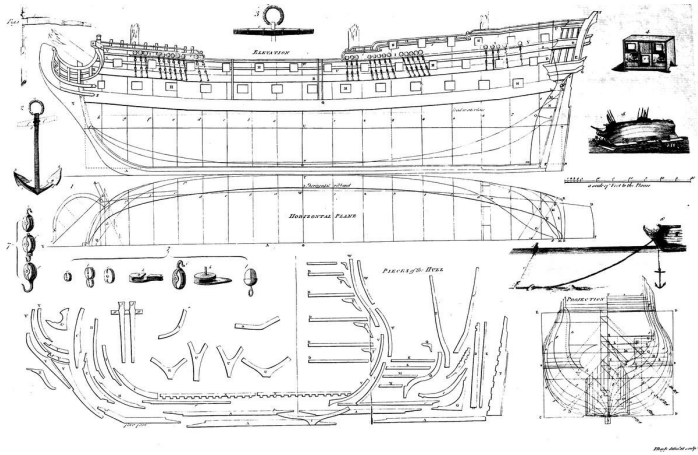
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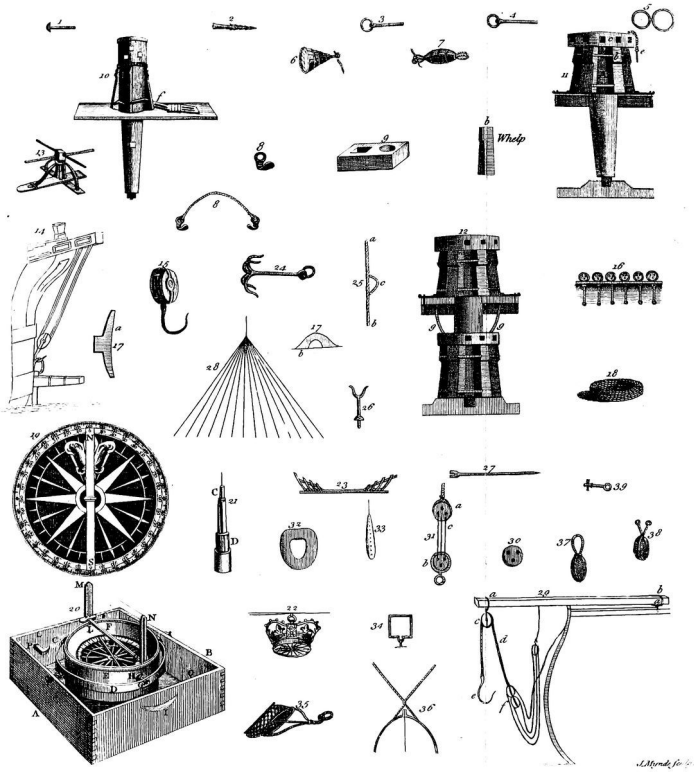
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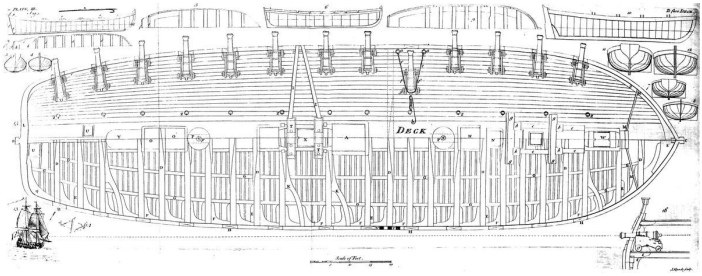
