

Sea-urchin's Ship or Pinnace.

SEA WINGS.

BY ROBERT C. LESLIE.

UNDER the article "Sail" in my encyclopædia, I am told that "the principal problem connected with the motion of vessels [under sail] on the water has for its object the determination of the relation between the velocities of the wind and of the vessel, and its solution consists in finding algebraic expressions for those pressures, and making them equal to one another," etc. This almost makes me giddy, and I am glad to find in the next sentence that "many practical difficulties present themselves in investigating that relation." When I cannot find anything worth knowing about a word in my encyclopædia, I turn to an old Johnson's Dictionary, being sure of finding something there, however little that something may be, which I can understand. One of the meanings given there to the word sail is "wing," Spenser being referred to as the authority.

I fancy the first Penacchio or wing of the kind must have been like this, found

much less perfect sailing machine, it is more interesting from the way the yard is supported by the mast raking forward, like the "trinchetto" or foremast of an Italian felucca.

The fine race of sea-loving men of these islands are, I believe, all of Malay origin, and as the lateen-sail is the sail of the Indian Ocean, it would seem to have travelled east into the Pacific through the Malay islanders.



Chinese Junk.

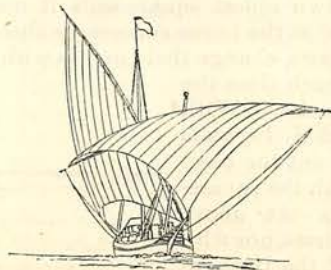
Among the more northern Japanese and Chinese longer masts and shorter lug-sails are found. Is there any connection between lorcha and lugger?



Flying-proa of the Friendly Islands.

among the natives of the Friendly Islands by the Dutchman Tasman, when, unluckily for them, he first sailed their way in 1643.

This is a far more homely form of proa than that of the Ladrone Islands, so well described by Lord Anson. But though a



Lateen-sail with Sheet forward.

With her ribbed dragon-wing-like sails, heavy rudder, or rather exaggerated form of steering oar, held in place and controlled by many "rudder bands," her strange windlass projecting outside her bows (cathead and windlass in one), the junk of China is perhaps the oldest link left between the over-sea ship of the past and present. But it is a mistake to look upon Chinese vessels as all dull sailers or poor sea-boats. Those who have

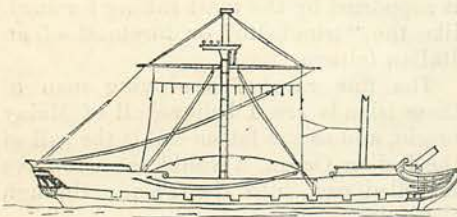


Jib-tack as Sheet.
Jib set as Spinnaker or Studding-sail.

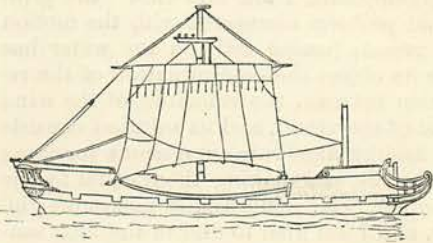
sheet of a lateen-foresail may be called the tack when brought forward in running before the wind, or when sometimes a jib is hoisted by a cutter as a studding-sail.

The two sketches of a main-course with some leading ropes show how the change from sheet to tack is practically carried out, each corner or clew being divided among three blocks—the sheet, tack, and clewline blocks.

Compared to the courses,



Windward Side.



Lee Side.

MAINSAIL AND SOME OF THE ROPES.

spent years cruising among them, in ships built with especial view to work in Chinese waters, know better. There are piratical junks and fishing-boats which in a strong breeze can keep their distance from some of her present Majesty's gun-boats.

Roughly speaking, sails are all either squares or triangles. The oldest form of square-sails are those called courses or running-sails. In old times there were but two of these, a main and fore course. Of these two oldest square-sails it may be noted that the lower corners, or sheet and tack clews, change their names with their place each time the ship tacks. With four-sided lug-sails this is not the case, nor with the square-topsails set above the courses, nor with any of the triangular sails, unless the

topsails are of recent date, and even when quite square, both clews, whether used to windward or leeward, remain topsail-sheets. It appears, therefore, that the old mainsail must have been first set and used as a lug-sail. This sail varies in shape

from nearly square to one which when close reefed is almost a lateen-sail. Some lugs in fact are called by English sailors "macaroni lugs." Perhaps, however, the name was merely given to this rig in contempt, as easier

to handle than other lug-sails, and so suited to a macaroni or blockhead.

