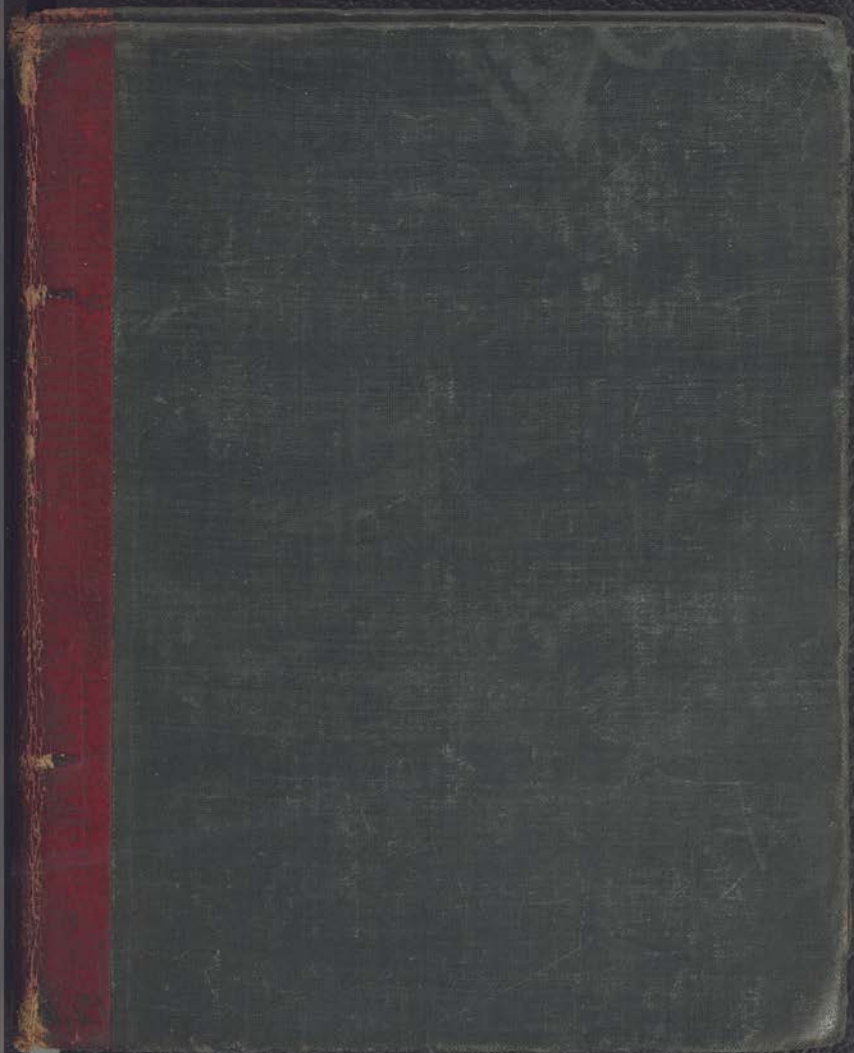
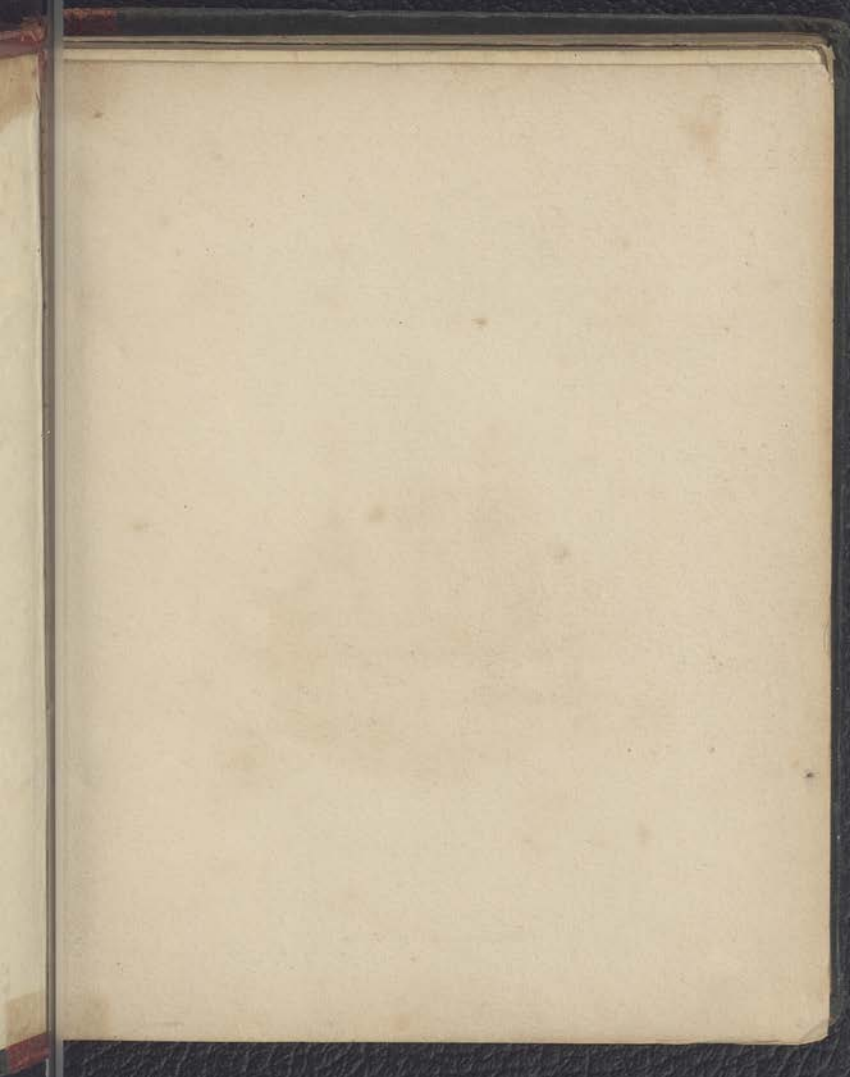






(c)





*First-rate Ships*

*Pubd Aug 1800 by J. Harris, St Pauls Church Yard.*



# THE SHIP.

BY THE LATE

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ONGAR, ESSEX,

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WITH SIXTEEN ENGRAVINGS.



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# THE SHIP.

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## CHAPTER I.

### INTRODUCTORY INCIDENTS.

IF Charles had not come in crying, perhaps this Book had never been written : for the conversation it records would not have taken place. His brothers were laughing at him ; which seemed to be unfair : at least Mr. Nauticus thought proper to know the occasion of this sorrow on one side, and insulting mirth on the other. It is natural to take the part of such as appear to be oppressed. Mr. Nau-



ticus therefore called his little boy : " Charles, my man, what is the matter ? What ! Crying, as the babies do ! Come and let me know all about it."

" Why, Papa," said Charles, " I went to try my ship in the canal ; and I cannot make it swim at all : it only goes on one side, and then sinks quite down. I cannot think what is the matter with it."

" Let me see your ship, Charles ; perhaps I can tell what is the matter with it."

Charles instantly left the house, and ran through the whole length of the garden, to fetch the remainder of his ship. This he soon rescued, for it had sunk in shallow water, where he could reach it without difficulty.

His father could not help smiling himself, when he saw it. It was a paper ship, made of the back of a letter doubled up, by one

of his elder sisters, with a small pencil stick for a mast, and a shred of ribbon for a flag; she had only intended it to move on the dry, glossy mahogany table, where it might be pushed along with great ease, without any danger of being wrecked. This had amused Charles all the evening; but he determined that, in the morning, he would rise in his rank as a navigator, and launch it on real water. In his exultation at this splendid hope, he ventured once to let the secret escape him. This being checked by, "It will not swim in water, dear;" and a smile, the meaning of which was more expressive than his sister's words—he remained silent, though, in his thoughts, he was sure it *would* swim; and he went to bed with his imagination full of his purposed exploit; enjoying, by anticipation, his triumph over his sister's ignorance and incredulity.

He had heard his brothers speak, with great glee, of their ships, as sailing sometimes quite across the canal; and once saw one with sails swim like a duck to the other side, and come back again, only with Richard's touching it with his wand. He was therefore exceedingly desirous to make his own do the same. Richard and William were in the garden in the morning, when, observing him run down with more than ordinary speed, they followed him, and came up, just in time to prevent him from making his important experiment in a part where the water was deep; and where, if any accident had happened to him, it might have been fatal to this new genius in maritime contrivances. Accordingly, they led him to a place so shallow, that if he had fallen in, he could easily get out again, with no other damage



than wet clothes. They watched him, however; and were much amused with his repeated disappointments.

"I'm sure mine is a better ship than yours," said he. "I wonder why it sinks so. Yours is only a bit of flat board, not at all in the shape of a ship; but mine is hollow, and has got a mast, and a flag."

Richard laughed the more heartily at his little brother's conceit; but William said, "Charles, don't you know that water soaks into paper, and makes it too heavy to swim; it also admits the water; and if this enters a ship, and fills it, it always sinks. A real ship would sink if it were filled with water."

Charles could not argue with his brother any longer; for he was too loth to be convinced, to feel the force of his statement; and

too eager in his scheme, to own it, if he had been convinced. So he burst into tears.

When he began crying, the mischief-loving principle in the boys shewed itself in full laughter, which of course did not comfort the little fellow at all, but added provocation to his grief: he cried the harder and the more passionately, so that at last it caught the father's ear, and he inquired into the cause of the uproar. As the bitterest part of the failure seemed to be, that his ship had sunk, although he was sure it was a better ship than Richard's; and as these elder brothers had so unmercifully ridiculed poor Charles, and his paper boat, Mr. N. deemed it proper to make them produce their vessels, having great apprehension, that their pretensions to marine architecture must be very slender. This request, though certainly reasonable, was complied with



reluctantly, from a consciousness of considerable deficiency, both in skill and in workmanship; for it is much easier to laugh at others for their failure, than to produce an article really better, and more judiciously contrived.

Richard's ship was indeed, as Charles had said, only a piece of flat board, not like a ship at all. He had managed to bore a hole in it, where he had stuck a skewer upright for a mast; another, shaped for a yard-arm, was tied to the mast, across, with a bit of thread, and to this was fastened a piece of rag, cut square, for a sail; so that, with wind and tide in its favour, it could make its way straight across the canal, as Charles had once witnessed. William had made a nearer approach towards an actual vessel, for he had obtained a piece of deal three inches square, and a foot long, which he had cut to the shape tolerably

well, only the keel had split off; he had also scooped it hollow with his knife, and had shaped and fastened an old cover of a book at top for a deck; he had a mast and sail also. It had one inconvenience, indeed; in two places he had scooped it out rather thin, for his knife had slipped, and there the water soaked in after a while; but he intended to paint it, and this would stop the holes and make all sound again.

Mr. N. praised William for his industry, as it must have taken some time to hollow his vessel, and recommended him next time to be more careful to have his keel exactly in the middle: he also advised him to put a rudder to it, that he might be able to steer its course more certainly; for the complaint at present was, that it would always sail exactly before the wind, which carried it sometimes so much out

of their reach, that they had great difficulty in getting it again ; and once they were obliged to leave it out all night, at the great hazard of its being seized by some of the village boys, as they went to school in the morning.

Charles was comforted by Richard, who made him a present of his ship, as he had determined to scoop out a vessel as good as William's, or indeed better ; for he could see his mismanagement in several instances, and of course concluded he should avoid evils which he so plainly discerned. It will be well if, in his eagerness for improvement, he do not make blunders of equal importance, in some other matters : but let him try. The failure of our attempts frequently gives us knowledge as important, and more likely to be remembered, than the success of them.

William agreed to make a rudder, as his



father had suggested; yet ventured to say, that he could not conceive what difference that could make, nor indeed how such a very little piece behind could make any difference at all. His father, perceiving he was quite ignorant of the principle, and of the mechanical power of the rudder, undertook to instruct him. He directed his son to make a rudder, and shew it to him; this he did, making it rather large indeed, but tolerably accurate as to shape; but he had fastened it on, not with hinges, that it might turn, but with pins running straight through it, which kept it in one position, and made it, in fact, only an enlargement of the keel; and certainly, as he said, of no use. Mr. N. first reasoned with him, to convince him, that whether the water were still, and the vessel in motion, or the water in motion and the vessel fastened,



the effect would be exactly the same. For whether William ran against Richard, or Richard ran against William, the force of the shock would be just the same, if the force of the velocity and weight were not different. Then, to give him practical proof of the rudder's influence and power, he took him to the back of the house, by the water-butt, where the trough was pretty wide ; and, having made a dam at the end, to confine the water, he turned the cock of the butt, and filled the sluice ; the boys were highly delighted to see what a fine pond was made presently. The ship swam about gaily, and yet did not go out of their reach. His next process was to tie a string to the head of the vessel as a cable ; the other end of it he fastened down with a peg, in the middle of the new pond, leaving the rudder loose. The tap was again turned to let in more water,

which now beginning to run over at the other end, a stream or current was produced of sufficient strength for his purpose. He placed the ship in several different positions, some at right angles with, or straight across the stream; but, let him place it how he would, the current soon operated upon it, and brought it into the line of the stream exactly. He now fastened the rudder obliquely as to the keel, tending to the right-hand of the ship, and replaced it in the water on a line with the stream, but it would not stay in that position, it brought the head of the ship round, pointing to that same side, or rather, it moved the stern of the vessel, to point in the contrary direction. To convince them that this change of position was effected by the rudder, that is, by the stream of water pressing against it, he fastened *the rudder* in a contrary direction, pointing

to the left-hand side, when the same sort of change took place, only it was pointed the other way.

Having here more convenient access to the vessel, and greater command of it, for the purposes of experiment, he convinced them that the altering of the direction of this very small projection behind, forced the whole body of the ship into a position which it would not otherwise have taken.

He then went to the canal; there was a gentle breeze setting straight across it. He put the vessel in, with the rudder loose, and she went right forward, and was across presently. William went round, and soon brought her back. Mr. N. then fixed the rudder obliquely, and she would not go straight across; but slantwise, either to the right or left, according as the rudder was fastened.



Charles was deeply interested in all these manœuvres, and began to survey the ship which Richard had given him, with discontent : although at first he had been highly delighted with it, as a great prize. He now wished his vessel to turn too, whichever way he liked.

The father read this in his countenance ; for he did not murmur. He therefore fastened on a strip of deal, which he cut out, so that it could turn on a pin, and placed a tack or two, to enable him to fix it either to one side or the other. With this he was greatly pleased, and forgetting that he had said it was not hollow, nor like a ship at all, he, now that it was his own, seemed to think it excellent, especially since it had a rudder. *Mine*, or *thine*, makes a wonderful difference in the value of things, even in the estimation of older people than Charles.

Mr. N. wishing to know whether his boys



understood at all the natural principle by which solid bodies float in fluids, questioned them one day on the subject.

“Charles,” said he, “can you tell me how it is, that a heavy bar of wood remains at the surface of water? why does it not sink down to the bottom like a heavy bar of iron?”

The little boy could make no rational reply to this question; which was therefore repeated to his elder brothers. William at length said, “I suppose if the wood were *as* heavy as the iron, it would sink also.”

“You are merely comparing one fact with another,” said his father, “without explaining either. Now attend. I have here a pint pitcher nearly filled with water; see, it is up to that little spot on the inside. Now, if I thrust in this small piece of wood which I hold in my hand, the water you observe rises, and

would soon overflow. So then, I make this substance *lift* as much water as is exactly equal to it in bulk, or that part of it dipped in. There, now the bit of wood is completely under, and the water rises to the very brim of the vessel. But the wood, if left to itself, would do no such thing; for it is not near so heavy as its own bulk of water. We will say that the block of deal weighs one ounce, and that water of the same bulk would weigh an ounce and a half. Now, if these were put in separate scales of a balance, you would soon understand why the wood should rise and the water sink; why an ounce should not be able to raise an ounce and a half, in the opposite scale; would you not?"

"O yes, Sir," said Charles; "I can understand that quite well."

"Water," continued his father, "acts as a

sort of weighing machine to bodies committed to it. I now suffer this piece of wood to float at liberty in the vessel; you see, it sinks but *a part* of its depth, and raises the water *a very little* in the jug. If now you could mark with perfect accuracy the portion of wood actually *in* the fluid, and could measure out exactly as much water as is equal in *bulk* or *size* to that part of the block, you would find that portion of water would weigh precisely the same as the *whole* mass of wood; because the wood could *displace*, and thereby *raise*, precisely as much water as would be equal to its *own* weight, and no more. It *must* do as much, and it *cannot* exceed it in the smallest degree. So it is with the largest vessels and heaviest loads that swim on the ocean. If the water on which a ship floats could be suddenly frozen solid, and the vessel lifted out, there would be a hollow



in the ice exactly corresponding to the ship's bottom. That cavity would hold just as much water, remember, as would be equal to the entire weight of the vessel and all that was in her. She *displaced*, that is, just so much water as was equal to her own weight. She could not sink further down, without doing more than this; without *out-weighing* something heavier than herself."

"But yet, Papa," said Richard, "ships *do* sink sometimes."

"True: but that is because they are loaded with substances which make them and their cargo *heavier* than their bulk of water. So I can, *by force*, easily plunge this piece of wood under, in the jug. If, therefore, a vessel springs a leak and gets filled with water, that weight, and her load of metal, will overcome the buoyancy of the timber of which she is



composed, and down she goes. But a vessel made entirely of wood and unloaded, would not sink, although filled with water, for the same reason that this piece of wood floats in the jug."

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## CHAPTER II.

### ORIGIN OF SHIPPING.

"Who will tell me," said Mr. N. one day, "which was the first ship ever built?"

After some silence, William said, "Was it not that in which the Argonauts sailed, in a manner so famous in Grecian history?"

"I am glad you have recollected that, William," said the father, "yet I think we have one on record of much earlier date; and,

for size, exceeding any of the first-rate ships of the present day."

"Oh!" said Richard, "that must have been Noah's ark, I do think!"

"Certainly, that was the first vessel constructed for floating on the waters, of which we have any record. It was above a thousand years before the Argonauts sailed, and it must have been a surprising structure. I doubt not but Noah's contemporaries laughed at him, not only from their incredulity of the Divine threatenings, but from their ignorance; for, having never seen such a vessel, they were not aware of its power and buoyancy."

"Was the ark at all like my ship?" said Charles.

Now Charles need not have asked such a question; for he had spoken of it, when it was his brother's, as not at all like a ship. How-

ever, he was not just now in the mood to undervalue it; he would much rather have rejoiced to hear his father speak highly of it, because now it was his own.

“ I do not suppose your ship is much like Noah's ark, Charles; I do not think a ship of that shape could have held so many animals, and kept them from the rain, for a whole year together.”