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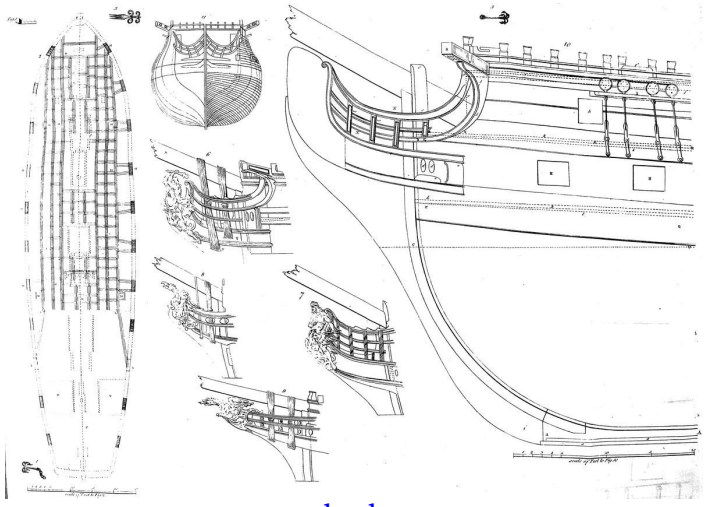
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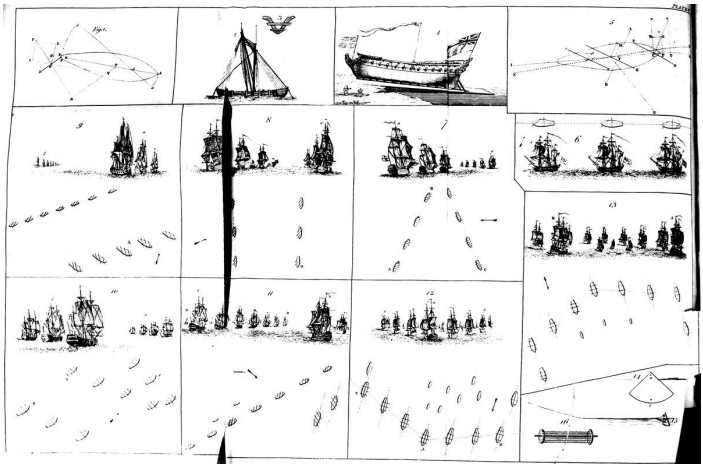
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