Besides the tacks and sheets, the windward view of a mainsail shows the clew-

lines, and the lee view the buntlines and leech or side lines, by the combined action of which the sail is hauled up to the yard, and the wind "spilled," as sailors

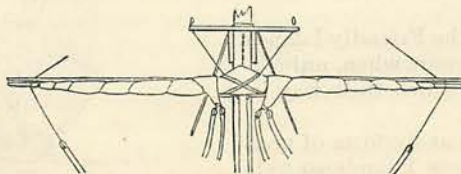


Full Sail.



Close Reefed.

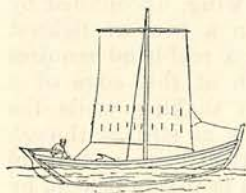
SCOTCH SKIFF (Type of Macaroni Lug).



Mainsail hauled up to the Yard.

say, or squeezed out of it ready for furling. A course is always hauled or clewed up, never lowered; and when furled the position of the buntlines and clewlines upon opposite sides gives the form of the sail best known to landsmen, with the triangular ends of the clews and their blocks pendent, with the ropes of sheet and tack on either side the great mass or bunt of the sail, as shown on page 456.

Other ropes used for controlling a square-sail and its yard are the braces, lifts, and bowlines. These last are for tightening the windward edge, or weather leech, when the sail is used near the wind; hence the term "on a bowline" for a ship close hauled. The bowline no doubt was originally made fast to the bow or stem, as



Norwegian Skiff.

in this Norwegian skiff. The knot called a bowline, though it may have been used to connect the span or bridle on the edge of the sail with the bowline, probably took its

name from being the knot used for the loop at the loose or sliding end of a bowstring.

All these names and details about the gear of a mainsail are pretty much with us to-day as they were in the time of Queen Elizabeth; how much older, it is hard to say. But in one thing the modern mainsail, bent to its iron yard, differs from that of a hundred years ago, which is that the yard is permanently slung by a chain and pivots upon an iron gooseneck in front of the mast, always remaining aloft, like the yards of some of the larger lateen-rigged vessels (in fact, I have heard that these lateeners have seldom men enough when at sea to hoist or lower their great yards). There is no doubt from entries in the logs of old ships a hundred years ago that it was quite common then to "lower ye main-yard on deck," and the old sailors had a vast assemblage of slings, jeers, etc., for this purpose, besides rolling tackles and trusses to confine the yard to the mast. Owing to the ease with which these if shot away could be repaired at sea, this old way of slinging lower yards was retained in the navy long after it was out of date in the merchant service.

As I said before, the sail of the North-

ern races was and is a square-sail, either slung simply like a ship's mainsail by the middle, or a very square-headed lug, like those used by the

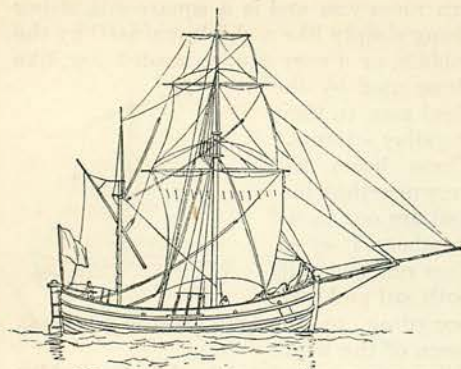
Deal men in their "galley - punts." These boats sail very near the wind, and are out in all weathers. They seldom reef, but shift both sail and mast according to the force of the wind.



Deal Galley, or Galley-punt.

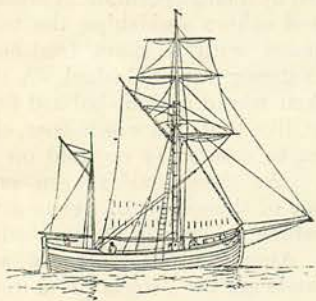
Like many powerful sails, this shape of lug requires great skill and care in handling (I had nearly said a knowledge of algebra), for it has to be lowered and hoisted each tack. This is done so rapidly that the sail is down and up again as the boat shoots up in the wind, and before she has lost her way. They are long, deep boats, and carry much ballast, and, like their namesakes the old galleys, row as well as sail fast. They are now mostly employed for tending vessels on their way through the Downs, taking off or landing pilots. The boatmen will charge with one of them a screw-steamer passing nearly at full speed. The big sail is dropped in an instant, and, protected by a large permanent fender forward and others amidships, the monster is grappled with a short boat-hook to which a strong warp is lashed. A turn of this taken round a stout bollard fitted in the boat, like that in a whale-boat, enables the men to ease away or hold on as required. As these galleys are entirely open, one of their crew of five or six is in bad weather constantly at work with the pump. Among other Northern square-sailed boats are the "keels" used upon the Humber. There is a large French fishing-boat of thirty tons and over rigged thus, used in the bay of Cancale, Normandy. These vessels, which sail well, are locally known as carrés, an old rig left among these people perhaps by their Norse ancestors.