“ What shape was it, Papa ?”

“ The Bible says it was three hundred cubits long, thirty cubits deep, and fifty broad; which reduced to our measures, is about five hundred and twelve feet long, eighty-seven feet wide, and fifty-two feet high. That is, reckoning the Hebrew cubit at twenty-one inches. But if eighteen inches were the length of the cubit intended (for they had two sorts), then we must say four hundred and fifty feet long, seventy-



five wide, and forty-five high; which is larger than most of our churches. St. Paul's Church, with the portico, is five hundred and ten feet in length. Westminster Abbey is three hundred and sixty feet."

"O Papa! was Noah's ark as long as from one end to the other of St. Paul's Church? I did not think it had been half so large."

"Now I wonder," said William, "how big our great men of war are? Are they larger than Noah's ark?"

"None of our modern vessels reach to any thing like that size. An eighty gun ship is not quite two hundred feet long; yet that is one of the larger sort of vessels. A few indeed are built for a hundred guns; but they are rather unwieldy in battle."

"Then I wonder again," said William, "how so large a vessel as the ark could



bear the winds and the storms of the deluge. One would think it would be shaken to pieces."

"There are two or three things you forget in that wonderment, William. You forget that the whole operation was expressly under the conduct of Divine Providence. He who managed the deluge, was certainly able to protect this vessel. He who had ordered this vessel to be constructed, for the purpose of saving alive animated inhabitants for the new world, which should rise from the devastations of the flood, would certainly contrive it so that it should be able to bear its freight in safety, and would take care of it during the whole season, that not the slightest injury should happen to it. There is no such thing as accident to Him; He sees the end from the beginning, and can guard against all possibilities. He also does

as pleaseth Him, both in heaven and in earth; if He decree safety, no harm can happen."

"No, Papa.—But still it was a very large vessel to be kept safe in such rough seas, and to bear such storms."

"Are you sure there were any storms, William? I do not remember any mention of winds. The rain descended as if flood-gates in heaven had been opened, and the fountains of the great deep were broken up; but all this might take place without any tempestuous wind, or any wonderful or dangerous rolling seas. The water rose gradually and floated the ark, so that it went upon the face of the waters, Gen. vii. 19; but it had not any masts or sails, on which winds, if there were any, could operate."

"Was it not rather of an odd shape, Papa?"

said Richard. "Are our ships at all like it in their proportions?"

"The proportions of the ark, Richard, are just those which, if made of the proper size, would hold a man: the width about one-sixth of the length, and the depth in proportion. Our shipping is not built thus: but, about a hundred years ago, one Peter Hans, in Germany, had vessels built on this pattern, and found they contained one-third more stowage than ships built on the usual construction; yet they did not require a more numerous crew to navigate them. It is true, they were not fit for war, but they might well be employed in peaceful occupations."

"Then," said William, "I suppose, as Shem, Ham, and Japheth had been in the ark, they taught their descendants to build ships. They must have known how."



“The ark, we are told, rested upon the mountains of Ararat;—who can find me the place, on the globe, or in a map?”

The globe was produced, and hunted over for some time, without success. Richard took the atlas; and, recollecting that the countries first peopled after the flood were in Asia, he soon found the chain of mountains of which Ararat was a part; they are now called Caucasus, and stretch from the Black Sea to the Caspian.”

“If the ark rested thereabout, as all traditions say, they could not have much occasion for shipping. The city of Erivan, in modern Armenia, has the reputation of being the site on which the human family dwelt, on their first descending from the mountain. They might spread for ages, every way from hence, without having any occasion for another vessel like the



ark. So that though the memory of the deluge and the ark remained among all nations, yet the form of it was forgotten, as well as its real use. We have reason to think, therefore, that the constructing of vessels to carry men upon the waters, was at first taught either by accident or by necessity. By accident possibly, as, in some case of inundation which swept all before it, a man might get upon a tree that was floating down, and so escape, landing where the tree stopped. Or by necessity, a traveller, having to cross a river, might cut down a tree, and getting astride of it, might pass over in safety.

“ In savage nations, we find such to be the beginnings of naval structures. It is the sport of youths in the Pacific Ocean, among the Sandwich Islands, where a number of them will each get astride of a long plank, rounded

at the ends, and on it swim out to sea, through a violent surf, plunging under every wave, and rising beyond it; and they come back in the same manner, which is more difficult still. Their endeavour now is to gain the top of a large wave, which carries them towards the shore with great swiftness; when they get near the shore, they have to steer between the rocks; if they lose their plank and swim home, they fall into disgrace.

“The construction of a raft is one of the first and most easy improvements upon the mere plank; this is effected by tying a number of planks or beams together, so as to make a sort of floor, on which goods may be removed, or persons conveyed, across a river.

“In modern days, in cases of shipwreck, this is often the only mode of escape.”

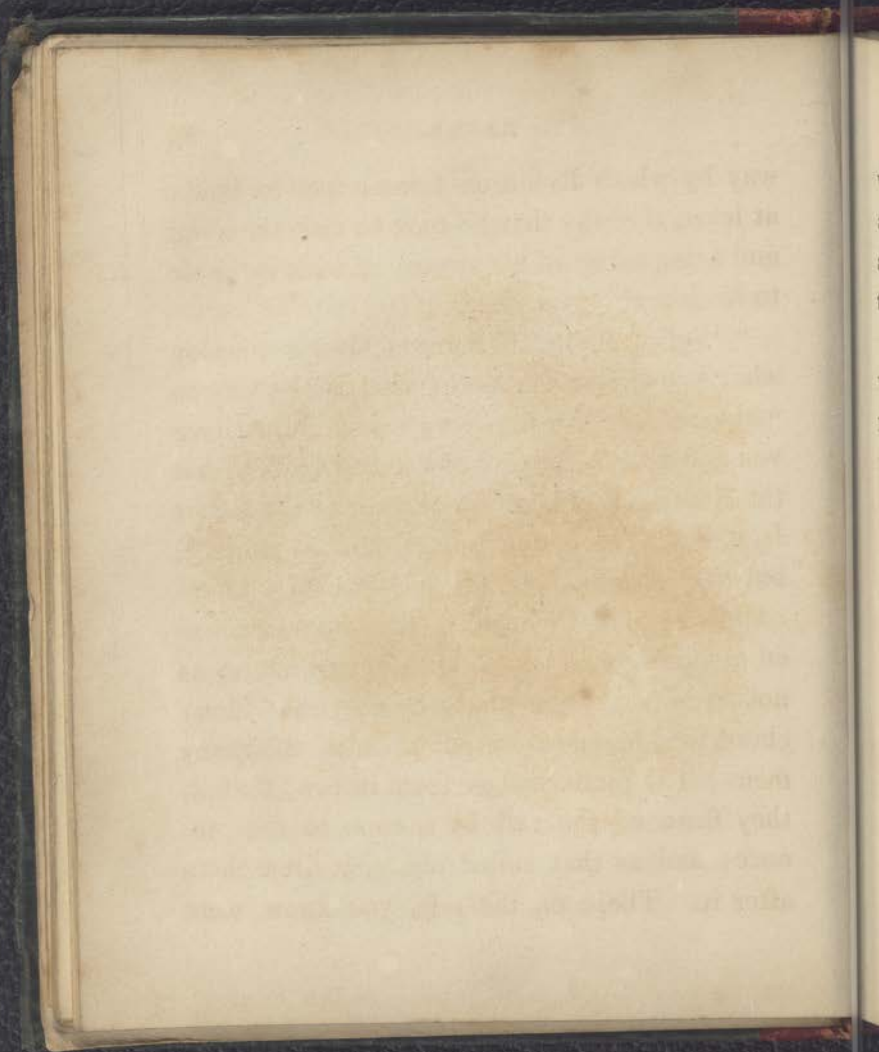
“Yes, Papa,” said Richard; “such was the



p. 28

*Surf Swimmers.*

*Pubd Aug 7 1850 by J. Harris. St Pauls Church Yard.*





way by which Robinson Crusoe got to land ; at least, the way that he took to visit the ship, and bring many of his stores, and his cat, safe to his island."

"Well put in, Richard ; always employ what knowledge you have ; that is the way to make reading become very useful. But have you not read the history of Prince Lee Boo, and the shipwreck of Captain Wilson at the Pelew Islands ? There our sailors had a pinnace, but they also made a raft, because the pinnace could not hold them all. The raft was formed of planks and spars corded together, so as not to be shaken to pieces by the sea. Many chests and barrels were put upon it, and many men. The pinnace took them in tow, that is, they fastened the raft by a rope to the pinnace ; and as that sailed along, it drew them after it. Those on the raft, you know, were

merely kept from sinking ; for it was not hollow like a boat, but only flat, like a floor. However, in such a case they must not mind being wet. When they came nearer the shore, they found a violent surf, which had become more dreadful than usual, from the late storm which had wrecked their vessel. It rose so high, that those on the raft often lost sight of the pinnace, though they were tied to it ; and the sea rolled over them so furiously, that they were obliged to lash themselves to the raft, to prevent their being washed off, and drowned."

" Lash themselves, Papa ?" said Charles.

" Yes, Charles ; that is the seaman's term for what you would call tying themselves fast to the raft. This was a dreadful state to be in, for even the stoutest seaman ; but it was felt so tenfold by some Chinese sailors, who were little accustomed to such hazards ; and their



p. 30.

*Raft of the Shipwrecked*

*Pubd Aug 7 1830 by J. Harris, St Pauls Church Yard.*

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screaming at every wave made the scene still more terrific."

"I think I should have screamed too," said William.

"There is another sort of raft made in many places. On the coast of Norway, for instance, the deals and timbers are fastened together in this way, and put out to sea, to reach the ships which wait there to take them on board, and carry away cargoes of deals to England, and other places.

"The raft is also used to great advantage on the Rhine. Vast quantities of timber are cut every year in the forests of Germany; but the expense of conveying it by land-carriage would eat up all its value; the logs are therefore fastened together in immense parcels, of a thousand feet in length, and eighty or ninety wide. These require five hundred men to

navigate them down the river; so that they bear a populous village with them; and the people dwell in huts framed on the top of the huge pile. When they come to Dort, in the Netherlands, they find their market; as many sawing-mills are there kept in constant work, for the purpose of cutting them up into timbers fit for building."

"What a nice voyage they must have down the Rhine! Is not that a very beautiful river? How I should like it!—I wonder how much all that timber is worth?"

"It sometimes sells for thirty thousand pounds. It had need fetch something, to pay for the timber, and the maintenance of so many people.

"Perhaps, next to the raft, we may rank the Egyptian pottery floats, which at least are very curious. Jars for various uses, and espe-



rendered absolutely necessary, if they live by fishing in any degree."

"What is a canoe, Papa?" said Richard ;  
"is it not a boat?"

"A canoe may be called a boat, from its similar use ; but it differs widely in its construction. The original canoe is a tree hollowed out by fire, or by the hatchet, and shaped to something like a boat. I wonder your deep reading in Robinson Crusoe, Richard, does not enable you to answer this question yourself."

"Oh, so I remember, now ! And he could not get it to the water, when he had made it."

"Canoes too are not put in motion by oars, as boats are ; but are moved by paddles, worked almost perpendicularly. An Indian, in a canoe, sees where he is going ; but a sailor in a boat, goes backwards.

"The canoe cut out of a single tree must



be heavy and clumsy; being from twelve to forty or fifty feet long.

“Some canoes are made up in quite a different manner. They have a sort of skeleton of wooden ribs, which are covered with skins; these are very light, and are carried from place to place, when the navigator meets with a rapid, or a fall of water. These are much in use with the American Indians. The Greenlander’s canoe is very much of this nature; it is also covered over the top with a skin, so as to shut the voyager in, as he sits in it. No water can enter, if he be dexterous in keeping himself upright. It will only carry one person; but he can manage it adroitly and effectively even in the roughest seas.

“Something like this was found in Britain by Julius Cæsar, and is still found on the Severn, in Shropshire. They are called *cora-*

*cles*, and consist of a sort of large basket, covered with a horse's hide. They only hold one man, but are useful for fishing in rivers.

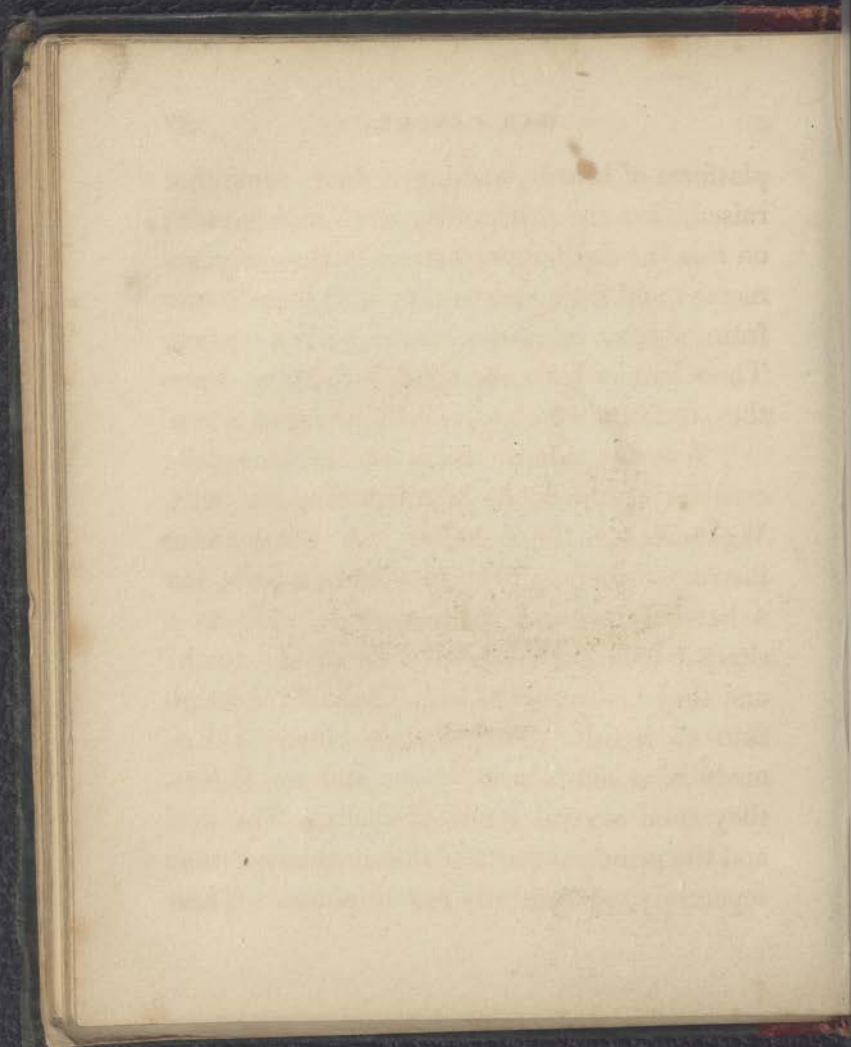
“The canoes of the Marquesas Islands are about twenty feet long, and less than two feet wide, made out of a single tree. The head and the stern are curiously carved out of a solid piece of timber; sometimes with a sort of resemblance to a human face.

“The canoes of the Society Islands are perhaps among the most laboured and ingenious of their works. Especially as here we see an excellent contrivance for safety, in the double canoe. Two canoes are placed side by side, exactly parallel, at a few feet distance; and in this situation strong beams are laid across, from one to the other, and fastened to each in a firm manner. It is almost impossible this should upset. Across these poles is laid a



n. 36.

*Double Canoes of the South Sea*





platform of boards, making a floor, somewhat raised, that the rowers may work underneath : on this the fighting men stand in their engagements ; and from thence they hurl huge stones from slings, or throw their barbed spears. These canoes have one mast, with steps, upon the platform, which can easily be taken down.

“ We may admire these canoes, especially considering the mode in which they are built. We refer to times before the missionaries instructed them. Then they had no tools, but a hatchet made of a flinty stone, split to a sharp edge ; their augers were sharks’ teeth ; and they had a sort of rasp, made of the rough skin of a fish. They had a clumsy chisel, made of a man’s arm bone ; and for knives, they used several kinds of shells. The keel and the principal parts of the canoe are formed separately, without any saw or plane. These

are placed upon blocks, in their proper position, and supported with props. They are then joined with strong strings, plaited together, which are passed through holes in their slight timber. These are very neatly covered with planks, about an inch and a half thick, which are cut out of a solid piece, as they have no notion of bending them. Yet some of their war canoes will carry from thirty to a hundred men; and are even seventy feet long, and six feet wide. These are ornamented with open trellis work, and covered with fringes of black feathers: some of the boards have tufts of white feathers.

“ Their fishing canoes, which are smaller, are ornamented at each end with something intended to represent a man’s head; having eyes made of shells, and an enormously large tongue hanging out of the mouth.

“ Their double canoes are well constructed to prevent their being upset : but their single canoes have also a contrivance for the same purpose, by sailors called an *out-rigger*, formed of a couple of poles lying across the canoe, and supporting a sort of platform. This can be moved out, on the side wanted, and, acting as a lever, it prevents the vessel from reeling too much, or being in any danger of capsizing.”

“ Capsizing, Papa ! What is that ? ”

“ Turning bottom upwards, as Richard’s ship did, the other day, when he was reaching over to hook it out of the water with his cane.”

Richard tried to laugh at this recollection ; but he was not half so loud as the others, who had helped to get it out again.

“ The canoes of the Friendly Isles are said to exceed all others in neatness and good workmanship. They are constructed of seve-



ral pieces, sewed together so closely, and so firmly, that one can hardly see the joinings.

“The flying proas of the Ladrone Isles have always excited surprise; as they will sail at the rate of twenty miles an hour, owing to their peculiar construction. One side of these canoes, that which is on the lee side, or away from the wind, is entirely straight, the other is bowed out, in the usual shape. The ends are by this means made very sharp, to cut the water, especially as they are made narrower hereby. Both ends are equally sharp; so that the navigators have no need to turn, but can come back again with ease. Canoes thus formed would be very liable to turn over; indeed, they could hardly live in a rough sea. To prevent this, the Ladrones have an outrigger, consisting of a frame projecting on the windward side, with a log of wood, shaped



like a small boat, at its end. The weight of this frame keeps the balance, for the wind can hardly tilt the canoe so as to raise the frame out of the water ; while the hollowness of the little boat prevents its sinking on that side.

“The planks of this proa are sewed together with strips of bark : no iron being used in it. The sails consist of mats ; and the masts, yards, and outrigger, are made of the bamboo, which is extremely light.