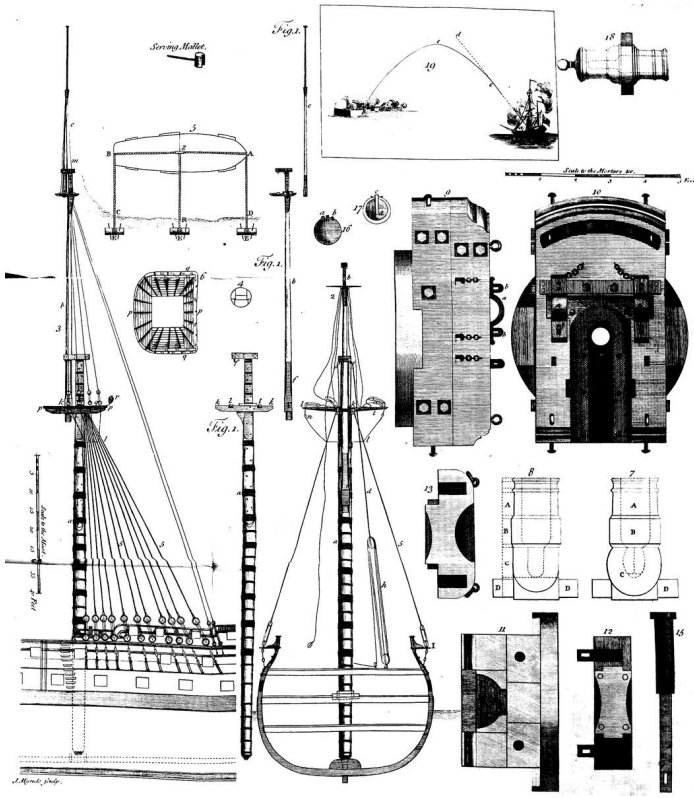
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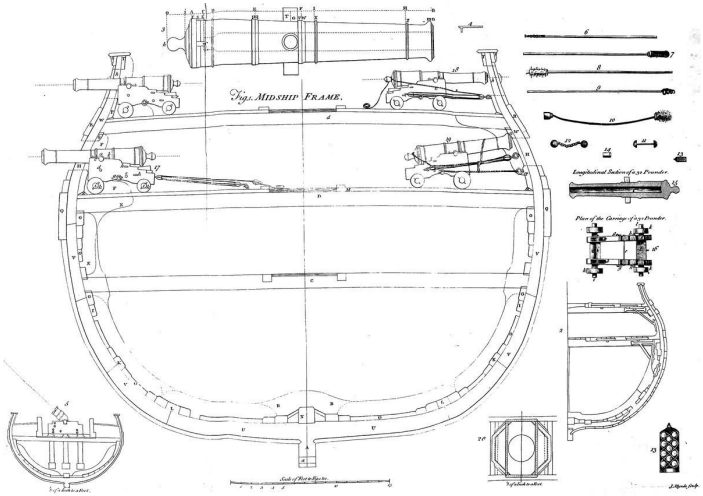
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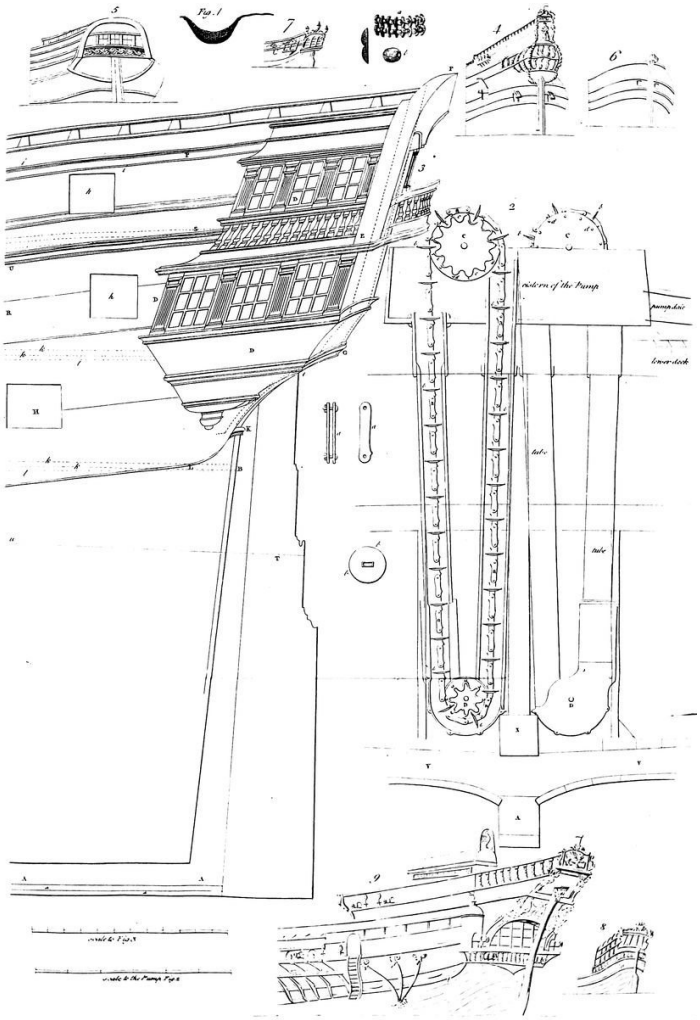