The next illustration is another type of old French square-rigged coaster, which, except that she wants the gaff-mainsail or try-sail, reminds one of a Yorkshire Billy-boy. She is a longshore craft, able equally for work in deep or shoal water. I have called her a "bilandre," a name I find given in Johnson to a class of small vessels capable of navigating inland waters, hence I suspect our name



French or Flemish "Bilandre," 1780.

Billy-boy, which, like the Thames barge, survives among us in all her original colors and form, the largest *clinker*-built class of vessel in England, or perhaps in Europe. These Dutch-looking craft all hail from Goole, and are built with their flat sides to fit certain canal locks, just as the Dutch galliot is, while the mast is stepped above-deck in what sailors call a "tabernacle," or strong trunk, built up through the deck from the keelson, so that the whole mass of spar and rigging can be lowered like a barge's from the fore-stay



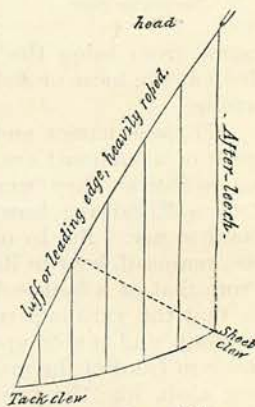
Yorkshire Billy-boy.

for passing bridges. The Billy-boy carries a large cargo, and is often manned and officered by the owner and his family only. Nothing about her has been changed for centuries, yet, wonderful to say, spite of steam, she still holds her own commercially, especially for the carriage of grain and other things requiring a tight dry hold.

It is time to leave awhile these Northern square sails, with their bowlines, braces, clewlines, buntlines, tacks, and sheets, and turn to the triangles, the stay-sails, jibs, and gibbous lateen-wings of the South.

Like a bird's wing, the first need for all effective sail is a rigid leading edge or weather leech; obtained in the square and lug sails by the drag of a bowline, in the lateen-sail by the yard or bone of the sailing itself, in stay-sails by the rigidity of the mast or supporting stay, and in jibs by the powerful hoisting purchase and use of chain for halyards. Before the introduction of chain, the jib, like the first string of a violin, was constantly getting out of tune, and in want of setting up.

Another point in a good sail is that the after-edge, when held in place by the sheet, should be as nearly upright or vertical as possible. This edge is always parallel to the seams of the sail, and, like the after-edge of a wing, unconfined by anything more than a hem or lightest of rope, save where a reef-band requires strength. The cloth at this edge of a jib is at times seen shaking while the rest of the canvas is as still as though frozen, and it is better the wind should pass it freely so than be girt in or held by it. Here are the cloths of a jib, showing how it is cut a little convex upon the leading edge, and the position of the sheet with respect to this convexity, without which the luff of a jib would be concave instead of straight when roped and hoisted.

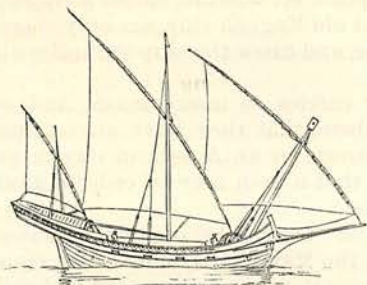


There is an old sea saying, often used too by lands-

men without knowing why, viz: "I knew him by the cut of his jib," a jib really having more cut about it than other sails.