“When we speak of a *boat*, we mean something put together with much greater skill. This has first a skeleton, formed of tough but light materials ; the planks with which it is covered from end to end are also thin, pliant, but close boards, which bend to the shape, and are firmly nailed to the ribs. Boats are intended to be propelled with oars ; these are long poles, broad at the ends, which dip in the

water, and work in a sort of notch in the side of the boat.

“ Boats are of different shapes and sizes, according to the work for which they are intended. Such as ply on the river Thames, and are used only for the conveyance of persons, are called *wherries*; these are light and slender. Boats which are to convey goods to and from shipping are of a stouter, rounder frame, and larger size. We generally, by a *boat*, understand an open vessel without any deck. When very large, as for the conveyance of coals from the shipping, they are called *barges*, or *lighters*.

“ There are several other descriptions of boats, of which we may say something when we come to speak of shipping. We are only now tracing the various steps by which men advanced in the art of conveying themselves by

water-carriage. What do you think, William, is the next gradation ?”

“ Why, Papa, is there any thing between a boat and a ship ?”

“ We are not come to a ship yet, William ; we have only spoken of such sorts of vessels as are moved by paddles or oars. The next improvement was in adding a sail. Who invented the sail ?”

“ I know,” said William : “ it was Dædalus. He was confined by Minos, King of Crete ; and the poets said he made himself wings and flew away ; but the fact was, he invented the sail, and so escaped in his boat. His son Icarus, not managing his sail cleverly, was drowned.”

“ We shall see the sail in its primitive simplicity, perhaps, in the West Indies, where it is made of a sort of silky grass, intertwisted, or plaited into a breadth.



“ We may next survey the sails of the South Sea Islanders ; many of these are also made of matting. The New Zealanders have theirs of a triangular shape, and use them with the broad part uppermost. In some of the islands, two upright poles are placed in the canoes, and the mat sail is stretched between them. Such canoes can only go straight before the wind.

“ The Chinese junks are almost innumerable on all the rivers and canals of that extensive empire ; these are built of very light wood, with bamboo masts and arms ; so that although some of them are very large, yet they do not sink more than a foot, or half a yard deep, into the water. Their sails are of matting, and double up. These are very useful in their canals, where multitudes of them are to be seen on every side. These junks are so ill contrived for sea, that the wonder is they can





p. 44.

*Chinese Junk.*

Published 1830 by J. Harris, 27 Piccadilly, London.



ever complete a voyage : the head is square, the bottom flat, without any keel ; they have no bowsprit, and the rudder is unsteady and inefficient ; they have thick masts, and their sails consist of matting made of bamboo, which folds up like a fan ; these the men lower by treading them down with their feet. They are, however, highly ornamented, if ornament it can be called, with dragons' heads, ugly mouths, and staring eyes. They do not venture upon a voyage farther than the Molucca, or Spice Islands, or to Port Jackson.

“ You say, William, that Dædalus invented the sail ; but are you aware of any thing in nature, which is supposed to have given him the hint ? ”

“ Was it the bird's wing, Papa ? Birds are so often said to sail, especially when they fly steadily, that I think it may. Yet birds’

wings move more like oars, as they flap them about ; they are not moved by the wind, as sails are."

"Your distinction is just, William ; it was quite a different animal to which we are indebted for this important contrivance ; namely, the *nautilus*, or *sailor fish* ; it is a shell-fish, shaped like a large snail, and found in the Mediterranean, and the Indian Ocean. Its habits are very peculiar ; it usually dwells at the bottom of the sea, but is able to rise to the top, which it is fond of doing in calm weather ; this it effects, seemingly, by excluding a portion of water, which makes it specifically lighter ; then of course it rises. The shell is so thin, that it is called the *paper nautilus* ; some of them are as large as a quartern loaf, though others are not bigger than a walnut. It lies on its back, floating on the water.

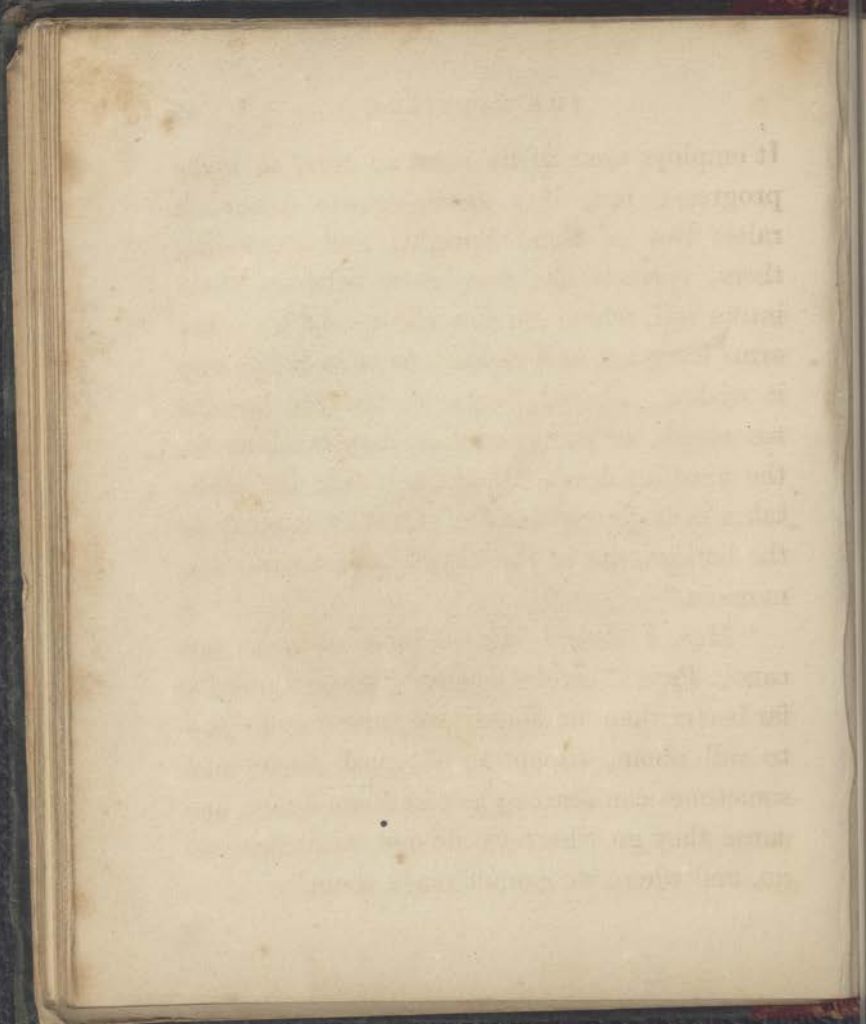




p. 96.

*The Nautilus or Saitor Fish.*

Published 1832, by J. Harris, St. Pauls Church Lane.



It employs some of its arms as oars, to make progress; but, if a gentle breeze arises, it raises two of them upright, and extending them, spreads the membrane between them into a sail, which catches the wind; its other arms hang out as a rudder, to steer it the way it wishes. Should, however, the sea become too rough, or any enemy or danger alarm it, the nautilus draws all again within the shell, takes in its proper load of water, and sinks to the bottom, out of the way of molestation, in a moment."

"How I should like to have some in our canal, Papa!" said Charles, "they would be far better than our ships; we cannot make any to sail about, except as we push them, and sometimes can scarcely get at them again, because they go where we do not wish them to go, and where we cannot reach them."

## CHAPTER III.

## SHIPS OF THE ANCIENTS.

“WE have taken a survey of the ship in its infancy, as we may well term boats and canoes. But we are not yet prepared to examine a full-grown modern man-of-war; there were many gradations by which men crept slowly on, to the present wonderful construction.

“What we read of the ships employed at the siege of Troy, will very much deceive us, if our imagination is filled with modern ideas; they were but barks, chiefly, if not altogether, without decks, and having but one mast and one sail. We have, upon ancient gems and medals, many representations of the shipping of the ancients: so that we are pretty certain





*Ancient Ships.*

*Pubd Aug 1837 by J. Harris, St Pauls Church Yard.*



of what we say on this subject, although the vessels themselves have not been preserved to this day. The inspection of picturesque representations will give, at a glance, a better idea of these things than mere words can do, even in the clearest and most laboured descriptions; so look well, and examine for yourselves."

"O Papa, are those ancient vessels? What great heads they have, and great eyes! One would think the builders wished to make them look as much like animals as they could!"

"That was very likely the case, Richard. As they were to swim, they so far resembled fishes; and they often called them by the names of various fishes; as the *dolphin*, the *whale*, &c.; nay, these and such like terms seem to have marked different sorts of ships, like our terms *boat*, *cutter*, *brig*, &c. The

*dolphins* seem to have been small light vessels ; and the *ketos*, or *cetus*, was a ship of larger size. Now, William, do you remember reading any wonderful story about a dolphin, which might be explained by this statement ?”

“ O yes, Papa ! I remember it ; when the mariners threw Arion the musician overboard, in order to gain his wealth, it is said that a dolphin took him up and conveyed him safely to shore. I have seen a print of this story, in which he is riding on the back of a fish ; but I dare say it was really nothing but a boat, one of that sort called dolphins.”

“ That is very likely to have been the true mode of his escape, much more so than the turn the poets gave it ; but plain matter of fact, you know, is little or nothing to a poet ; he must clothe his story somehow in fiction, or he is not content. We may in the same man-



ner understand the story told by Pliny, of a dolphin which carried a boy every day to school and back again, across the Lucrine Lake."

"Ah!" said Richard, "how I should like a dolphin that would carry me so!"

"A dolphin-boat would suit you best, Richard," said his brother. "A real dolphin would wet your feet at least, and frighten you sadly, with his frisking and diving. I cannot help thinking what a frightful figure you would cut! Your late wetting in the canal was nothing to what that would be!"

"As they named their ships after fishes, so many of them bore the names of certain quadrupeds; as the *bull*, for instance. Now, who can recollect another famous story from Ovid's *Metamorphoses*, which tells vastly well in poetry, and looks admirably in a good paint-

ing, but which is simple enough when reduced to plain fact?"

The boys hesitated.

"Well, then," said the father, "perhaps it is so strange a metamorphosis that you will hardly guess it. Do not you remember, that Jupiter carried off Europa, the daughter of Agenor, King of Phœnice, by transforming himself into the shape of a bull?"

"O yes, Papa! Was that only a ship called *Taurus*?"

"It is very likely it might be named *the bull*: it is likely too, that the head of it might be fashioned so as to resemble a bull's head, with its great goggling eyes. You see, they give the front of the ship a form intended to represent a head.

"Besides, every ship had not only a name marked by the front, but a sign, at the after

part, which shewed to what deity it was dedicated, or rather under what deity's protection it was reputed to sail. Now, if this ship had the sign of Jupiter, and the name and shape of a bull, the story may be much more nearly true, than you have thought it was."

"How often I have wondered, and laughed, at that story, Papa; thinking all the while that not one word of it was true!"

"And have you never wondered, too, that when Neptune and Minerva were contending who should give a name to the city of Athens, Neptune should produce a horse; so says the story, but say rather a ship, for anciently, ships were called horses. That is, he recommended traffic, and would have made the people mercantile. Minerva gave them the olive, as the emblem of agricultural produce. The people preferred this; Minerva therefore gave name



to the city, which was called Athens, in honour of her, and she became the tutelary goddess of the people, and was worshipped in a splendid temple, called the Parthenon.

“Some of their vessels were propelled only by oars, without mast, or sail, of any kind. These perhaps are the most ancient.

“From the print, these seem to be fighting ships. Many of them were of considerable length, and were rowed by a great number of oars, which appear like the fins of a fish, and operated in the same way, to propel them along, with great rapidity.

“Some of their ships had one mast, and a sail. Mast above mast, as our ships are built, was never known among them. Neither had they shrouds by which to climb, as our sailors do. Their sail was let down with its yard-arm, when not wanted: then, when



the wind was favourable, they hoisted up the main-sail to the wind. But they worked the sail with ropes and pulleys, themselves standing below.

“Neither had they the rudder hung, as ours is, which turns on its hinges. Their rudder was a broad kind of oar, the handle of which a man at the after part of the vessel held firmly. Sometimes this was confined by rudder bands, that the steadiness, and power, might be greater. And in large vessels there was one of these oars on each side, for the same reason.

“They had anchors too; some of which were rather curious. It is said, in St. Paul’s voyage, that they cast out four anchors; but it should rather have been translated, the quadruple anchor, an anchor with four flukes, or points. Such are in use to this day, in Egypt.

These would lay hold of the ground, let them fall how they would."

"What is the anchor for?" enquired little Charles.

"To stay the ship," said Richard, "when they do not wish it to go on."

"I suppose," replied the little one, "that they stop the ship every night, while they go to bed."

This produced laughter from his brothers, who happened to know a little more about it than he did, though not much. A small advance of knowledge generates laughter or contempt, in a conceited mind; real understanding, in any instance, will rather aim to inform than to abash; the laughter in such case will be very gentle, if it does arise, and will tend to encourage, by making the mistake a matter of pleasantry, rather than to overbear

and confound. When, indeed, ignorance appears in those who ought to know better, who have been often told, but forget; laughter is better deserved; but even then the kind heart does not love to deal out painful deserts to the defaulter.

“No, my boy,” said Mr. N. “the sea is too deep to allow an anchor to reach the bottom, except the ship be near the shore. Then it often happens that the seamen wish to continue where they are for a while, and they cast out an anchor, that neither the winds nor the currents may make her shift her place. This eases them much of their labour, and prevents them from drifting into shallow places, or among rocks, which might be very dangerous.”

“And does the anchor always catch hold, Papa?”

“Look at it, Charles. That long beam will



lie flat, and so it forces the iron part to point downwards, and if the ship drags at all, it forces this point so much deeper."

"And had they only one sail, Papa? They could not go very fast."

"One sail to one mast was sufficient, and more than they could well manage sometimes, when the wind was not favourable to their course. These sails were more often triangular than square. In one medal, the sail seems to have ribs, or bars, of some sort across, both vertically and horizontally, as if to give it strength."

"What odd things they have placed at the front of them! besides the face and great staring eyes, there seems to be a bird's neck, with a head to it."

"That a bird's neck should have a head to it, is nothing wonderful; but you think it



strange to give a head to a ship; yet that term remains to the present day; we speak of the ship's head; and what is still more like them, at the head of our ships a figure, suited to the name of the vessel, is usually carved. Thus the *Britannia*, the *Queen*, the *Lion*, &c. would have a resemblance at the prow, which, to persons at a distance, would indicate the name of the ship."

"I can see the men in this vessel, and they seem to have some trellis-work at the sides, behind which the warriors fight, I suppose.

"But I thought, Papa, that the ships of the ancients had *beaks*, or *rostra*; some of which, taken from the Carthaginians, were fastened up in the Roman forum, from whence the orators harangued the people; so any place for public speaking, is now sometimes called a *rostrum*?"

“ You have made an appropriate remark, William. This brings us to the fish again. The sword-fish has a long beak ; it is in Greek called *galeopis* ; and ships formed in that manner for fighting, had a similar name. Our galleys resemble them, both in name and in office ; we shall shew you them in due time. The pirates, who infested the Mediterranean seas, had vessels of this kind.”

“ What are pirates, Papa ?”

“ They are robbers on the open sea, Charles. Their whole business was plunder ; their vessels were narrow and sharp, that they might sail very fast.

“ They had also a long, strong, and sharp beak. Their endeavour, in fighting, was, to row with all their force against the side of the enemy. Sometimes this would sink her at once ; or, if they could only pierce her, they

held her fast, and could jump on board; cutting and slaying all they met.

“ You mentioned the beaks of ships fastened in the forum, as trophies; pray, do you recollect how the Romans first became a maritime power, William?”

“ Yes, Papa; they were at war with the Carthaginians, from the other side of the Mediterranean, who often landed on the coast of Italy, and did much mischief. Frequently, they got their spoil into their ships, and sailed away, before the Romans could collect troops to attack them. They soon perceived that they must have vessels, to fight them before they could land, or to follow them out to sea, otherwise they should never be free from their attacks. But they were at a loss how to build ships. However, just then a Carthaginian galley, by coming too near the shore, ran aground. The



Romans came before they could get her off again, defeated the men, and took their ship. They directly began building galleys, taking pattern by this."

"That was fortunate, Papa."

"And do you remember, William, how they trained their men to work them, while the galleys were building, before they ventured to meet the Carthaginians, and fight them?"

"Yes, Papa; they built benches on shore, such as were in the galley, on which the men sat to row the vessel. On these benches they placed the men, with long oars, and exercised them daily in pulling all together; quicker, or slower, at the word of command. They could neither be killed, nor drowned, in this sort of service."

"The Romans became soon discontented with this simple galley, and contrived an ap-



paratus, called a *corvus*. This was a sort of gallery, which turned upon a large pin, or short mast, about twelve feet in height. It was raised or lowered on this huge pin, by ropes and pulleys, to the exact height wanted. This they made to project over, or into, the enemy's galley; it was eighteen feet long, by which, like a bridge, they were able to board, and fight hand to hand.

“Many of their vessels for war seem to have had three, four, and some five tiers of rowers, one over the other, these were called *triremis*, &c. accordingly. These vessels could row with great rapidity, and must come against an enemy's broadside with overwhelming force. But more commonly they had only two banks of rowers, as being lighter and more manageable. These were called *liburnæ*, from the Liburni, a nation of pirates, in the Adriatic.

Such ships composed the bulk of the fleet, with which Augustus defeated Antony at the battle of Actium. Some of their vessels had beaks, or rostra, to run down, or pierce, the enemy's ships; and some had towers, from which the soldiers fought with advantage, from being raised by them above the foe.

“We may notice, too, a custom, common in those days, of which Juvenal speaks; that mariners who had been wrecked used to go begging, with a painting of the vessel, the storm, and all the distressing circumstances of the case, hung about their necks, to excite compassion. At the same time they sang verses descriptive of their mishaps; hoping by this gay picture, their rude rhymes, the plaintive voice in which they were sung, and their melancholy faces, to move the pity of beholders, so as to gain them a small pittance to-

wards repairing their loss, or, at least, to procure them subsistence."

"Ah, Papa, that is something like the petition you had sent in the other day; only the man had no picture, nor any rueful countenance."

"Sometimes, instead of travelling about with them, they hung these pictures of their escape in the temple of that god or goddess to whom they had addressed their prayers in the time of their distress, and who had, as they supposed, relieved them and saved their lives. It is a pity that, now we know better, we have not more of this grateful feeling. Alas! most of our sailors know nothing of God, but to take His name in vain!