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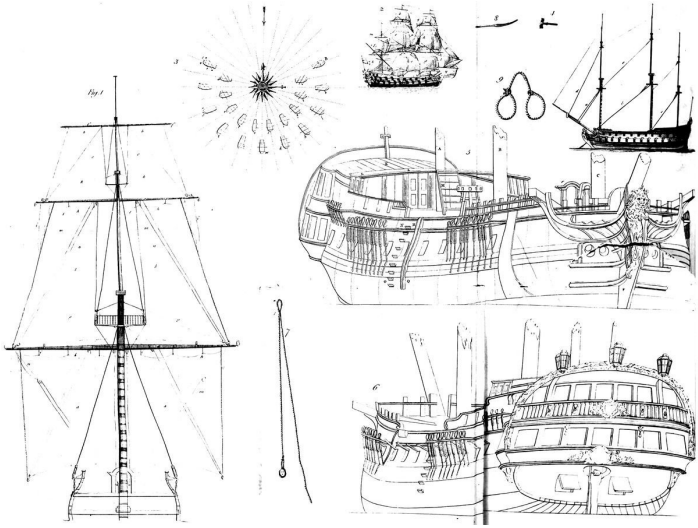
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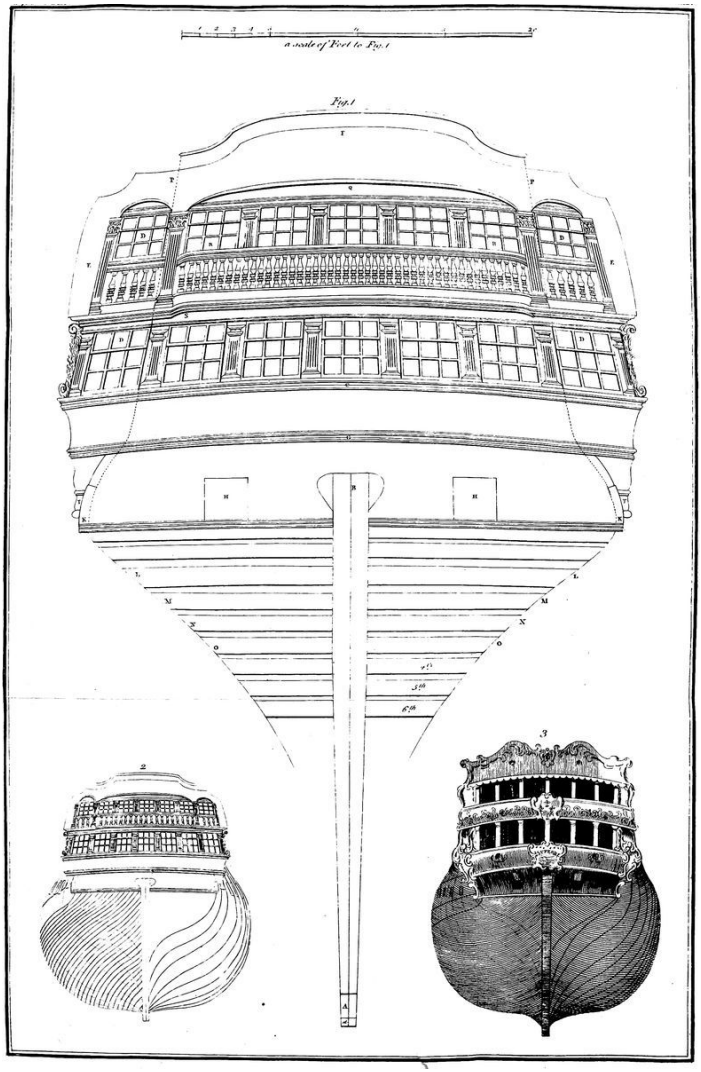