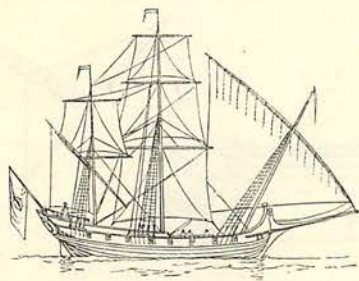
Though few practical sail-makers, or users of them, know really much of algebraic formula, they have their rules, handed down to them from old time, for cutting out sails, and as wind and water are very conservative elements, they seldom go far wrong. Among these rules is that of working by thirds, that is, when at a loss as to the best proportion for one thing toward another, to take a third. The boat always takes her third of the fish caught, a yard of a lug-sail is slung a third from

the end, the most convex part of the jib is at one-third of the luff from the tack, and the sheet exactly opposite this point. A pious adherence to this old mystery saves much calculation and trouble, and when ship-builders thought a third a good proportion of beam to length, a fair amount of stability was insured to our ships. Sailors speak of a sail as lifting or pressing quite independently of its power of driving a vessel ahead. All jibs are lifting sails, which do their work with least tendency to force a vessel's lee side down. They are safe sails to jibe or veer round under before the wind; hence perhaps the term "jibe." The angle at which the weather edge of a jib stands has much to do with this lifting quality, for a cutter's foresail, though triangular, is not found a lifting sail. Next to a jib, the sail which has most of this power is no doubt the lateen (latin?) sail of the South,

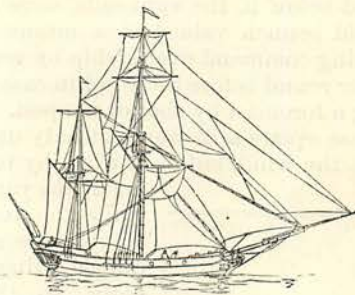


Old Felucca of Barbary Coasts and Spain.

particularly as set upon the foremast of a felucca, while the splendid lifting power of the lateen-sail may have led to its being retained as the head sail in the strange combination of rigs given here, and which I think is Turkish or Arab, and known, I believe, as a xebec. In many respects the rig below, of an old French man-of-war ketch, with her stay-sail and two jibs in place of the

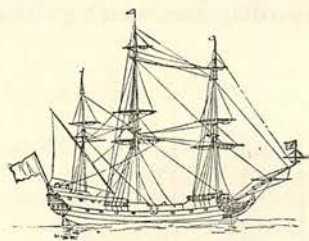


Transition between Lateen and Square Rig.



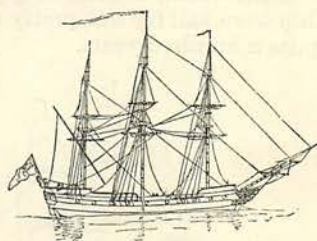
Old French Man-of-war, Ketch Rig.

foremast and great lateen-sail, is an improvement, her stay-sail and jibs being lighter to handle, though in a seaway her long bowsprit would be an objection, and with the wind a trifle free, the single spread of canvas of the lateen-sail would give more speed.



Old French Frigate with Lateen-Mizzen.

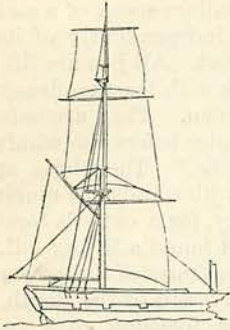
I have always been at a loss for the origin of the name "ketch." Did it come from a class of vessels rigged like this old French man-of-war, hailing from the old free port of Kertch in the Crimea? Another strange retention and combination of a lateen-sail with the square rig is the mizzen or spanker, which until 1670, and



Frigate of Early Part of Eighteenth Century.

years afterward no doubt, was a complete triangle. Subsequently the forepart of the sail disappeared, but the end of the old lateen-yard kept its place until the beginning of the nineteenth century, found useful no doubt in balancing and keeping up the lofty peak. The name of this fore-and-aft sail, still carried abaft the mizzenmast, is suggestive, "spanker" or "driver," and in Drake's time this great lateen-mizzen must have been both a "spanker" and "driver" as it swelled out above the lofty poop, the forepart of the long yard and sail running sharply down at a suitable angle with the sheer of the hull.

The lateen-mizzen-yard, about the year 1800, became a gaff, but the lower yard upon the mizzenmast, which should have succeeded to the title, never did so, but remains a "crojack" or "crossjack" yard, and never had a sail on it until about forty years ago, when a Yankee captain set what he called a crojack or mizzen-course upon it. But old English skippers only shook their heads when they saw one, and knew the ship ten miles off for a d—d Yankee.

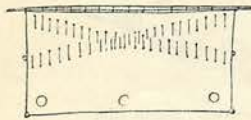


Crojack and Spanker, 1842.