"But, boys, the most amusing account left us, is of a vessel built upon the Nile, for Ptolemy Philopater. It was of immense size,



and so it had need, considering what it was to contain. It was four hundred and twenty feet long, thirty-eight broad, and in height forty-eight. It had four hundred rowers to urge it forwards; four hundred mariners to navigate its unwieldy bulk; and three thousand soldiers for parade, and for the royal guard."

"Why, that was almost as big as Noah's ark, Papa!"

"And it was almost as full of living creatures!

"I may tell you, too, of another vessel, built by the famous Archimedes, for Hiero, King of Syracuse. There was timber enough for sixty common galleys, used in it. It was a floating palace, rather than a ship; it had banqueting rooms, of which the floors were inlaid, representing stories from the Iliad; and galleries, gardens with fish-ponds, stables, mills to grind corn, baths, a library adorned with paintings



and statues ; and a temple of Venus, the floors of which were inlaid with agates and precious jewels. It was surrounded with an iron rampart, and had eight towers, with walls and bulwarks, and every implement of war ; especially one, which threw a stone of three hundred pounds weight, or a dart eighteen feet long, half a mile. So ancient authors tell us."

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## CHAPTER IV.

### PROGRESS OF THE ART OF SHIP BUILDING.

"ALTHOUGH England is proud of her naval superiority, I am afraid we must not look very far back, in order to discern it. That the Phœnicians traded to Britain for tin, above four hundred years before the Christian æra,

is allowed on all hands ; this may prove that the Phœnicians excelled in navigation ; but, perhaps, it as really shews, that the Britons did not understand it ; they waited at home till their foreign merchants returned from time to time.

“ Cæsar invaded our island, about fifty years before the birth of Christ. His vessels were, most likely, mere open barks ; but the Britons do not seem to have had any like them, to meet him on the sea. They fought him valiantly when he landed, but till he set foot on their shores, they could not touch him. They were a pastoral people, not addicted to commerce, and therefore had no need of ships. Colonies of Belgæ, from the opposite shores of the Continent, had come over, and, finding a beautiful island, they settled in it. The only sort of vessel which we know to have been in

use among them, was the coracle, which has already been mentioned (p. 35); it was a sort of large basket, covered with a horse's hide. This was useful only on the rivers, and for fishing; it would not bear the open sea, nor serve for fighting.

“Cæsar's vessels for transporting his army to Britain, consisted of large barks, holding about sixty soldiers each, besides the mariners; as he brought over two legions in eighty vessels. He had also galleys, whose strange figure and numerous oars affrighted the Britons; for they neither possessed, nor had seen, such things before. When Caractacus appeared as a prisoner before Claudius, he boasts of having had arms, horses, and wealth, but does not mention ships.

“The Romans, when once in possession of Britain, kept up a great fleet. Carausius was



commander of it, A.D. 287. We may conceive it was considerable, because it enabled him to seize upon Britain for himself; although the Emperor Maximian attacked him with a fleet of a thousand sail. The vessels, which brought over the Saxons, must have been much larger than those with which Cæsar made his first attempt; for their second importation amounted to five thousand men, brought over in eighteen vessels, which supposes above two hundred and eighty in each ship, besides their wives and families. This was in A.D. 446.

“ Offa, one of the Saxon kings, saw the importance of the navy; and he exerted himself till he became formidable by his fleet. When thus master of the seas, he felt the benefit; for Charlemagne, King of France, who had written to him in a haughty style, now sought



an alliance with him. His successors suffered the fleet to dwindle away, and thus gave opportunity to the piratical Danes to rob and murder their subjects, and settle where they pleased.

“ The frequent inroads of the Danes, in the ninth century, prove the incapacity of the English at sea. Alfred, famous for his resistance to them, discerned that the only way to defend the country against such marauders, was to meet them on the ocean, and there destroy them. He therefore invited ship-builders from every country; and, in a few months, he found himself possessed of a considerable fleet; at least it was considerable for those times; for his ships were much larger than those of the Danes. He also engaged mariners from the country about the Rhine, who were accustomed to the sea.

“Aboard these vessels he put his own courageous troops, who, in their first engagement, attacked and destroyed a fleet of one hundred and twenty Danish ships, A.D. 873. He also encouraged commerce, as the only way to train up a hardy and skilful race of seamen.

“Edgar, in 959, equipped a strong fleet, for the defence of his dominions against the Danes; amounting, it is said, to more than three thousand vessels. These he divided, and stationed in all the parts most open to the attacks of the enemy, and thus defended his realm from their insults and depredations. This important means of safety was afterwards much neglected: and we find that, in 1009, Sweyn, King of Denmark, was able to land in England, and drive Ethelred from his throne, of which he took possession himself.

“Canute, so famous in our history, was the son and successor of Sweyn. It may be presumed, that the naval superiority of the Danes was a principal cause of their success; and it appears that they were no longer content with their open barks, of twelve oars, in which they had been accustomed to go on their predatory expeditions, for now they built vessels of greater size and strength. Many of them were capable of holding above a hundred men, and some were of still greater capacity.

“A writer of that day tells us, that the ships of this king, Canute, were richly covered with gold and silver. They had only one mast, but that was ornamented with a gilt metal vane, in the figure of some bird, to inform them which way the wind blew. Their sterns had also divers figures plated with gold and silver, as of a man, a lion, a dragon, &c. This sort



of splendour implies considerable care in the construction of their shipping.

“ It was with a great fleet that William the Norman invaded England ; although a single arrow gained him the throne. The continual intercourse between England and the French provinces, consequent upon the rule of the Norman princes, with the frequent transmission of armies, from this time made the navy a business of great importance.

“ That the vessels of the Normans had but one mast, was a circumstance common at the time ; yet the situation of the ropes which kept up the mast, seems to us very singular. They went from the top of the mast, some to the head, and some to the stern of the vessel.

“ It was a great improvement to bring these shrouds down to each side of the ship ; and the superior convenience of this method has



caused it to be continued to the present time. In the reign of Henry VI. the bowsprit was added, and the decks were made more complete than before. In the following reigns, we find vessels of four masts, with a sail to each. There were grander vessels, having a tower, called a *forecastle*, at the head, and another for a *cabin*, at the stern.

“ The larger ships, managed by sails, were called *carricks*; they had also *galleys*, and *gallietis*; *hulks* were mere vessels of burden, and had no masts; *barges* were in use on rivers.

“ We may now go back a little in our progress of ship-building; since, to keep our account of it in our own island so far unbroken, we have continued it till the times of Henry the Seventh.

“ Whatever skill in naval architecture the

Romans had attained to, it was all lost when the empire was overthrown. This was by the bursting in of the Northern nations, the several tribes of Goths and Huns; these were land armies, most of whom understood nothing of maritime affairs, even when they seized upon such shipping as they found, in order to transport their armies across the Mediterranean. Genseric made the most use of shipping; his inroads and piracies were in the fifth century, particularly about 455.

“ We must wait a little, till the rise of arts and commerce in Europe; and even then, at the beginning, all maritime affairs were on a very small scale.

“ In the next century, about 523, Venice began to trade. Situated on the waters as it is, the inhabitants became inured to the sea from their infancy. Before this century ex-

pired, they were able to maintain such a fleet as was considerable at that time, to defend themselves from pirates; they even assisted the Greek Emperor Justinian, to resist the Gothic invaders. Their power continued rising much quicker than that of neighbouring states, which had no commerce. It might be at its height in the fifteenth century, when they obtained, by arms, and by assisting the Greek Emperor, several provinces in what is now called Turkey. Much of their wealth and consequence arose from conveying the Crusaders to Palestine, for no other power had shipping enough to transport such armies.

“The Crusades, though in themselves enterprises full of mischief and blood, were yet productive of many benefits to Europe; among these may be reckoned considerable improvements in shipping. When our Richard I.



sailed for the Holy Land, in 1191, he is said to have had 150 great ships, and 53 galleys, besides smaller craft. His *great ships* would, I fear, be called *little ships* now; for, more than a hundred years after, when Edward I. was at war with France, forty men were a sufficient crew to navigate his largest vessels. Edward III. had a great fleet of above seven hundred vessels, but the number of mariners was only about twenty to each. Fifteen were called *the King's own ships*, having 219 sailors, which is only about seventeen to each; they could not therefore be very large. This was in the year 1347.

“We shall find considerable improvement made, if we trace another commercial establishment, once in very great power, called *the Hanseatic League*. Princes in those days were mere warriors, robbery was their trade. The

merchants in the north of Europe, especially in the cities of Amsterdam, in Holland, and Bremen, in Germany, having had their vessels plundered frequently, at last agreed to defend each other: and they each built a couple of fighting ships, to protect their merchant fleets. The convenience of being thus defended against roving marauders, was felt to be so great, that other cities joined them; till, in time, all the maritime ports of the north and west of Europe, to the number of seventy-two, were engaged in this association. Their fleets now became large and formidable; princes entreated their alliance; and such as offended them were made to suffer severely; while the size and excellence of the ships grew with the increasing importance of the leaguers.

“The power of the Hanseatic League lasted about two centuries; then, when the na-

tions generally, and England in particular, became commercial, each defended itself, and the League died away.

The vessels of Venice, Genoa, and the Hanse Towns were the largest in existence, while those powers flourished; but when the nations had separately engaged in trade, vessels of a much greater size were built: one of the first was built at Hull, in 1449. About six years afterwards, the King of Sweden obtained leave to send to England a ship of one thousand tons burden, carrying one hundred and twenty men. In 1474, two ships at Bristol are mentioned, one of five hundred tons, and another of nine hundred. Our Henry VIII. in 1512, had one ship of one thousand tons, in his war with France.

“In Elizabeth’s time, by the attention paid to naval affairs, they rose with great rapidity.



The discovery of America, and of a way to the East Indies by sea, round the Cape of Good Hope, also made a great change in every thing in which commerce was concerned ; and the famous Spanish Armada roused up every exertion to defeat so formidable an invasion.

“ Drake took a Spanish galleon of one thousand four hundred tons, besides destroying a hundred vessels in the port of Cadiz. The Armada consisted of one hundred and thirty ships, many of which were so lofty, that our English mariners could not attempt to board them. It was then first, in modern warfare, that fire-ships were made use of ; these did great damage to the Spaniards. In this Armada, one hundred of the ships were larger than had been usual ; but they were ill constructed, and very unmanageable.

“ In 1571, was the famous battle of Lepanto,

when the Christian powers obtained a memorable victory over the Turkish fleet. Some of the galleys used on that occasion were long preserved at Venice ; but their size and construction would be thought little of in the present day."

"What are fire-ships?" was a question from more than one : to which was given the following answer :—

"A fire-ship is a vessel so constructed and filled with combustibles, as to be easily set in flames, and in that state she is driven in among the ships of the enemy ; by which they also may be set on fire and destroyed. The confusion, too, which is created by so terrific a circumstance, does almost as much damage as the fire. So many persons think only of saving their own lives, that the fire plays almost as it pleases, among the forsaken shipping, and so many of

the fugitives perish by the very haste they make to escape, that no battle can equal the devastation the fire-ship occasions.

“Now the construction is thus: a ship is prepared, by having six or seven orifices, like chimneys, projecting on each side, and others through the deck. The inside is filled with faggots, tar barrels, pitch, rosin, sulphur, and every sort of material which will burn furiously. Not many men are requisite to navigate a vessel of this sort; they always come upon the enemy in such a direction, that the wind may carry the fire-ship in among them, and spread the conflagration to the utmost. When this ship comes close to the others, it has grappling irons, by which it catches hold of all it touches. The captain of such a ship ought to be a man of courage and coolness, as it is the captain's duty to be the last man on board, and



to set fire to the trains, which are to inflame the whole mass of combustibles. A small boat is reserved for the retreat of the crew. When he sees the whole has caught fire, he drops into his boat, and his men pull away for their lives. It is most likely the enemy will be too busy in saving themselves, to molest them."

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## CHAPTER V.

### DIFFERENT SORTS OF VESSELS.

A TRIP to the sea side was quite a suitable mode of giving instruction, when the nature of a ship was the object of inquiry. So away they went, highly delighted with the jaunt, at least. Even riding in the coach all that way was a considerable source of enjoyment.

Happy age! when almost any change gives pleasure; when, every thing being new, delight is easily obtained; and when ignorance of the various evils which lie in wait at every turn, prevents that anxiety, which often is a great drawback on pleasure, with older persons! These, having met with many a storm in the voyage of life, are apt to shudder, even at the fair breeze.

The visit to the pier, though made many times every day, was always full of interest. The variety of new objects, and the strangeness of all they saw, filled them with wonder, and set all their curiosity at work. Mr. N. was scarcely able to answer all their questions. Indeed, they excused him in many cases, by asking others, before he could well catch hold of the true subject of inquiry. To ask no questions, and to ask too many, are equally

hindrances to our obtaining knowledge. The young should esteem it a great favour, when they are permitted freely to inquire concerning things which they do not understand; but they are not likely to gain any thing by the permission, unless they will wait for the answer, and attend, so as to understand it completely.

Disputes often arose concerning the sorts of shipping which they saw. Charles called every thing *a ship*, which had a sail; as he had been accustomed to do on his father's canal. His brothers had learned to distinguish better, though their knowledge was yet far from accurate.

"I am sure that is a man-of-war," said Richard, "because it is so large."

The vessel was gliding by, with all her sails set, in a grand and beautiful manner.



"I do not think it is," replied William; "for I cannot see any guns or port-holes."

"How I wish she would fire!" said they both: "that would tell us!" They appealed to a sailor, standing by. "No, my lads," said Jack; "that is only an Indiaman, d'ye see."

Once, too, they took a collier for a galley; and each maintained his opinion stoutly; just as people do, who know very little about the matter. They had never seen either, and were therefore in prime condition for a debate. There is nothing stops disputations like actual knowledge; often, a very little of this would do.

As appeals were frequently made to their father, and as he wished them, in a general way at least, to understand things, so as to keep them from making gross mistakes, or

exposing themselves in company, when they should come into life, he determined to procure a few prints, with their specific description. The actual resemblance presented to the eye, gives much better knowledge than mere words can convey, although the description may be extremely accurate.

In order to give as clear an idea of the different sorts of shipping as he was able, Mr. N. divided them into five classes; first, those intended for war; making a second of the Turkish, as being very different from the European; then, thirdly, those for trade; fourthly, small craft; and, lastly, vessels of parade. Yet this arrangement, though it has its use, cannot be absolutely accurate, because vessels bearing the same name are frequently employed in different ways.

“Of our vessels, built for the purposes of







p. 89.

*A Cutter*

*Paint Aug 5. 1830, by J. Harris St Pauls Church Yard.*

war, the smallest is the *cutter*: this is a decked vessel, otherwise it might be called a large and long boat; it has one mast, with a large trapezium-shaped sail, fastened vertically, or lengthwise, on the mast, and regulated by a boom, or large beam, to which the bottom, or foot, of the sail is fastened. Beyond the mast is one or more of the *jib-sails*, sliding on a rope which comes from the mast-head to the prow, or to the bowsprit. It is a decked vessel, though small, and has a hatchway, or opening, by which to descend into the hold. As fast sailing is the excellence of these cutters, for they are chiefly used to pursue smuggling vessels, they often spread all their sails in a manner that seems dangerous, *gunwale to*, as they call it; nay, heeling so much on one side, that not only the gunwale, or edge of the ship, but part of the deck also, is under water. In such a

case, the hatchways are fastened close, so that the vessel cannot sink; and the men do not mind being wet."

"I do not think I should like to go in a cutter," said Richard.

"Yet these are the kind of vessels," observed the father, "in which, before the invention of steam-boats, parties of pleasure often made their favourite excursions to Margate, Gravesend, and other places."

"How much was said, some time ago, Papa, about gun-boats,—what are they?"

"Yes, indeed, much was said about gun-boats, at the time that Buonaparte threatened to invade England: he kept a great number of them in continual exercise, just over the water, at Boulogne. And much was done, too, by gun-boats, as Nelson found, when he made his attack upon Copenhagen; for the Danes had



a great number of them, lying so close inland, that our vessels could not get at them; and they were such small objects, that our gunners could scarcely hit them; though they could strike our ships without fail. Their smallness gave them both power and security.

“The *gun-boat* is built rather broad, with a flat bottom, so as to swim in shallow water; it carries only one gun, but that is so large, and long, that it does great execution at a considerable distance. Its shallow draught of water makes it very useful near the shore; but, for the same reason, it cannot live on the ocean, or in any rough sea. For defence of a coast, it is admirable; and as each carries but one gun, it is not cumbersome, but may be stationed wherever wanted. A row of them becomes a powerful battery, and nothing that is not equally shallow, can come near them.

“The next vessel in size, of a warlike nature, is the *bomb-ketch*. This is of use for bombs, as the gun-boat is for cannon-balls.”

“What are bombs, Papa? are they not balls too?”

“They are balls, inasmuch as they are round; but they do not act in the same manner. Cannon-balls are solid, and, by their weight and velocity, are intended to batter down walls, or to pierce and sink ships. A bomb is a hollow ball, or shell of iron, an inch or two thick only, though the whole may be twelve inches or more in diameter. This hollow sphere is filled with gunpowder, that it may burst, and fly in pieces, with great violence; and these pieces are likely to kill whomsoever they hit; or, if the bomb penetrate into a house, the explosion will blow the house to pieces, and kill all who are in it, or may set

the building on fire, and raise a conflagration, very wide in its extent, and destructive in its effects."

"Is not that very wicked, Papa? Do not they hang any body that sets a house on fire?"

"War is the source of much wickedness, my children. However, we are not now settling the question of war, but only describing the modes in which it is carried on. Bombs are thrown from a sort of short cannon, called *mortars*. There is one hole in the bomb-shell, through which they fill it with gunpowder. When it is to be fired, they place in this hole what they call a *fusee*, which is of the same nature as the fireworks called *serpents*, which are let off by boys on the fifth of November. The firing of the mortar, which throws out the shell, sets fire to the fusee, which is just of such a



length, that it may burn while it passes through the air to its intended place; and it should burst just as it touches the ground. If it explode in the air, it does but little damage; and if it rest on the ground long, the party assailed snatch the fusee out, and so prevent it bursting."

"That must be very dangerous, Papa; I should not like to touch it."

"Possibly so; yet, at the siege of Lisle, at the beginning of the French revolution, the children became so accustomed to them, that they would run and snatch out the fusee, without any fear. When cities are besieged, the inhabitants take up the pavement, and strew the streets with sand, which often prevents the bursting of bombs, or renders them less destructive.

"The bomb-ketch is contrived to carry one

mortar, but is yet enough of a ship to bear the sea. Our ships of war can cannonade a place; and now, by the help of these bomb-ketches, the place may be bombarded too; and it often happens that the greatest part of the damage is done by them."