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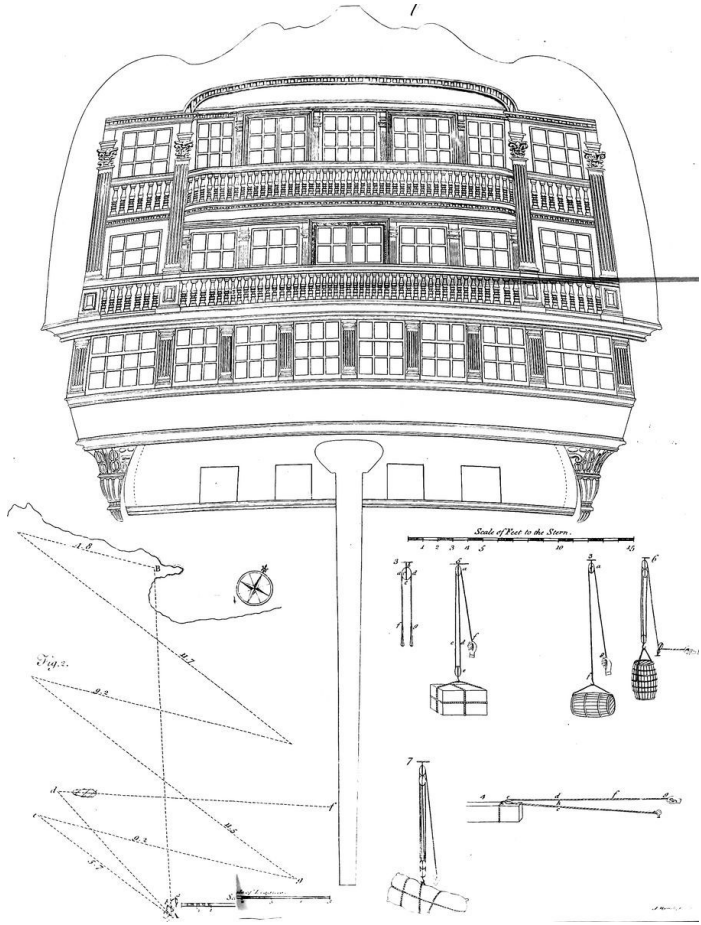
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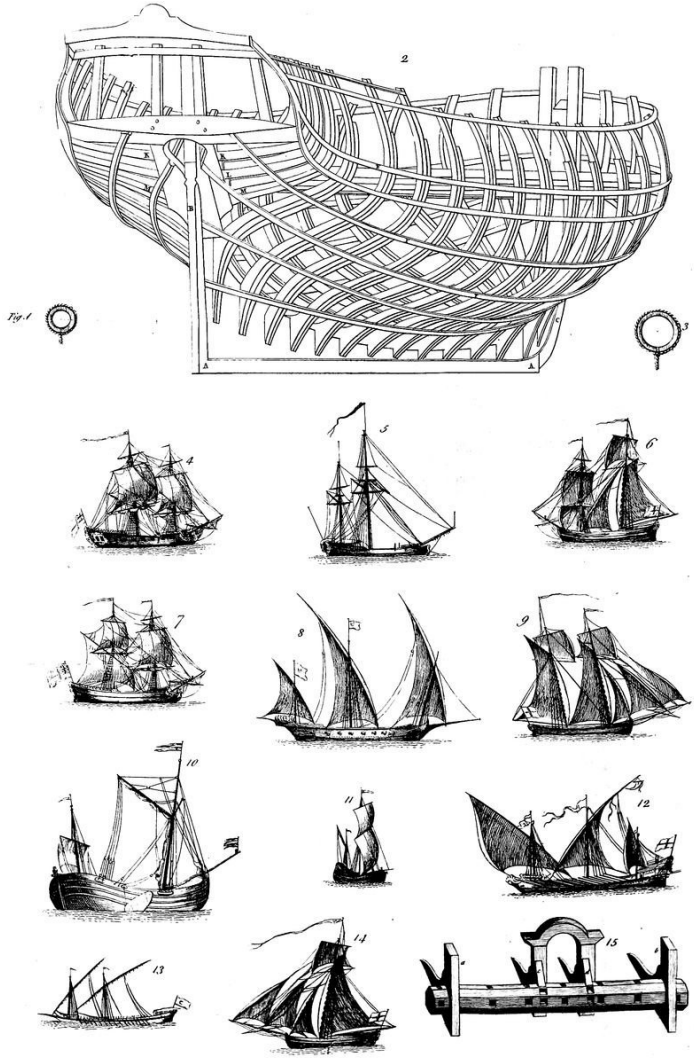
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