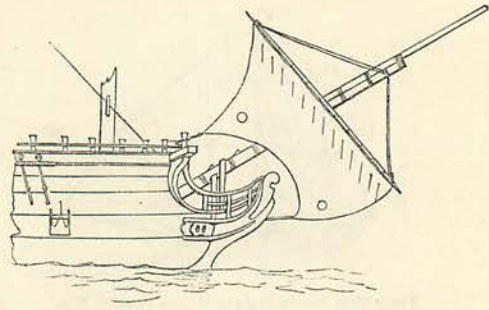
The clipper-ship of to-day carries so many masts, and so many kinds of yards upon them, that they have almost lost their identity, and, like the streets in an American city, have numbers instead of names, so that a man may be ordered aloft upon No. 10 yard, 5th mast, etc.

In nearly all old lateeners the "trinchetto" or foremast rakes forward almost as much as in the Malay proa, and for the same reason, namely, that in this way it supports the yard and sail so as to give it the lifting qualities of a jib. But long after ships ceased even to be luggers, and all necessity for this rake was past, a trace of it remained, a sort of fashion among old world skippers, who were never satisfied unless their foretop-gallant-mast looked down almost upon the figure-head. The old bowsprit, or "bolt-sprit" (sprit sometimes kept in place by a bolt), was almost a fourth mast, and the sails carried below it, the sprit-sails, were by our old seamen valued as a means of retaining command over a ship by veering her round before the wind in case of losing a foremast by shot or tempest.

These square-sails were not only used before the wind, but on a wind, by toping up the yard, while the reef-points were arranged diagonally, so that when reefed the lower part of the sail was narrower than the upper; and the lowest sail, or sprit-sail proper, had holes in each corner to allow the water caught by the sail as the ship plunged to escape instead of splitting it.



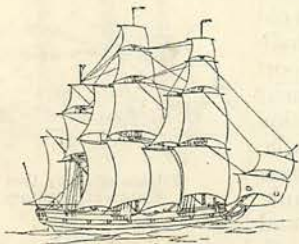
Reef-points of Sprit-sail.



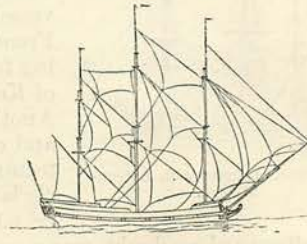
Sprit-sail.

Until within the last fifty years, the square-sails, stay-sails, and jibs of a full-rigged ship were, sail for sail, pretty much as shown in the next two diagrams, which go back quite a hundred years.

These square-sails were not only used before the wind, but on a wind, by toping up the yard, while the reef-points were arranged diagonally, so that when reefed the lower part of the sail was narrower than the upper; and the lowest sail, or sprit-sail proper, had holes in each corner to allow the water caught by the sail as the ship plunged to escape instead of splitting it.



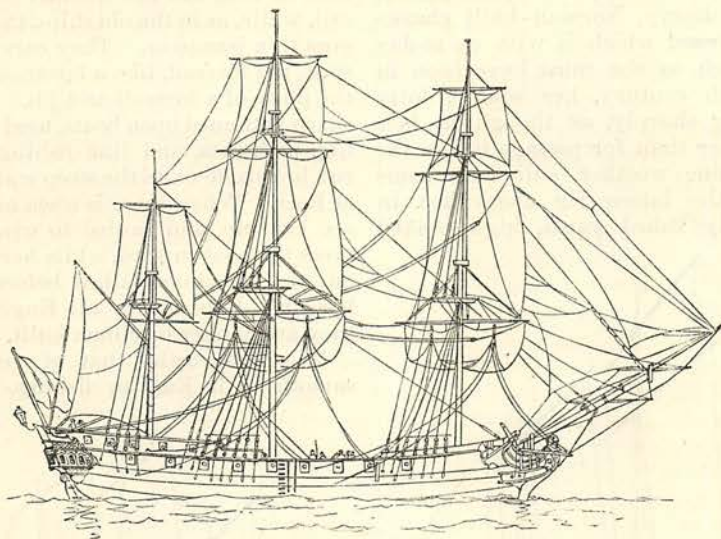
Square-sails, 1780.



Stay-sails and Jibs, 1780.