"Did we not bombard Algiers, Papa? I mean, Lord Exmouth."

"Yes, William; we, that is, as you say, Lord Exmouth, and his brave seamen, forced the Dey of Algiers to give up all the Christian slaves whom he had taken prisoners, and to promise that he would not make slaves of Christians any more."

"What is the difference, Papa, between a man of war, and a ship of the line?"

"They mean nearly the same sort of vessel, Richard. Ships are not usually brought into the line of battle, unless they carry at least

sixty guns. All under that size are called *frigates*. Ships which carry a greater number of guns, have them too of a larger size. The most usual number above sixty, are seventy-four, eighty, ninety, and some few one hundred guns. They are denominated, first, second, and third rates."

"I fancy, Papa," said Richard, "if Julius Cæsar had met with but one of our smallest men of war, he would have gone home again; I mean, if he could!"

"Perhaps, if such things had then been in existence, he would have had some of them. Eh, Richard?"

"All the science then in the world, was at the disposal of the Roman people. And, unless you can suppose the Britons to have been more polished, better instructed, or, accustomed to use their intellectual powers more



adroitly, than Cæsar and his coadjutors, your supposition is a mistaken one. Knowledge is power. The superiority of knowledge was not on the Britons' side, at that time. An ignorant people must eventually fall before an enlightened people, in any contest; although it is true that brute force may, for a while, prevail.

“*Frigates* are ships of war, but of smaller size than those usually ranged in the line. During an action, therefore, they take their station in the rear, watching the admiral's orders. They are sometimes called in by him, to protect some disabled vessel, that the enemy may not take possession of it. Some of the stronger frigates carry heavy guns, and are called into the line, if needed. Frigates are lighter built, being intended for quick sailing: they usually carry from twenty to fifty guns,

and have only two decks. Some, indeed, have but one, and they are then called *light frigates*.

“They are of great use in war time, to convoy the fleets of merchant vessels. They can also go and peep into an enemy’s port, to see what is going forward, and can come out again, much more easily than a man of war. They cruise to great advantage; that is, they sail about and about, to watch for an enemy’s fleet, or to pick up any of his stray ships, which they may happen to meet with.”

“If a frigate should make its appearance just now, off the harbour, how I should like to take a cruise,” said Richard, “and see what I could pick up.”

“There might be some hazard even in that,” rejoined the father. “I have heard of

a case somewhat similar. A frigate, returning from a cruise, came off Plymouth, and the captain invited a few friends to dine on board, promising them a sail about, such as you are wishing for, as it was a beautifully fine day. They went, and enjoyed it much. But as they were tacking, to return to port, a cutter came up with an order from Government, for him to sail instantly to the West Indies, with some sealed packets to the admiral on that station. There was nothing to be done, therefore, but to take his company with him, and give them such a view of the West Indies, as they neither expected nor wished to have."

"Ah, I should not have liked that, Papa. That is something like being transported."

"In a *man of war*, we see the perfection of naval architecture: a large-sized vessel, with three masts, each mast composed of three dif-



ferent pieces ; with sails of different sorts, and managed with machinery of the most ingenious and powerful nature.

“ The rates, or ranks, of men of war are denominated chiefly from the number of guns they carry. Ships of the first rate mount a hundred guns. As they have three decks, the guns are distributed thus ; on the lower deck are the larger sort, which are called *forty-two pounders*, because forty-two pounds is the weight of the ball they carry ; on the middle deck are *twenty-four pounders* ; on the upper deck are *twelve pounders* ; and on the quarter deck and forecastle are placed *six pounders*.

“ The length of such a vessel in its lower deck, is about one hundred and eighty-five feet ; its breadth fifty-one feet. These ships are manned with eight hundred and fifty

men, including officers, seamen, marines, and servants ; so that a man of war is a little town of itself."

" Officers, Papa ! Is there more than one Captain ?"

" No : but there are usually several Lieutenants, whose business is to take command of the ship, in case of the captain's absence, and to execute his orders, when he is aboard. There is likewise a Master, on whom principally devolves the working of the ship, under the captain's orders. Also the boatswain, gunner, chaplain, purser, surgeon, and carpenter. Most of these have also mates, or assistants. The number of these officers is always in proportion to the rate of the ship. But we are now speaking of the different rates ; so we will not stop to describe these various officers, at present.

“ A second rate carries but ninety guns upon her three decks. Those on the lowest battery are *thirty-two pounders*; the middle deck has *eighteen-pounders*; the upper deck has *twelve pounders*, and there are some *six pounders* on the quarter deck. A second rate is about one hundred and seventy-seven feet in length, and fifty feet in width. These are more manageable than the larger ships.

“ They have usually seven hundred and fifty persons belonging to each, either as officers or seamen.

“ Ships of the third rate carry from sixty-four to eighty guns, which are similar in size of ball, or, as it is termed, weight of metal, to the second rate. They measure about one hundred and sixty-eight feet in length, and forty-seven in breadth.

“ Eighty gun ships are not so common now



as they once were ; seventy-fours frequently take their place, and have but two decks.

“ The complement of men to a seventy-four is six hundred and fifty ; to a sixty-four, it is five hundred.

“ A fleet is doubtless a grand sight. Such warlike fleets as Britain has frequently sent from her ports, are admirable, in their beauty, regularity, and easy management. They are wonderful, in the ingenuity shewn in their construction, and in the immense cost of their building, fitting out, and stores. We cannot, however, survey a fleet going out, in time of war, without extreme anxiety, knowing they carry destruction in their bowels ; and uncertain, as we are, whether any, or how many, of the souls now joyously setting sail, will live to return to their dearly beloved Old England.

“The navy has been the grand instrument, in the hand of Providence, by which the influence and grandeur of these little islands have been raised. The nation is apt to be proud of British thunder. We may be thankful; but pride goes before a fall.”

“What is a privateer, Papa? You know, Mr. Stapleton lost a fine ship, last war, which was the ruin of him; it was taken by a French privateer.”

“Privateers are fighting vessels, fitted out by private persons, during war, wherein, at their own hazard, they plunder the enemy, chiefly attacking merchant vessels. They must have a commission from Government, and must conform to all the rules of war, and the laws of nations. They pay one-fifth of their prizes to the King for this permission, and the

remainder the owners divide among themselves, in such proportions as have been agreed upon."

"Then, they are only a sort of authorized robbers," said William. "Those who do just the same without the King's permission, are pirates, and may be hanged?"

"That is a description of war generally; but the Government, when at war, is desirous of distressing the enemy in every possible way. Privateering is exceedingly injurious to his trade; it is therefore patronised, not punished."

"And how, said Richard, "do these great ships come near land? Or, how do they manage, when they want any thing on shore?"

"Every ship has one or more boats belonging to it, which have different names, according to their sizes and services. The largest



boat which ships of war take with them, is called the *long-boat*; this generally has a small mast, and a sail; they are too, sometimes, furnished with a deck and cannon, as they occasionally go out to take prizes, or to catch smugglers.

“The ship’s *barges* are longer, lighter, and narrower, than the long-boat; these are for the admiral, or principal officers; but they are not fit for sea. A barge never rows with fewer than ten oars.

“The *pinnace* is a smaller barge, having only eight rowers; these are for lieutenants and inferior officers.

“*Cutters* attached to ships of war, are broader, deeper, and shorter, than barges and pinnaces; they are therefore more fit for sailing, and are employed in carrying stores to and from the shore.

“The *yawl* is a small cutter, very similar in shape, and having but six oars.

“These boats chiefly belong to men of war. Vessels used in trade do not often have more than two ; a long-boat and a yawl.”

“How droll a great ship must look, Papa,” said Richard, “with such a number of boats swimming after it! I suppose they are tied fast to the ship, which drags them along.”

“Not quite so, Richard. A boat may be seen following a ship, tied to it, as you say, sometimes ; but when they are far out at sea, and do not expect to want them, they take them on board.”

“O, Papa, look at this print! What an odd ship is that, with its three-square sails ; and what a number of oars! What do they call it?”

“That is a *galley*; they are a sort of vessels

used only in the Mediterranean; they will not live, as the sailors call it, in our rough seas. The French tried them in the British Channel, in Queen Anne's time, but without success. They are chiefly impelled by oars, and that sort of power can only be obtained by slavery. The men who row them are condemned to the galleys, and are chained to the oars; they may perhaps have well deserved the punishment, but no man of feeling could be commander of a galley. At the time when Louis XIV. revoked the edict of Nantes, and persecuted the Protestants, many excellent and pious men were condemned to that state of destructive exertion and dreadful suffering.

“ It has its name from the sword-fish, which the Greeks called *galeotes*; it does indeed somewhat resemble it by its long projecting



beak, which is contrived on purpose to bore into the enemy's vessels."

"That is the way the sword-fish does," said William. "I remember to have read of a vessel, which, one night, received so violent a shock, that all the seamen were alarmed, as they supposed the ship had struck upon a rock; but finding she went on her way without farther interruption, they became quite at a loss to account for the terrifying circumstance; at length, coming into port, and clearing the ship's bottom, they found the enormous beak of a sword-fish sticking in it; this had broken off, so that the poor fish had to do without his nose, as well as he could."

"I dare say," said Charles, "he thought to have caught the ship, but, instead of that, the ship caught him!"

"The largest sort of galleys used by the

Venetians, were called *galleases*; they were sometimes above a hundred and fifty feet long, and more than thirty wide. These had three masts, and were very powerful; but they had not sail over sail, as our men of war have.

“ Their sails render them most remarkable to the eye, as the triangular form is not seen in other vessels of large size. The yard-arm, too, to suit it, hangs obliquely, one end almost touching the deck, the other much higher than the mast, which makes them decidedly to differ from such as are called square rigged vessels; the sail yard is often a hundred and twenty feet long; their masts are about sixty feet high, but they seem short, as they have no round tops, nor top masts, nor any shrouds, by which to climb up to the top of the mast; because they prefer to let the



p. 110.

*Galley.*

*Engr'd Aug 1840 by J. Morris, St. Pauls Church Yard.*



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yard-arm down, if needful ; and all their operations on it are performed by means of ropes and pulleys.

“ The galleys of the French had fifty banks of oars, that is, twenty-five on each side, with six or seven slaves chained to every oar. Each oar is fifty feet long, and so formed, that the thirteen feet within the vessel were of the same weight as the thirty-seven on the outside. These were put in motion with that sort of energy and rapidity, which the lash, held over the slaves, is able to produce ; and then, especially if the wind filled their sails, the velocity with which they would cut through the water was very great. Woe to the weak, heavy-laden merchantman, which should happen to see them bearing down upon her ! escape would be impossible.

“ The slaves when rowing, are not clad as

fully as usual, lest their clothes should hinder their exertions. Orders are not given by the voice, but by a whistle. Upon the signal being given, the slaves pull all at once, so that the whole fifty oars strike the water at the same instant, as if it were only one blow. They continue thus to pull, till ordered to stop by another whistle; when they cease all together, in a moment. When a galley is loaded, and is thus in rapid motion, she seems to swim under water; indeed, her gunwale is so, frequently.

“Each galley has five cannon at the prow, or head; one of which is very large, and will carry a thirty-six pound ball to a great distance.

“A platform is raised a few feet high, across the prow, called the *rambade*; from this the crew board the enemy; as it is not by can-



nonading, but by boarding, they gain their victory.

“When a galley comes up with the enemy, the first thing is, for all on board to raise a violent and horrible shout. Such a shout, from a thousand men, all ferocious enemies, is enough to appal the stoutest heart. There is something very shocking in the approach of a galley. Three hundred slaves at the oars, roaring with a dismal yell, and rattling their chains in defiance, must raise strange emotions, and sink the heart in despair; especially if the galley be an Algerine corsair, and the known alternatives are death, or slavery of the basest kind.

“A galley under sail is a curious sight, from its being so different from other shipping; in its low masts, and three-cornered sails, especially. Also, when a galley is in port, and at

rest, it forms a very picturesque object; as may be seen in many French prints of sea-ports. A tent, or awning, is then stretched over a great part, perhaps the whole length, of the vessel: it is made of cotton, with large stripes of blue and white. This is supported by wooden props; those at the stern eight feet high, those in the middle of its length twenty, while six feet serve for those at the prow. This preserves the inmates from the inconvenient influence of both sun and rain. During this repose, too, the slaves have a respite, and may be seen, each busily employed in some handicraft occupation, by which to gain a little money.

“ We have spent the more time upon the galley, because it is curious in itself, and because it is not likely that such a vessel should ever appear in our British seas.”

“If one were to come, how I should like to sink it!” said Richard.

“What, poor slaves, and all? Think again, Richard.”

“I wish only to see them in prints and pictures, Papa,” said William; “because the very name of galley-slave gives one ideas of misery, such as one should not like to see realized.”

“The *xebec* very much resembles the galley, in shape and general appearance; in its triangular sails, and low masts. It is the corsair of the Algerines, and is contrived for swiftness in pursuit. It carries about four hundred and fifty men, and mounts from sixteen to twenty-four guns.

“There is a small light sort of vessel too, called a *brig*, used for fighting or giving chase. The term is generally used with us, for a mer-



chant ship with two masts, though mariners of different nations apply it to peculiar vessels of their own. The Algerines use a sort called *brigantines*, which go both with sails and oars.

“The *polacre* is also common in the eastern part of the Mediterranean. It has three masts, each of one piece only, with a sail to each; triangular sometimes, but frequently square.

“The *tartan* is a small vessel, with only one mast, and a bowsprit. This has most commonly a sail of the same three-cornered shape as the galley and xebec.

“Vessels used in commerce, though various in their names and equipments, will not need so much description. Even the names are variously applied in various places; so that there is some uncertainty in their application. Many of the differences consist in the rigging, and in such particulars as would not be under-



p. 116.

*Varieties of Ships.*

*Printed Aug 1830 by J. R. Harris, St. Pauls Church Yard.*

THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

BY JOHN BURNET

IN TWO VOLUMES

LONDON

Printed by J. Streater, at the Sign of the Gun, in St. Dunstons Church-yard

1679

Vol. I.

CHAP. I.

OF THE

REIGN OF KING CHARLES THE FIRST

IN THE YEAR 1625

OF THE

REIGN OF KING CHARLES THE FIRST

IN THE YEAR 1625

OF THE

REIGN OF KING CHARLES THE FIRST

IN THE YEAR 1625

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stood, except by persons fully conversant with commercial affairs.

“A *snow* is the largest sort of two masted vessels commonly in use; it has square-sails and stay-sails.

“A *schooner* has two masts, each of which has a small square-sail at top; and the main-sail of each mast, suspended from a gaff at top, is stretched and managed by means of a boom at bottom.

“A *dogger* is a Dutch vessel, small, and clumsy, with two masts.

“The *sloop*, or *shallop*, has only one mast; it has no square-sail, but a large boom-sail, supported by a gaff at top. It has two stay-sails, or, as they are sometimes called, jib-sails. These are much employed in waiting on men of war, being good sailers and convenient.

"The *hoy* and the *smack* resemble the shallop so much, that it would be difficult to point out the difference, or for any but seafaring persons to understand it."

"What, Papa, do no vessels have three masts but men of war?"

"Yes, William, that *East-Indiaman*, which you saw gliding on in such a majestic manner, had three masts. Indeed, the vessels of the Company are often of greater size than most men of war, and need all the helps possible, to enable them to perform their long voyages. They are also partly fitted for war, carrying twenty guns."

"What are carracks, Papa? I think I have heard that name applied to ships."

"*Carrack* is a term among the Portuguese, and is applied to the very large ships which they have been accustomed to send to India

and to Brazil. Some of them are of two thousand tons burden, and have six or seven decks, being of an extraordinary depth. They are built narrow above, though of great breadth lower down. You see them represented in views of sea-ports done many years ago. They are not so common now.

“In Spain, a similar kind of ships are termed *galleons* (pronounced *galloons*). They were formerly employed in carrying rich cargoes across the Pacific, between Manilla and Acapulco.”

“That, *Papa*, was the sort of vessel which Lord Anson took. I have read his *Voyage round the World*.”

“The *coal barges*, and *lighters*, for conveying heavy goods among the shipping, you have often seen in London; therefore they need not be described.



“ *Boats used on canals* are commonly shallow, to suit the depth of water; narrow, that they may easily pass each other, and of considerable length, that they may hold a great quantity of heavy goods; these are drawn by horses, as a horse can move thirty times as much in a boat, as he could on a wheel carriage.

“ Now we come to vessels intended to convey passengers, or to display splendour in parade, we have several things to mention.

“ If we look at home, our own *wherries* are very well built for expedition, very neat in their workmanship, and nicely painted; many of them have handsome awnings, to shelter the company. Such as are rowed by one man, are termed *scullers*; those rowed by two men, constitute a *pair of oars*.

“ We have some pleasure-boats of larger size, fitted up in a handsomer manner, espe-

cially if they are private property; these are rowed by four or six watermen, who perhaps have splendid liveries.

“At Oxford, you would see these pleasure-boats in perfection. It is common with the gownsmen to take their exercise on the water thus; they are themselves the watermen, have their own specific liveries, and row with great rapidity, making the Isis and the Charwell foam under their powerful strokes.

“You would there, too, see one of the lowest of our vessels of conveyance, called a *punt*; it has neither sail nor oar, but is shoved along by a pole thrust against the bottom by a man standing at the end, and is chiefly of service just to cross some small river.

“We have, too, on our rivers, and on the canals in gentlemen’s parks and grounds,

pleasure-boats with sails, something in the fashion of the sloop, with a boom-sail and jibs. These are fitted up with great neatness, and ornament the pleasure grounds in a high degree, if there happens to be a good piece of water.

“As we have spoken of our wherries on the Thames, we might add, that pleasure-boats, or sloops, are also common, being private property; these enliven the river much. You will not see them very often amid the smoke of the city, or the bustle of the port of London; but higher up, towards Chelsea and Richmond, they are frequently met with.

“But what would my Lord Mayor say to us, if we were to forget his *state barge*? Indeed, all the Civic companies might wonder, to find matters of so much importance, especially on Lord Mayor’s Day, utterly neglected.”



"Yes, Papa! I once saw Lord Mayor's show; the water part of it was very pretty; the barges were so large, and the flags and streamers so gay, and the music so grand, and the companies in their official gowns so stately, and the strokes of the watermen were so regular! And then the firing of cannon from the different wharfs. O, I was so pleased!"

"Thank you, Richard; you have saved me some trouble: you have said all that needs to be said on such a business: nothing but a sight of the show itself could exceed your description, and perhaps even that might fall short, as the imagination frequently outruns the reality.