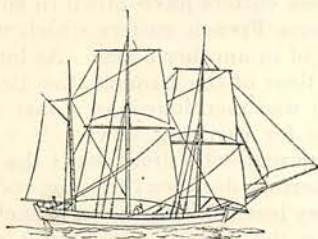
There were thirty sails all told. (Note the number, three tens.) It was under these sails that England's line-of-battle was formed, and her ships handled, by men like Benbow, Anson, Rodney, Howe, Hawke, Jervis, Nelson, and Collingwood; while of English cruising frigates and sloops we could say then what we hardly can now, namely, that nothing afloat could overtake or get away from them. This was especially the

case with those English frigates captured from the French, or built upon their models of that time. I have therefore given a drawing to scale of the principal sails and the forest pine. As good spars became scarce, the art of mast-making grew, until it reached perfection in the mainmast of a line-of-battle ship, built up of many



French Corvette, 1787.

gear of one of those old French corvettes as a good type of fast cruiser and sea-keeper of 1785. The rig of this corvette, with her three-storied masts, tops, caps, and cross-trees, is a long step from the simple three-masted xebecs and feluccas; but the polac-



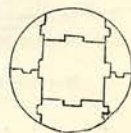
Polacca-rigged Bark.

ca, or pole rig, often still seen in Mediterranean ports, forms a link in the chain.

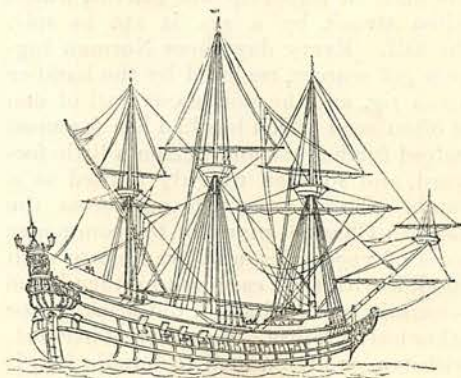
In general arrangement of sail this polacca is not unlike the old Genoese carrack which brought the wine and silks of the South to the "South Hams" of England in the fifteenth century—ships with long pole masts of a date when large pines were plenty. The lateen-yard is of two taper spars fished together, because the strength of a spar lies in the outside circles of wood. But the polacca's masts are in one piece, the natural form and size of

pieces hooped together thus. Most big masts, and yards too, are tubes of iron now.

One cannot help being struck in this Genoese carrack by the audacity of the little candlestick arrangement of mast and top at the end of her bowsprit.



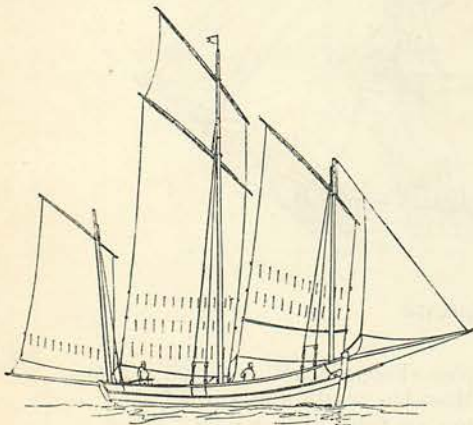
Section of Line-of-battle Ship's Mast at Deck.



Genoese Carrack, 1500.

Such a mast is seen in pictures of ships of a later date. The seamanship of these old Genoese shipmen must have been taxed to carry safely this strange little mast

across the Bay of Biscay. As one of these richly laden, richly carved carracks came rolling up channel, a good lookout was no doubt kept from her roundtops for a very different type of pole-masted ship—the heavy, Norman-built chasse-marée, a vessel which is with us to-day pretty much as she must have been in the twelfth century, her square, lofty bow rising sharply, as though to face a sea, rather than for passage before the wind in fine weather, still with some trace of the lateen rig about her, in the heavily fished yards, high-peaked



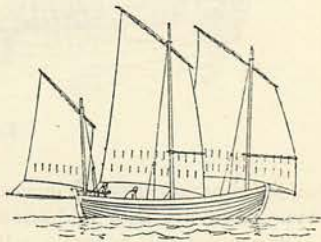
Norman Chasse-marée (about 100 Tons).

sails, and foremast close to her stem. A "bonnet-piece" is laced upon the foot of her foresail, which is removed in bad weather instead of reefing, so lessening the mass of rolled-up wet canvas, which when struck by a sea is apt to split the sail. Every day these Norman luggers get scarcer, replaced by the handier ketch rig, and the ponderous hull of one is often seen which has had her foremast moved further aft, and mizzen a little forward, and so been roughly refitted as a ketch. These vessels bring across the English Channel many of the commoner sorts of vegetables, and are able to earn enough with such cargoes to return home—usually with ballast of old brickbats or other heavy refuse. But when at her best, with ten or fifteen men to handle her, it took a smart vessel to overtake or escape from Chasse-marée in a breeze.