"We may just step across to Venice, where we shall see our wherries greatly exceeded by their *gondolas*. As Venice is built in the midst

of the sea, on several small islands, there cannot be any room for horses or carriages ; indeed, numbers of people live their whole lives in Venice, without having ever seen either. All their streets, if one may call them so, are canals, with the houses built close to the water, without any space for foot-passengers ; gondolas are to them, as hackney coaches and gentlemen's chariots are to the inhabitants of London. Great elegance is exhibited in some of them, and much adroitness is displayed by the gondoliers.

“ They are very lightly built, and beautiful in form, each end rising to a considerable height, in an ornamental manner. In the middle of each is a small room for the company, very handsomely fitted up, and glazed all around, though they are all painted black. The men do not row as ours do ; there is not width

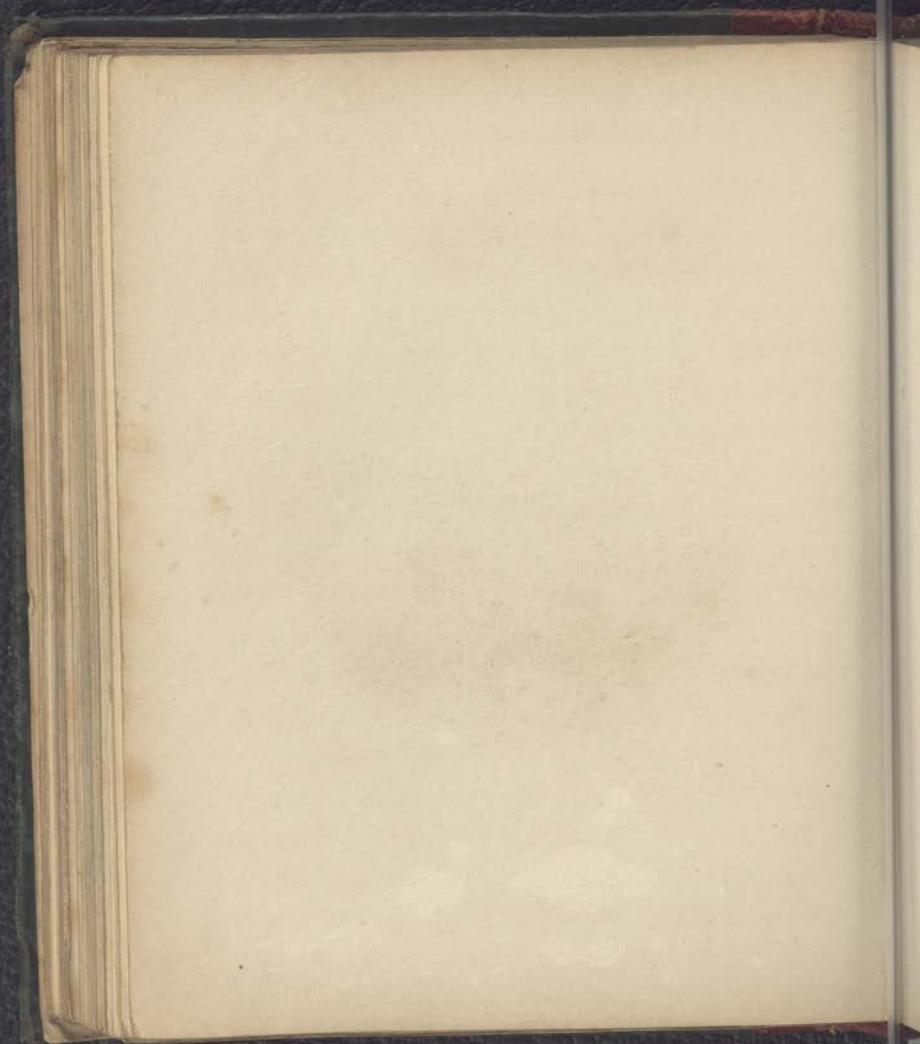


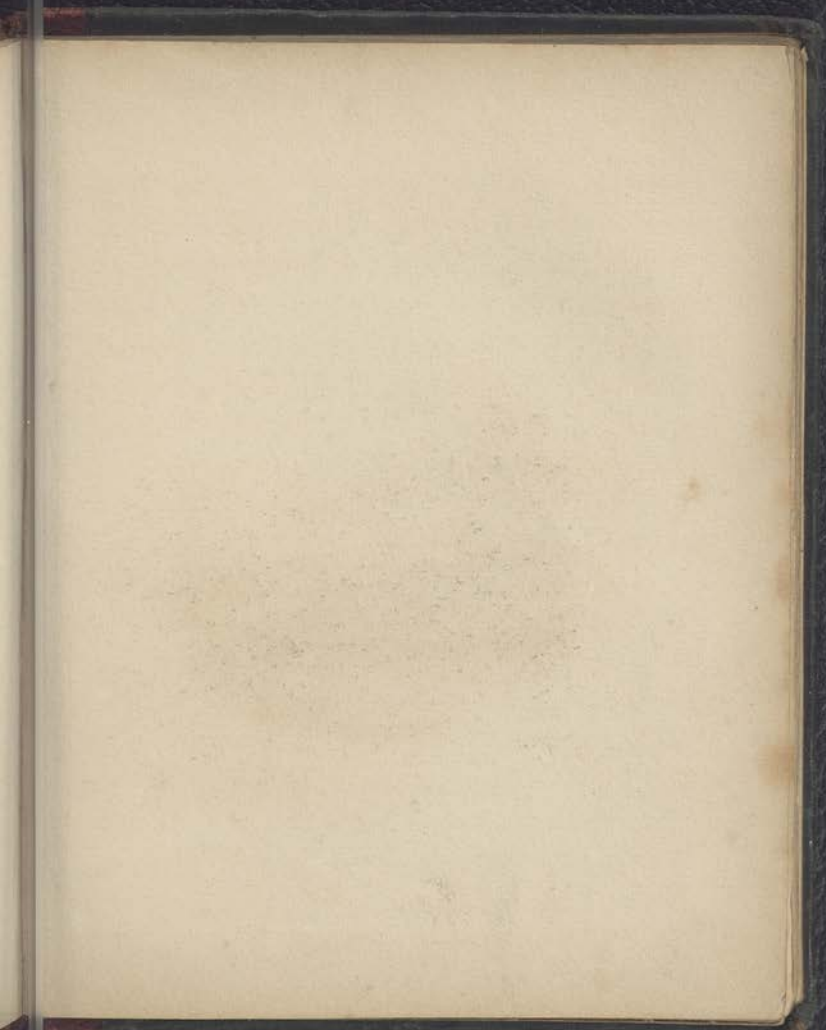
p. 124.

*Venetian Gondola.*

*Pub. Aug. 1839, by J. Harris, St. Pauls Church, York.*









p.123

*Reverence of the Doge of Venice*

*Publ Aug 1830. by J. Harris, St Pauls Church A.T.*



enough for oars; but they stand, one at each end, with a long paddle, and look towards the part they are going to, contrary to our watermen, who have their faces the contrary way. They move with great rapidity, avoiding each other, or turning with wonderful skill. Most of the Italians are musical, and the gondoliers accompany the strokes of their paddles with appropriate songs; which, on a fine moonlight night, as the vessels skim through the long canals, and echoing from the tall buildings, has an effect soft, sweet, and soothing, always much admired by strangers.

“I may give you an account, now, of a vessel rather famous, called the *Bucentaur*; it is that in which the Doge of Venice goes, in great pomp, with all the senators, on Ascension Day, to wed the Adriatic Sea; this he does by sailing out of the city, surrounded

with splendid gondolas, and when he comes fairly into the open sea, he casts a gold ring into it, saying, ‘We marry thee, O Sea, in token of that true and perpetual dominion, which the Republic has over thee!’

“Now, though this practice does not go into remote antiquity, yet the origin of it is of considerable date. In the year 1177, when the Emperor Barbarossa went to humble himself before the Pope, who had taken refuge in Venice, the Pope, in testimony of the kindness he had there received, gave to the Doge a ring, and with it a right for the Venetians to call the Adriatic Sea their own. He bade the Doge cast it into the sea, to wed it, as a man marries a wife; and he enjoined the citizens, by renewing this ceremony every year, to claim a dominion which they had won by their valour; for they had, with a small squadron,

defeated a large fleet of the Emperor's, and taken his son prisoner; and it was to regain his son, that the Emperor submitted himself to the Pope."

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## CHAPTER VI.

### PARTS OF A SHIP.

It happened well for the gratification of the boys' eager curiosity, that a convenient opportunity offered for an actual visit on board a man of war, which had just come into port, from a foreign station. Mr. N. was surprised and delighted, while walking on the pier one evening, to meet an old friend, whom he had not seen for several years. Their recognition was mutual and instantaneous; and as the re-



sult of the first eager inquiries, he found that his friend was chaplain to the Royal Lion, which had just come in. The occasion of their visit to the sea coast, and the nature of the boys' present inquiries, were quickly discerned. The chaplain, with great politeness, offered to take them on board, and describe, and explain, and exhibit to their hearts' content. This intimation was received with great satisfaction; after a while, the father, perceiving Richard to look a little grave, surveyed him with so much earnestness in his countenance, that Richard, catching his eye, perceived he had best explain; he therefore softly whispered to his father, "Is there any danger of our going to the West Indies?"

The chaplain seemed surprised at the question; but, on the father repeating the substance of the story just told, the chaplain laughed

good-naturedly at his apprehensions, and assured them all, that no such accident could happen, as the captain had set off for London that morning, and was not expected back for a fortnight.

It was a beautiful morning; the tide rolled in with animation enough to excite great interest in watching its advancing, retreating, and again advancing waves. The sea was green,—yes, green!—but with a thousand varying dyes, of blueish, purplish, greyish, blackish streaks, spots, and broad sweeps; according as the fleecy clouds scudded before the wind, now with their shadows darkening, again with their reflected brilliancy brightening the liquid deep. The waves pursued each other, as in frolicksome gambols; while the white foam dashed, sparkled, and sunk, tipping the translucent waves with filigree work of silver. The

sea-gulls screaming and flitting across the dark billows, or hovering in the blue sky, enlivened the scene. Here and there, a distant vessel made an object of interest, or a near boat, glistening with its white sail, was seen skimming along. The fishing smacks had been out all night, and were returning, with their patched boom and jib-sails, bent, as if stiff and solid ; or now and then flickering, as the breeze seemed to die away.

The reflection of the sun in the water was oppressively brilliant ; there was no looking that way : in other respects the whole scene was enlivening by its varied beauty, and exalting from its enlarged grandeur. The parties were all in such high spirits, they scarcely perceived their own motion.

“ The appearance of a first-rate man of war is very graceful, as she comes in, with her sails



gently filled with the fresh breeze, gliding obliquely by us. But in order to form an accurate and distinct idea of her several parts, we had better take a view of her whole length, as placed exactly before us. Her grace and beauty are not thus shewn to the best advantage; but it will enable us to discern her general make and shape much better."

When the party, therefore, came within convenient distance, the boat which conveyed them was ordered to row gently round the vessel. Indeed, they lay upon their oars, several times, as one part, and another, was pointed out to their notice.

They were desired to remark the several parts of the ship, in regular order; as the hull, the masts, the sails, and the ropes.

"And the flags too," said Charles; "how pretty they look!"

They were struck with the vast size of the ship, so very different was it from any thing they had ever seen. Almost a hundred and ninety feet long, and above fifty wide, and standing out of the water to a great height.

The three rows of port-holes were pointed out to them. Indeed, Richard spied the guns presently, for some of the ports were open. His wish that she would fire, was rather abated, when he found himself opposite the gun, and so very near it.

“One would think,” said William, “that if two such ships as these were to fire at one another only for ten minutes, they must tear each other to pieces, and both sink.”

They perceived three rows of guns, and concluded they marked out the three decks of the ship; three-deckers being a term they had met with in the newspapers.

But not far from the stern there seemed to be a height above the upper deck. They were informed that was the *quarter-deck*, where the officers have their station, and from whence the Admiral gives his orders, during an engagement.

There was also a smaller deck in front, raised above the common deck; this is called the *fore-castle*. This has also a sort of fortification, breast high, both in front, and behind.

The cabin windows they saw distinctly at the stern. These were richly painted, and appeared one over the other, in several stories.

The golden lion at the head, too, looked bold and fierce, as the British lion always should.

"And the British sailors too," said Richard. "How I should like to give the enemies of England a good drubbing!"

They were glad to perceive the ship's ladder,



fastened on the side ; for they had begun to fear they should have to climb up a rope, as they saw some of the sailors do. And it seemed like climbing up the outside of a tall house, to get upon the roof,—a supposition not very pleasant to the feelings of young landsmen.

They rowed round to the stern to gain a better view of the cabins, and were surprised to see the rich carved work, with the painting, and gilding, by which they were, in a very superb style, ornamented. And there too was the ship's name, in large gold letters.

They were pointed to the rudder, just to see where it is placed ; the manner of working it was to be explained inside.

The keel they could see nothing of ; but from the view they had had of some smaller vessels, and boats, when dragged on the beach, they were aware that it should be shaped like

a kind of edge, running the whole length of the ship's bottom, exactly in the middle, so as to divide the width of the ship precisely in two. Richard remembered that he once cut a little way out of the middle, to escape a knot in the wood, which he was shaping for a ship, and that his vessel sailed obliquely in consequence. He soon gave that away.

They rowed at some distance round the head of the ship, to avoid the cable of the anchor, which stretched out from that part to a considerable length.

They soon learned to distinguish the masts. The *main-mast*, they found, was the name of the largest, and principal one; and "where there are three, this is always in the middle; though not exactly in the centre of the ship's length, but rather behind it."

"Then the *fore-mast* speaks for itself, as

standing in the front. And the name of the hinder one, is the *mizen-mast*."

"And what is that long pole, which sticks out in front?"

"That is the bowsprit, which, from its prominent situation, has been compared to the nose upon a face. Hence, if a sailor happens to run his nose against any thing, so as to hurt it, he says, he has damaged his bowsprit."

"What very tall trees they must have for those masts," said Charles; "I wonder where they find them."

"Those masts are not all in one piece, my little man; but each consists of three parts. Look at the main-mast; don't you see that it seems to be divided by a sort of platform, which is called the *round-top*? There it is, as it were, jointed; the next, which is called the *main-top-mast*, stands a little for-



ward. This rises till it comes to another joint; from which springs the *main-top-gallant-mast*, which is the highest of all. The other masts, in so large a vessel, are in three parts also; but sometimes these, especially the mizen-mast, have only two. The bowsprit has two pieces also."

"And what do they call the little mast behind, which has that fine flag on it?"

"That is not called a mast, but only a *flag-staff*. There is another at the bowsprit.

"Those large beams, as you may well call them, which are fastened across the masts, are called *yard-arms*. The sails are fastened to them, and are let down from them, just so far as is wanted; they then catch the wind, and the ship is blown along thereby.

"The yards are thickest in the middle, and taper a little towards each end."

“What are the round-tops for? I see some men walking about on them.”

“They are a sort of gallery, like a landing-place in a flight of stairs. In these the men find a rest, in climbing up the shrouds. Here is also a convenient place from which to manage some of the rigging. It forms a place, too, for extending the shrouds of the next, or top-mast. The shrouds begin again here, and form a second ladder, by which the men climb still higher; this is its principal use. But in time of action, *marines*, a sort of sea soldiers, are placed in these tops, and fire to great advantage at the men on the enemy's deck, when the ships come into very close action.”

“Ah, Papa,” said William, “I remember now, it was by a shot from the round-top of the French ship, that Lord Nelson was

killed in the battle of Trafalgar. The man who did it being observed, three or four pieces were aimed at him at once; he fell instantly."

"You may also see a great lantern projecting from the top, in which lights are put up for signals in the night-time."

"Some men are climbing up those great ropes. What, are they ladders?"

"Those strong ropes, of which you see several, fastened at bottom to the outer side of the ship, and reaching to the round-top, where they all unite, are called the *shrouds*. Smaller ropes are tied, very firmly, across these, from the bottom to the top, by which means they become a set of rope-ladders. These shrouds are principally intended to tie the mast fast, that the wind, when it fills the sails, may not tear the



mast down, or snap it short. They all therefore, from the top of the mast, tend backwards.

“ They are fastened by huge blocks, and iron chains, very strongly, to the main timbers of the ship, some little way down its sides. These blocks and chains are called the *channels*, though more properly *chain-wales*.

“ You see, too, some pretty large ropes, passing from the top of one mast to the bottom of the mast next before it. As, from the top of the main-mast, to the bottom of the fore-mast. Again, from the top of the main-top-mast, to the bottom of the fore-top-mast, so all through the rigging. These are the *stays*. They are named from the mast they come from, as the *main-stay*, which comes from the top of the main-mast.”

The sails were mostly now furled, close to

their yard-arms: but as the young folks returned, a vessel came out of the harbour with all her sails set, for the breeze was very gentle. She continued in sight long enough for the names of them to be run over. They found, that the sails take their names from the masts against which they hang; as, the *main-sail*, the *main-top-sail*, the *main-top-gallant-sail*, &c. and that the lower sails are called the *courses*.

What surprised them most were the *stay-sails*; each of a long triangular form, sliding upon, and hanging to, the several stays of the ship, and taking their names accordingly. "A ship, with all her sails set, coming towards one, seems a complete surface of canvass. You can scarcely see a rope, or a mast; it is all sails."

Their ascent into the ship was more easy

than they had expected, by the help of the ladders, and their going in at the entrance port. The chaplain introduced them to such of the officers as remained in the vessel, and they very politely took them into their cabins, where they regaled them with a glass of Madeira, to drink success to the Royal Lion.

The state apartments were more splendid than they had supposed; some of them were of considerable size, though most of the cabins were very small. The officers must accustom themselves to make shift and be content with narrower accommodations than might fairly be wished. To learn to put up with small conveniences, or real inconveniences, is a good lesson for the young; seamen may well enjoy themselves when they come ashore.



When they had got on board, they could examine the sails more minutely; they then perceived, that a sail consists of several lengths of strong hempen cloth, called *canvass*; these are stitched together in a very firm manner, by their edges being doubled one over the other, and each edge sewed down. The outer edge of every sail is strengthened, by having a strong rope sewed into it called the *bolt rope*.

"Nothing can break this, I think," said William; "how very strong it is!"

"Indeed you are mistaken, Sir," said a young midshipman; "sometimes, in a strong gale, if we do not furl them instantly, the wind comes so suddenly, and with so much violence, as to split such a strong sail as this all to ribbons, as we say, in less time than I have been speaking to you about it."

Sails are generally wider at the bottom than at the top; their real size is very considerable; our conception of them is not sufficiently large, unless we are accustomed to come to a close examination. The main-sail of a man-of-war spreads much wider than the width of the ship itself.