Upon the English coast, nearly opposite the ports these vessels hail from, is a little fleet of some eight or ten fishing-boats nestled together under Beer Head, a type of early ship not unlike the chasse-marée,

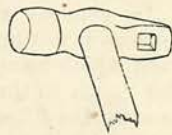
very fast boats, but from the character of the sails requiring care and skill to handle. In place of bowline, a small spar like a clothes prop, called a "fore-girt," is used to twig out the weather edge of the sail, while, as in the old ships, the fore-tack goes to a bumpkin. They carry no bowsprit, the foresail, like a lateen-sail, taking the place of a foresail and jib. These are sharp-bottomed open boats, used for trawling, drift-nets, and line fishing, and are run broadside on to the steep wall of beach at Beer. When there is a sea on the sails are kept up, and hauled to windward, to press the boat inward, while her crew toss out the big stone ballast before hauling her up. Like nearly all English boats, they are clinker or clinch built.

It is noteworthy that of "carvel" or smooth-built English fishing-boats the



Beer-Head Fishing-boat, Devon.

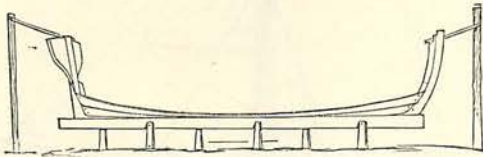
Brixham trawlers were among the first. But these cutters have much in common with some French cutters which will be spoken of in another place. As long ago as the time of the Armada, the Brixham trawler was mentioned as a fast vessel, suitable for carrying news. It was the Brixham men who first taught the North Sea fishermen deep-sea trawling, and I suspect they learned it from the French. As showing the size of clinch-built vessels with us years ago, I may mention that not six miles from Beer I had a boat-builder working with me who used a hammer which had been in his family for three generations at least, and which had driven the nails of a clinch-built ship of a hundred tons. This old tool weighed five or six pounds, and had a hole in the tail rather over half an inch square, for pushing on the washers or "roves," and breaking off the ends of the iron nails before riveting them;



Old Hammer used by a Beer Boat-builder.

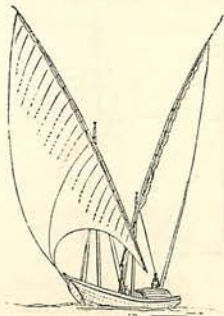
somewhat such a hammer as the vikings must have used about their galleys.

As I just said, English boats are mostly clinch-built, while the French, Italian, Spanish, and even many of those of Holland, are not. This would not be surprising if England's boats were the only ones that landed or were kept upon open beaches; but this is not so. Clinch work is lighter and stronger for small boats than the carvel, the outer skin giving nearly as much strength as the ribs, which are most of them steamed in and fitted after the boat is planked. The form of a clinch-built boat depends more upon the eye of the builder as plank by plank the boat unfolds from the keel than upon lines laid off beforehand. Indeed, experienced build-



First Stage of Clinch-built Boat on the Stocks.

ers can finish the planking of a boat without putting a single mould or pattern into her. On the other hand, in the carvel work every frame or timber is cut out from patterns, and sometimes not set up in place until all are ready. It was with a view to this kind of boat-building that about twenty years ago some Americans started a company in London for boat-building by machinery; but it came to nothing, as it was found that most English customers require the basket-like, tough, clinch-built boats, which could be planked and riveted together by hand as fast as in any other way. In the United States, as upon the Continent, clinch-built boats are seldom used. And so, owing to "insular prejudices," etc., this company



Dahabeeyah of the Nile.

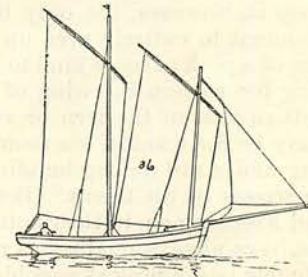
wound itself up, and when a lot of strong boats to go Arab-shooting in are wanted, orders have to be sent to boat-builders all round the country, which of course is very sad and unprogressive.

But drifting south in this digression about boat-building among the dahabee-

yahs of the Nile, these long pinions, suited for catching every breath of air above a river-bank, remind me that I have not said enough about the extreme value of a high-peaked sail, especially in steady winds. No doubt wherever sails of this type are found dependable leading winds are the rule. But when these long pinions are clipped, and yards and gaffs grow short, like the stumpy guillemot wing of the Dutchman, such wings are seen oftenest beating dead to windward.