The upper part of a sail is called the *head*; the lower part, the *foot*; and the sides are called *leeches*.

They were told, it takes thirteen thousand yards of sail-cloth to rig out a large vessel.

They were struck with surprise at the great size of the masts, the main-mast especially. They understood that it was thirty inches in diameter, and thirty yards high; this being the regular proportion; though only sixty feet in height are above the deck, one-third of it being below, to give it strength. It

was not all made of one tree, but of several trees united together very nicely, and hooped from top to bottom, at different places, with very large iron rings. The cost of a main-mast to a seventy-four is about five hundred pounds.

“ It is not easy to give a distinct account of all the internal parts of a large ship, nor should we be much the wiser if it were done with the greatest accuracy ; there are too many things to be remembered. Nothing but actually becoming sailors, or at least going to sea for a voyage, could imprint the meaning of the several terms upon your mind, so as to understand them, and recollect their several applications and uses.

“ A general idea, as it is more easily remembered, is of more real value to us. This we may obtain, by noticing a few particulars in



the print, which represents the section of a man of war."

"Section, Papa," said Charles; "what is that?"

"A section represents an object as if it were cut through, and you thus were enabled to see the inside. If you, Charles, were to cut your apple through the middle, you would then have a section of it, and would see the five little chambers, each with a pip in the middle, so neat and pretty! This, if you cut your apple across, would be called a *horizontal section*; if you were to cut it straight down, as it stands on the table, it would be a *vertical section*; but that would not exhibit the inside of an apple to advantage; you might see there were little chambers for the pips, but you could not tell how many. On the contrary, a vertical section, through the whole length of a ship,



*Section of a first Rate.*

*Engr. Aug<sup>d</sup> 1850 by J. Harris. St. Pauls Church Yard.*





will display its construction most conveniently for our present purpose.

“ You may first observe the three floors, or *decks*, each described by a white line, running the whole length of the vessel. Observe, also, the square *port-holes*, through which the mouths of the guns are protruded, to fire at the enemy; there is a row of these to each deck. These are named the *lower-gun deck*, the *middle-gun deck*, and the *upper-gun deck*. All below these decks, is called *the hold*; this is separated into regular divisions, as the ship's stores are kept there; and the upper part of this has also a separation, called the *orlop*.

“ Near the stern is a short deck, raised above the others; this is called the *quarter-deck*, as we have already observed.

“ At the stern, too, you see several small chambers; these are the cabins.

“ The three upright white spaces represent the three masts: the main-mast is almost in the middle; the one next the head is the foremast, and that next the stern is the mizenmast. From the foremast, slanting upwards, the bowsprit rises.

“ The head has generally some ornamental figure, relating to the ship's name. In this vessel, you see the lion.”

They were taken below deck to see the *tiller*, which is a long beam, by which the rudder is moved. This is put in motion by a wheel; for the simple power of the hand is not sufficient for a ship of any size.

Below deck, too, they saw the *capstan*: this is a sort of horizontal wheel, turned by great exertions of the crew, with levers placed in holes, which, in turning, winds round its

pillar the cable, or any rope by which it is desired to draw up any heavy weight.

“The *windlass* is something similar, but this lies horizontally. It is turned by levers, called *handspikes*, which are put into holes prepared to receive them. As these work vertically, the weight of the men, as well as their strength, helps the operation.”

They were led to the *cat-heads*, which are the ends of very large beams, projecting at the prow of the vessel. These are furnished with pulleys, and are for the purpose of weighing up, or letting down, the anchor.

They saw one of the large anchors, the stock of which was almost twenty feet long. Its weight, they were told, was nearly six thousand pounds.

The sharp barbed points of the anchor,



which run into the ground, and so retain the ship, are called *flukes*.

The wooden beam across the top of the anchor, was twice the length of the stock; it was made of great square beams, fastened by square hoops of iron.

Attached to the *stream-anchor*, which held the ship, was a *cable*, of surprising thickness; yet as that was not used for the *sheet-anchor*, it was not of the largest size; there were some cables coiled up, on the deck, much larger, even to fifteen and twenty inches in diameter. The usual length of a cable is one hundred and twenty fathoms, or seven hundred and twenty feet; that is, almost twice as long, as St. Paul's Church is high.

They admired, too, the *chain-pumps*, by which they raise water out of the hold of

the vessel, when any happens to get in. This is a long chain, working in a large tube, or pipe, with boards, or valves, fastened on it, at regular distances. It is worked so as to pull up these valves one after the other, and thereby drag the water with it, in much greater quantity than could be done by any other means.

What is called the *running-rigging*, or the ropes and lines, by which the sails were managed, were in such numbers, and had such a variety of odd names, that they came away quite puzzled, and unable to distinguish or describe any of them, except a few; thus, the *clew-lines* are those fastened to the lower corners, or clews, of the sails, by which they are regulated: the *halyards* are those ropes with which a sail is raised up, or lowered down. The *bow-lines* are fastened to the edges, or

leeches, of the sails, and serve to make them bow out more or less, to catch the wind better, or not hold it too much.

“*Reefing* the sails, is tying them up, with a number of small cords, so as to shorten them, when the wind is too strong, and would have too much power if the whole of the sail were exposed to it.

“*Furling* the sails, is tying them up close to the yard-arms.”

Charles was impatient to get at the flag, or, as the seamen call it, *the colours*: his curiosity was in due time gratified.

They were first pointed to the long narrow streamers, hanging from the very tops of the masts: these are called *pendants*. They are divided in two towards the end, each part tapering to a point. These are chiefly for ornament, but sometimes they denote rank;



as the pendant of a commodore, who commands a squadron on some distinct service, is red, and broader than usual.

“The flags of the navy are various, and express various circumstances, especially rank.

“The *royal standard* of Great Britain is peculiar in its figures and bearings; and is never hoisted except when the King or Queen is on board. The place for this is the main-top-mast-head.

“The next in importance contains an anchor on a red ground, to denote the presence of the Lord High Admiral of the realm, or the Lords Commissioners of the Admiralty.

“The third is the *union* flag; in which St. George's cross, one part of which is perpendicular, is joined with St. Andrew's cross, both parts of which stand obliquely. The Admiral of the fleet hoists this flag.

There are three ranks of admirals, known by the colour of their flags,—red, white, and blue; these are hoisted at the mainmast. The vice-admirals have three ranks too,—red, white, and blue; these hoist their flags on the foremast. The rear-admirals, having the same distinctions of colours, display theirs on the mizen mast.

“The *union jack* is that small flag which is attached to the bowsprit; the larger union flag at the stern is called the *ensign*.

“To lower the flag, or *strike* it, as it is termed, in the time of an engagement, is understood to be a sign of yielding.

“When a ship which has submitted is taken possession of, and led in triumph, its colours are tied to the shrouds, with the ends hanging down to the water; and the vessel itself is towed into port, the hind part foremost.

“ To hang out a *white flag*, is to submit, or ask quarter, before any engagement begins.

“ The *vane* is a sort of flag, but very small, and mounted on a wooden frame; its use is to show which way the wind blows. All sorts of ships have one.

“ Flags are also distinctive of different nations. Thus the French flag is blue, with a white cross, and the arms of France. The Dutch is composed of three horizontal stripes, red, white, and blue.”

They found the terms *starboard* and *larboard* in very frequent use, and were told they only meant the right hand, or left hand side, of the vessel, to a person standing at the stern, and looking towards the head: *starboard* meaning the right side, and, of course, *larboard* the left. So *fore* and *aft* relate, the first to the front, or fore part of the ship, and the



last to the hinder or after part. The word *poop*, too, denominates the whole hinder part, or stern, of the vessel. When a person is between the mainmast and the head, he is said to be *forward*; and when on the poop, he is *abaft*. The middle of the ship, or the part between the fore and mainmasts, is denominated the *waist*.

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## CHAPTER VII.

### MODERN SHIP-BUILDING.

“MUCH is done, and done excellently, by practical men, who, having from their youth been accustomed to shape this, or that, become expert in the doing of it, and can make all the points in their machinery match to the greatest nicety. But these men are often destitute

of science ; their skill is chiefly *art*, attained by practice, and as long as this answers its end, all is well.

“ If, however, inconveniences are to be obviated, or improvements to be made, then *science* is absolutely necessary. A mere practical man may, by natural sagacity, give a shrewd guess at the cause of failure, in any specific instance, and contrive the means of avoiding it, but still this may be *only* a guess, and it may, or may not, be a good one ; if it suffice for the purpose, he yet can hardly tell why it does so. When science can be brought to bear upon such a difficulty, it is more than possible that the real cause may be discerned, and the remedy infallibly pointed out. Mathematical skill has, therefore, become of essential importance in modern ship-building ; in discovering the best shape for a body moving in water, and liable

to the influence of violent winds and tempestuous waves.

“The French mathematicians have preceded us in such inquiries, and their ships are reputed to be faster sailers than ours.”

“That is quite in character,” said Richard, “as they dearly love to run away! Yet I should like to be able to catch them, too!”

“It is easy to talk, Richard. But I am not aware that the French deserve the character you are giving them. They are a martial people.

“Whether you will ever become a sailor, or even take a voyage, I do not know; but my principle in preparing you for life is, to give you a general knowledge of many things, not usually considered as belonging to education. Herein I may be laying a foundation for your success in some line of honourable exertion,



of which, at present, neither you nor myself have any suspicion.

“So we will pay a visit to the dockyard; I have spoken to a friend, by whose recommendation, and perhaps his personal assistance, we shall be allowed, and enabled, to see the various processes. We shall then, each of us, gather knowledge according to our previous skill, and find present excitement to attention.”

“O, I am sure I shall pay attention, Papa,” said they all. This was to be a new scene, and it was quite enough to rouse their expectations, and make them long for the day.

The father previously shewed them the manner of constructing the drawings, from which the ship was to be built; as these are easily found in proper treatises.

“The principle in constructing such a draw-

ing, seems to be, to suppose yourself looking from the middle of the ship, towards the end, and marking the sweep of every *rib*, for so they call the timbers which rise from the bottom towards the top. The lines of these ribs swell out more curving, at the place of the ship's greatest breadth, and become something nearer to straight, as they approach the stern.

“ It is common, too, to draw one side as if you were looking towards the head of the ship, and the other as if looking towards the stern; by this means, you have the whole of the vessel in one drawing.

“ Upon the nice construction of these lines, depends the vessel's capacity for carrying much load, and her velocity in the water; and the lines are varied as the one, or the other, is most desired.

“ It seems that the preparation of these tim-

bers, takes place in a large room, called the *mould loft*; there every rib is marked on the floor, according to the sweep in the drawing, and the size it is actually to be; the timbers are then cut to these lines, so as to fit them to the greatest nicety.

“Heart of oak, the most valuable English oak, is the wood most desirable for ship building; nothing lasts so well, and its toughness is such, that a ball passes through it in a clear round hole. Some timbers, as deal for instance, will splinter, and do much harm to the men, beyond what the ball itself would inflict.”

The friend was punctual to the time appointed, and he made their progress through the dockyard much more pleasant and instructive. There were many things to be seen; and curiosity repeatedly asked, “What is this?”



and "What is that?" But as such desultory inquiries are not the direct way to knowledge, they were taken immediately to the skeleton of a man of war, then building; that they might see the first foundation of the stupendous structure.

The size of it seemed overwhelming; it stood a great height above the ground, and covered a large space by its length and width.

They were directed to examine the *keel*, as the very first outline of the whole. Great blocks of timber had been previously laid on the ground, with considerable care, about six feet distant from each other, but in an exact line every way, so that their upper surfaces were all in the same plane; upon these blocks were laid the timbers which should form the keel: these blocks are laid crosswise, as to the keel, thus the keel is kept off the damp earth.



p. 162

*Skeleton of a Ship?*

Printed Aug. 1830 by J. Harris, St. Pauls Church Yard.

And indeed, as such large ships are not built  
years in building, in which case the building  
it is frequent practice to put down a ship or two  
power, but to which all the lights are turned  
out, and when the ship is built, the lights are  
all on again, and in a short time.

It is not a question of the building of the ship,  
of the fact, as to whether the plan is  
and whether it is not the plan, as to whether  
the plan is not the plan, as to whether  
from the fact of the building of the ship,  
ship, and the fact of the building of the ship,  
workmen are building, and all the lights  
in the ship, and all the lights in the  
middle of every part of the ship.

Long narrow timber, called "timber," and  
thin nailed lengths of the ship, so as to  
catch all the light, and hold them in their places.  
Finally, there are not nailed lengths, but



And indeed, as such large ships are often three years in building, in which time they might rot, it is judged proper to put down a false, or temporary keel, to which all the timbers are framed, and when the ship is built, this is taken out and another put in new and sound.

Rabbets, or rebates, are formed on each side of this keel, to receive the planks. The stern and principal posts are then fixed, as are the transoms, or cross beams. A line is strained from end to end, through the middle of the ship, exactly over the keel, by which the workmen are enabled to set all the framed timbers exactly true, keeping this line in the middle of every pair of transoms.

Long narrow timbers, called *ribbands*, are then nailed lengthwise of the ship, so as to catch all the ribs, and hold them in their places firmly. These are not nailed perfectly hori-

zontal, but having a sweep, curving outwards according to the width of the ship's shape, and also curving downwards, which gives the vessel a lighter and more elegant air.

They may then begin to nail on the planks. These go according as the ribbands lead them, between which they come. The beams are next laid across the vessel, upon which are laid the planks intended to form the decks.

The rudder is fixed and hung upon its stout irons: but the masts are not put in till afterwards. A peculiar apparatus is necessary for this business, by which pulleys are raised to a height sufficient to allow the workpeople to lift the whole mast, perpendicularly over its place, and drop it into the hole designed for it: there it rests upon a solid block of timber, called the *step*, and is firmly

supported, bolted, and wedged, at the bottom of the hold.

There is now a building in Blackwall, in Perry's docks, appropriated to this particular business. It is taller than any mast, and has tackle for hoisting the largest; it projects over, so as to perform the operation with great precision and expedition.

The launch of a ship takes place as soon as her hull is completed, before even her masts are put in, that they may have room on the stocks, or in the dock, to begin another. When she is once afloat too, they can have access to her more easily, to fit up the inside, where a great deal of work remains to be done.

It takes no little time and expense to get in the masts, put up the shrouds, place the upper masts, and fix the sails, with all the running rigging by which the whole is to be managed.



The fitting up of the various rooms for the officers and men, from the cooking-rooms to the grand cabins, is a work of great labour and importance.

When the ship itself is completely ready, the carrying aboard her stores follows: her warlike stores, as guns, powder, ball, &c. Her edible stores; as biscuit, flour, &c. live stock, and salted beef, pork, &c. with water, beer, wines, rum, and so on. Then the bedding for the officers, and the hammocks for the men; with the furniture of chairs and tables; and the nautical instruments, the compass, with its binacle, or bittacle, and the thousand other little accommodations, which none but those engaged in the furnishing of them can reckon up, must all be provided.

While they were surveying the mere skeleton of the ship on the stocks, a gentleman in

uniform came up, who, they were informed, was the captain of it. The boys were surprised to find that the ship should have a captain, although it would be two years before it could be ready for sea. They learned afterwards, that as soon as the keel is laid down, a captain is appointed, who enters into pay immediately. And perhaps, when the ship is ready for sea, this same person will be removed from this vessel, and be appointed to some other just begun.

The vessel, whose beginning process they had been examining, being so large, was not built upon raised stocks, but in a deep excavation, called a dock; which was kept dry by flood-gates. When she is to be launched, they open these gates, and let in the high tide, and she will float. She can then be towed out without any hazard.

They were in high luck in another instance; just as they were departing, they received an urgent invitation for the next day, to see a fine frigate launched. The launching of a ship, is the conveying it off the stocks on which it was built, into the water. This is an important business, very difficult in itself, and full of anxiety to all concerned. Much of the labour, and the immense expense of building the vessel, may be lost in a moment, by some untoward accident, if it be carelessly performed.

An occasion so interesting always causes the assemblage of a large company. In the dock-yard were erected platforms for spectators, especially such as were invited by the several officers belonging to the yard. A great concourse was present, who could claim no farther privilege than being admitted in-



side the gates, and suffered to stand within a certain distance of the grand operation.

The water was an animated scene, as boats of all shapes and sizes, small shallops and cutters, were busily passing, or gathering together, on each side of the course which it was imagined the vessel would take. One ship of war was in the offing, ready to do honour to the new visitor. Many small guns at different parts of the dock, and at the wharfs adjacent, were in preparation to announce the moment.

This being a joyous time, the vessel was decorated with colours and streamers; temporary masts being erected to bear them. A great number of persons were on board, with a band of music, to increase the hilarity of the scene. The boys were in high expectation; and, being favoured, they were led round to view the apparatus about the ship itself. They were

shewn a sort of cradle, as it is fitly called, which was formed underneath the ship, and adhered to it; this was to guard the vessel itself from injury: resting on the ground was also a frame work, with great props to support it, consisting of timbers laid lengthwise, on which the cradle might safely slide. This is raised on both sides of her, and this platform reaches all the way from the ship to the water, and indeed some way into the water, sloping down into it gently.

The shipwrights were very busy in smearing both the cradle and the platform with grease and soft soap, that the utmost facility might be given to its progress, and that not even the smallest obstruction of roughness might impede it, when it should slide down *the ways*, as this platform is called.

Now came the anxious moment; all the men

were standing ready, with their huge hammers, to knock away the blocks and wedges from under the keel.

At a signal given,—bounce!—they were all away presently; this caused the vessel to bear with its whole weight upon the platform, which being an inclined plane, and rendered very slippery, it descended with astonishing rapidity into the water. There it majestically floated, dashing the white waves with its broad bosom, and taking possession, as it were, triumphantly, of the green ocean.

The roar of artillery, and the shouts of the multitude, joined to welcome the gallant prow, as it cut its way safely, and rose again, buoyant over the yielding wave.

And here we shall leave them, hallooing and huzzaing! and drinking prosperity to the  
BRITISH DREADNOUGHT.



## STEAM-BOATS.

ON another occasion, the father of our young friends introduced a subject, without which, an account of shipping must now be incomplete. One of the most important applications of modern science is that of steam power to navigation.

“Charles,” said he, “how many ways are there of moving a ship on the water?”

The lad mentioned *sails* and *oars* as the only means he could then call to mind.

“And *ropes*,” said Richard. “We have seen men and horses pulling vessels along by the side of canals.”

“I should say,” added Mr. N. “that the means are *natural or artificial*. Winds and waves, tides and currents, will give motion to



p. 226 & 272.

*Brig & Steam Vessel*

*Engr. Aug 1840 by J. Harris, St Pauls Church Yard.*





any floating body. Where it is needful, as it always is, either to direct that motion, or to apply other means and powers, the head and hand of man must be exerted. We have noticed the use of sails, rudders, and oars, also the method of towing on canals, which Richard mentioned just now; and here, for ages, nay, till within a few years, the invention of man was quite exhausted. If any one had said to him, ‘Cannot you find out some method more powerful than oars, than currents, than the winds themselves:—a power by which you can proceed in direct opposition to the course of the elements?’ he would have said, ‘It is impossible; because I cannot work miracles.’ What think you, my boys?”

“I suppose, he would not have thought of a steam-engine,” said Richard. “And if he

had," observed William, "he might not have known how such a machine could answer the purpose."

"Do *we* know as much as that?" inquired Mr. N.

It was evident, from the various and mistaken replies of the boys, that they were as yet essentially uninformed upon the subject.

"Let us see what can be done to inform us respecting this application of machinery," said their father. "We are continually hearing and talking of steam-engines and steam-boats, and it is inconvenient to be quite at a loss for an obvious answer respecting them. I am not sure," continued he, "that I can explain the structure and motions of a steam-engine so as to be perfectly understood; but I think a little attention on my part and your's will give us knowledge enough for our present

purpose.—Which of you has ever seen a kettle boil ?”

The boys smiled an answer to the question.

“You have then, I dare say, observed too, that the steam makes its escape with some eagerness from under the lid ; and the fact is, that if that lid and the spout were absolutely close, the steam would very soon burst the kettle if it were an inch thick in substance.”

“Then it is as strong as gunpowder,” said William.

“The power of each exceeds our power of resisting them,” said Mr. N. ; “so we cannot well compare them. Steam, however, is the most *manageable* ; it exerts a continued lasting force, and this renders it so useful for mechanical purposes. If you were to close up by soldering the lid of a kettle partly filled with water, and there were no other aperture than



a tube or pipe proceeding upwards, the steam would issue by that passage in a continued stream when the water was made to boil. If you were to force a well-fitted cork to the bottom of that tube, the vapour would drive it up and expel it with considerable violence; or if, when the cork had reached the extremity of the tube, you could any how introduce a little *cold water* where the steam was acting, it would instantly be *condensed*, that is, it would be reduced from steam to water, so that the vapour which before occupied the tube with an elastic, almost bursting power, would be reduced in bulk to a very few drops; so there would be what is called a *vacuum*: a space destitute, that is, of any solid or fluid matter, even air being excluded."

"But," said Richard, "would not the

steam from the boiling water continue to come?"

"In a steam-engine," said his father, "this is prevented for the instant required. The question was a very proper one. There is a passage made too for the escape of the water condensed. I was going to say, that the instant the steam was thus withdrawn from beneath the cock in the tube, it would be forced down again by the pressure of the external air; but on the admission of fresh steam it would rise as before, and thus you see a motion to and fro, or *reciprocating*, as it is called, would be produced. Now, it is easy to conceive, that a rod might be fastened to that cork or plug, and this rod to another connected with wheel-work, and that so a machine could be kept going as long as you had fire and water to supply the power. All this is accomplish-

ed on a large scale and with a wonderful arrangement of parts in the steam-engine, which performs the work of from five to two hundred horses, according to the purpose required."

"Who invented steam-engines?" inquired Richard.

"The application of steam as a mere mover, by the way of experiment, we read of in very ancient authors, who tell us that Hero of Alexandria, who lived nearly two thousand years ago, continued a revolving motion in a small apparatus, in which the vapour rushing out of a bent pipe, which turned upon a centre, the tube retired continually in a circle, in the same way as those small fire-works of which you know the nature. We hear nothing more of the mechanical use of steam, until about two hundred years ago, when an Italian phi-



losopher, named Broncas, caused the vapour from a copper vessel to issue against the cogs of a wheel, which was thus caused to circulate. Still, you see, there was nothing on the principle of the modern engines. About thirty years after Broncas, the Marquis of Worcester began to speculate and reason upon the subject, and brought the matter nearer still."

Here Mr. N. took down a book from his shelves, from which he directed one of the lads to read the following paragraph. Speaking of steam the Marquis says: "It is an admirable and forcible way to drive up water by fire, not by sucking it upwards, which is best at such a distance; but this way hath no bounds, for I have taken a cannon, whereof the end was burst, and filled it three-quarters full of water, stopping and screwing up the broken end, as also the touch-hole, and making a constant

fire under it: within twenty-four hours it burst, and made a great crack; so that learning a way to make my vessels, that they are superior to the force within them, and the one to fill the other, I have seen the water run like a constant fountain stream, forty feet high; one vessel of water rarified by fire, driveth up forty of cold water!"

"That will do," said Mr. N. "the invention, however, made little effective progress till within these fifty years: Messrs. Boulton and Watt made those great and original improvements, which have always made their fame equal to that of actual first inventors.

"But steam-engines were long employed on various processes in the arts and manufactures, as horse-labourers, before it occurred, that as the strength of cattle was greatly employed for the carriage of bulky commodities, so

might the machines in question. Within a few years, however, vast numbers of steam-engines have been made for *locomotion* by sea and land. Steam-boats or vessels are now made capable of performing distant voyages. The manner of their operation on the water is simple. You have, I believe, all seen the great wheel of a corn-mill at work?"

"O yes," said Richard. "I remember Mr. Branwhite took us all over his mill, and very much delighted we were."

"Well—that great wheel, you know, was turned round by the force or weight of the water acting against the shelves in its circumference. Now, in a steam-vessel the machine is made to turn a similar wheel, though not so large, on each side of the boat. These are called paddle-wheels, and they press against the water with such force and rapidity



as to send the vessel even against the wind with great velocity. This astonishing power, with their fire, smoke, ruffle, and the heaving of the sea occasioned by them, constituted matter of alarm as well as wonder to some of the simple natives at first, on the other side of the Atlantic. I remember reading somewhere, that the appearance of a steam-vessel on the great river Hudson excited the most lively feelings of dismay and terror amongst the people who first beheld it approaching. This boat used dry pine wood for fuel, which always sent forth a column of flame and sparks. Notwithstanding adverse wind and tide, the vessel proceeded rapidly towards the amazed and trembling spectators. When it came so near as that the noise of the machinery and paddle-wheels was heard, the poor people shrunk low from the fearful sight, or pro-

strated themselves on the ground, and besought protection against this marvellous combination of unknown powers which seemed marching on the tides ; dividing winds and waves, and lighting its course by intestine fires !

“ The North America steam-boat was found to navigate that same river Hudson, between New York and Albany, a distance of one hundred and sixty miles, which it performed regularly in twelve hours, or fourteen miles an hour, allowing for hindrances. Its length was one hundred and seventy-eight feet ; breadth, twenty-eight. The wheels twenty-one feet in diameter, worked by two engines of the power of eighty-five horses each. The Americans indeed are making daily increasing use of those vessels for the navigation of their vast rivers and inland lakes. The Europeans concerned in naval matters, especially those of our own

island, are constructing them for purposes of state, commerce, and pleasure, to a great extent. A very few shillings now will convey an individual one hundred miles on the Thames, where steam-boats ply in great numbers incessantly. It shall not be long before I take you a steam voyage, when you will see and know much more about the matter."

This announcement was hailed with lively satisfaction by the youths, who now fully concurred with the warmest advocates of *steam power*!

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### CONCLUDING OBSERVATIONS.

ONE of the lads asked, whilst conversing on naval affairs, what were the largest-sized vessels that had been built?



“Ships of large dimensions have been constructed,” replied his father, “even by ancient nations; but I apprehend we have gone beyond them in modern times, though some of the war galleys of antiquity are represented as being little inferior to the first-rate line-of-battle ships of the present day.

“Perhaps the largest masses of timber that ever navigated the ocean, were those constructed by Mr. Wood, of Port Glasgow, in the Gulf of St. Lawrence. The first of these, the Columbus, was three hundred feet long on the deck, fifty feet broad in the middle, and nearly thirty feet deep in the hold. She was flat-bottomed and wall-sided; that is, her sides were nearly upright. The measured register of the Columbus was about three thousand seven hundred tons, and her actual tonnage or *burthen* was nearly five thousand. She

had four masts. She came to England with a cargo of timber in 1825, and arrived safely in the Thames, but went to pieces on her return, owing to want of skill in the pilot, who was not aware of the management proper for so enormous a mass in the narrow seas."

"Perhaps," said Richard, "my little ship would have floated better!"

"So would a quart bottle well corked, I doubt not," replied Mr. N.

"A quart glass bottle, Sir?"

"O yes. It is very common in voyages, especially if the circumstances or situation of the vessel are peculiar, to write the particulars on a slip of paper, which being thrust into a strong bottle, and the mouth of it well secured, will float thousands of miles, and last perhaps for years. Sink it cannot, until broken by some concussion; but there is so much sea-

room in the ocean, that a bottle may perform a pretty long voyage before it is interrupted in its course."

"But what is the use of it?" asked Charles: "who is to find the bottle and read what is written?"

"They do float ashore, or under the notice of navigators sometimes, and thus intelligence has been obtained which otherwise never might have reached human knowledge. Thus the fate of lost vessels has before now been ascertained. I was about to add, when speaking of large ships, that the Baron of Renfrew was a vessel of about the same dimensions as the Columbus; but this also was lost, and it seems now to be pretty well understood that there is a limit far short of the extent of those vessels, beyond which it is neither profitable nor safe to build shipping."



## LIGHT-HOUSES AND BUOYS.

"BUT there are wonderful buildings constructed for the purposes of navigation," said Mr. N. one day, "which are never intended to move at all, and there are vessels too, which move but a few yards: never sail out to sea; never sail into port!"

This two-fold enigma, though its solution occupied the lads some time, is already announced to our readers. So we will not occupy their time with the boys' wide wonders and conjectures.

"The chief dangers of navigation," said their father, "lie near shore. Here the bottom is shallow, rocky, or uncertain; and vessels which have performed a voyage from the East

Indies in safety, have often perished within sight of our coasts. It is necessary therefore to provide some means of avoiding those unseen perils ; such as shall warn the mariner by night as well as day. For this purpose, *buoys* and light-houses are provided, and thus the pilot is enabled to steer clear of the invisible shoal or the shallow, or the rock, which might else wreck his vessel."

"What sort of things are buoys?" said Richard.

"They are formed of a block of wood, or an empty cask well closed, floating on the surface of the water, and fastened by a chain, or cord, to a large stone, piece of a broken cannon, or something of the sort likely to detain them to the spot. Buoys, too, are sometimes fastened so as to float directly over the anchor, that the men may know exactly where

the anchor lies. These floating monitors are made of various forms, according to their intended use."

"Why do they call them *boys*! Papa," said Charles.

"They are not *boys*," said his father, showing him the spelling. "This name is derived from the word *buoyant*, which, you know, is the quality of floating in water.

"LIGHTHOUSES, constructed for the same end, but illuminated so as to show themselves, or rather, their situation, at night, are buildings tower-shaped, erected on some rocky foundation, and formed so as to withstand the fury of the storm, and warn the sailor at his utmost need. That at the North Foreland, I believe, William has seen. The most noted lighthouse we have is that of Eddystone. It stands on the principal projection of some rocks of that



name south-west of Plymouth Sound, and about fourteen miles from land. Here the elements rage with peculiar fury; and several towers built on this spot have fallen before them. The efforts and results of human science, courage, and perseverance, are astonishingly exemplified in the history of these structures. The rock is only dry at low water, so that the workmen often found their labours washed away at the return of the tides. However, Mr. Winstanley completed a lighthouse there in the year 1700, which was destroyed by a storm three years after, and himself perished with it. In 1709, another built by Mr. Pren- dy, and entirely of timber, and which was considered a masterpiece of carpentry, with- stood the waves forty-six years, and then was destroyed by fire, occasioned, none knew how. Four years after, another was built by Mr.

Smeaton, which was also burnt down. The last, in stone, was accomplished by him in 1774; and this now stands, I believe, uninjured. It is nearly eighty feet in height.—I suppose, William, you would consider it a great undertaking to drive a stake down in the middle of a horse-pond: what think you of raising a stone tower as high as the Eddystone, amidst the roar of the ocean in a storm?"

"Perhaps," said William, "when Mr. Smeaton was a boy of my age, he would have thought it impossible."

"I cannot say how that was," said his father: "at any rate, it is well, when we are about to be overcome by petty, or even important difficulties, to call to mind some of these stupendous undertakings, and reflect that what man *has* done, man *can* do."

“But, notwithstanding these lighthouses and buoys,” said William, “ships *are* wrecked, I think.”

“Yes. Those beacons cannot be placed in every situation of danger; and sometimes, the force of wind and waves drives a vessel on the shoal or the rocks, in spite of all the knowledge and exertions of her crew.”

“But, then, is the ship *wrecked*?” asked Charles. “What do they mean by that, Papa?”

“Does not Robinson Crusoe tell you?” inquired Mr. N. “If you mean *why* is a vessel wrecked when run aground, or fixed on a rock, the reason is this: it becomes then a sort of wall, against which the waves dash with all their fury; and as the vessel cannot retire from the shock, its timbers at length give way, and separate one after another, until



the whole structure is dispersed. Sometimes one end of the ship is fixed, whilst the other is partially moved by the rising surges. In this way, too, the parts are strained to and fro, till they come asunder. But it is very commonly the case that a vessel is not fixed, but is hurled against the rocks repeatedly, and in that way dashed to pieces."

"I used to say," said Richard, "that I should like to go to sea, but I begin to think now that I am safest on land."

"It is well," said his father, "to repress useless desires after situations in which Providence does not seem to intend to place us; and at the same time to make up our minds to difficulties and hazards, if our duty *should* call us to encounter them. Much has been done to lessen the perils of a sea life by various cautionary inventions. Amongst these

there is one called '*a Night Life-Buoy*,' the object of which is to save men who may have the misfortune to fall overboard. This often happens without the instant notice of the crew; so that a man may be under water and out of sight, and they may be unable to shorten sail so as to heave to, until they have proceeded a mile from the spot. The buoy is so fitted to the stern or quarter of a ship, that, in the event of an accident, by night, for instance, it can be dropped into the water in a few seconds, when it floats, sending forth a strong rushing light like a rocket, which the waves cannot extinguish: this will sufficiently mark the place towards which the boat is to be dispatched. I have been informed that many lives have been already preserved by this ingenious contrivance, and that it is now much used in the British navy."

"I suppose," said William, "they have no time to use such things during a sea-fight."

"Certainly not," said Mr. N. "That is a time when human life is subject to destruction, which nothing but criminal cowardice can avoid."

"But do not some of the men run below and hide themselves?" inquired Charles.

"They gain little by that, even if they find opportunity to do it," replied his father; "but this trick is not one easily played. When the crew have notice of an engagement, I believe, the hatches are closed,—every man is appointed to his post, and the desertion of it would be certain death. I apprehend that no descriptions or conceptions, of those who have not been present on such an occasion, can at all equal the awful reality. The thunder of the cannon,—the heaving of the vessel,



—the raking of her deck by the shot, make the work of death then going on, far more terrific than the war of the elements when nature employs a tempest to destroy a vessel! Thank God! there has been a long interval of peace, and I trust, it may be preserved, so that commerce, not war, may call forth the navies of Europe. But should it be needful again to take our part in naval conflicts, I doubt not that our enemies will dread, as they have hitherto done, the formidable and invincible qualities of BRITISH HEARTS, AND BRITISH HEARTS OF OAK!"

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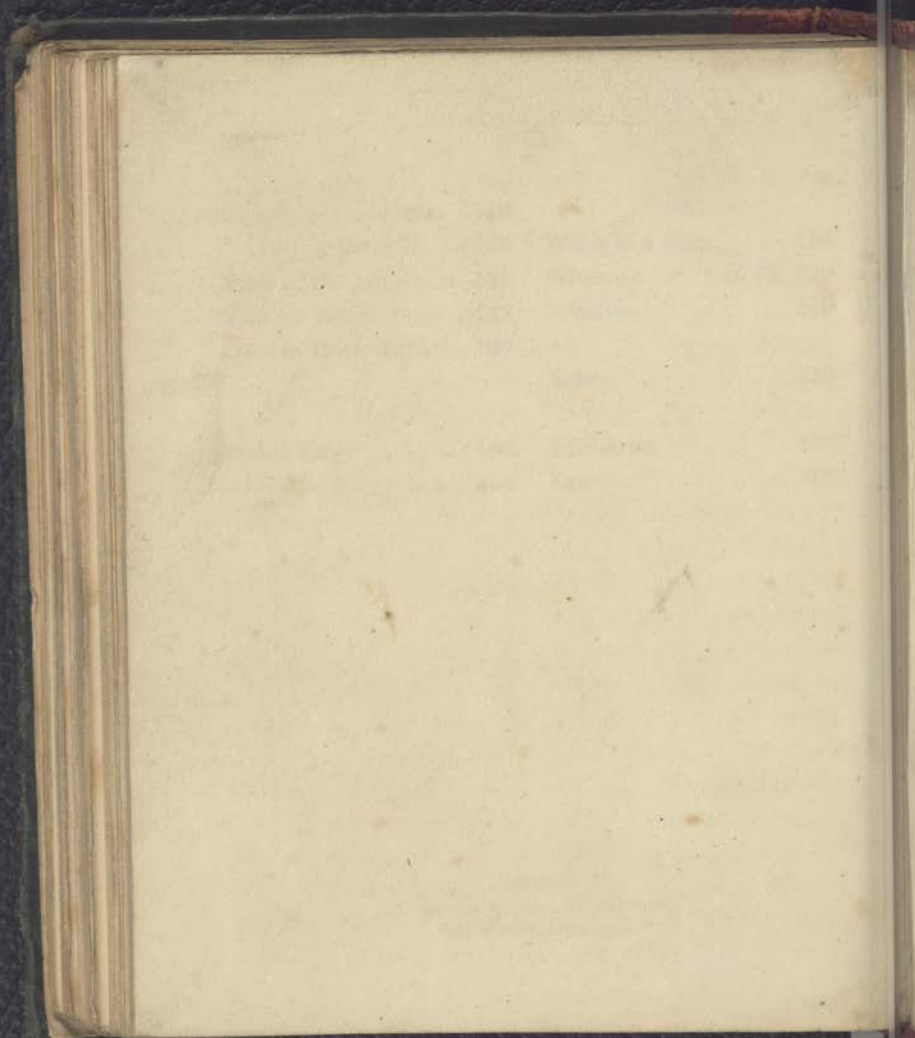
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