Dutch Sloop.



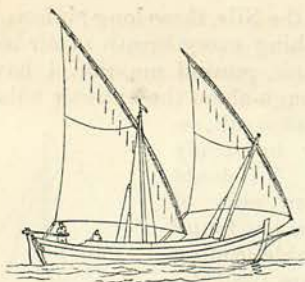
Channel Island Boat.

An instance of this may be seen without going so far north as Holland, in the craft of the northern ports of the Adriatic,



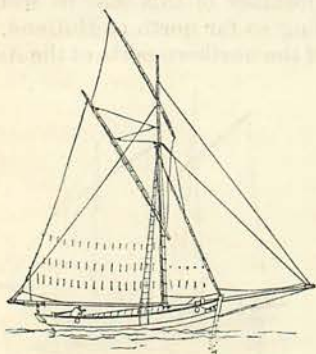
Coaster, North Adriatic.

which are nearly all of the clipt lateen or else lugger type, so that these two boats, one an ordinary Jersey fisherman and the other a vessel belonging to the little port of Rimini, have really more in common than with the two-masted lateener. These luggers of the Adriatic are splendid models, with handsome elliptical sterns, rather of the wherry type, the rudder all outside. They rise well forward, with a springy sheer and rather swan-like bow,,



Two-masted Lateen Rig.

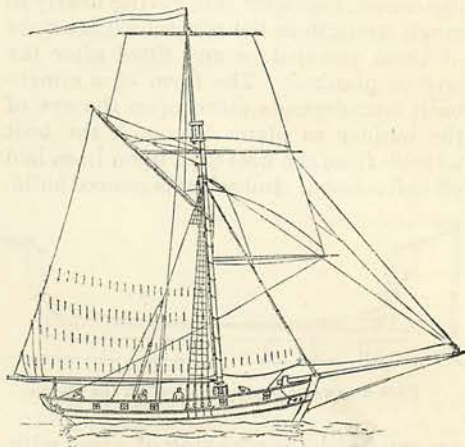
more elegant, but reminding one of the big Norman luggers. Nothing, in fact, can speak plainer of hard winds and short heavy seas than the build and sails of these boats. The cautious Dutchman in his sloop is, however, the only boatman quite content to entirely give up the advantage of a peak of some kind to his sail, choosing for pattern the wing of a diver rather than that of the tern or swallow. This may be for want of sea-room, or for working under sail among buildings, and up the streets of his towns. Both English and French men, in their cutters and luggers, have always retained as much of the valuable lateen peak as possible. This is well seen in one of the oldest forms of cutter still found at Rochelle. These ves-

Cutter of Rochelle, West France.
Thirty Tons.

sels, though they carry a topsail, are pole-masted, and the enormous size and low position of the jaws of her gaff remind one very much of the sprit of a Thames barge. This is an exaggerated type of other cutters in some northern French ports, while the Brixham trawler of some years ago had many points in common with her. The trawl-nets of Rochelle are unlike the English or those of northern France, the net being simply an oblong bag open only

at the mouth, and in place of iron "trawl-heads," or runners at the ends of the beam, a pair of large stones, about the size and shape of an American cheese, are linked to the ends of the beam, literally stone "trawl-heads."

A very different and now quite extinct form of early cutter is the old English packet, revenue cruiser, and dispatch-boat of Nelson's day. Her rig is that of the

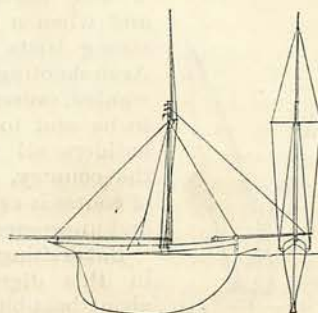


English Cutter of Nelson's Time.

old Margate hoy, the Leith sloop, and English Channel packet-boat that Turner has shown us "coming in" in his Calais pier.

These old cutters were mostly clinch-built up to the deck, and the topmast was stepped abaft the mast-head. How it stood the strain of the great square topsail is a mystery. Perhaps the raking aft of the mainmast may have had something to do with this position of the topmast. In all old ships the mast-heads and heels, or doublings, were shorter than they are now, and topmasts must have been almost always struck in bad weather or lost.

One feature in the English cutter has



Racing Cutter with Eighty Tons of Lead on Keel.

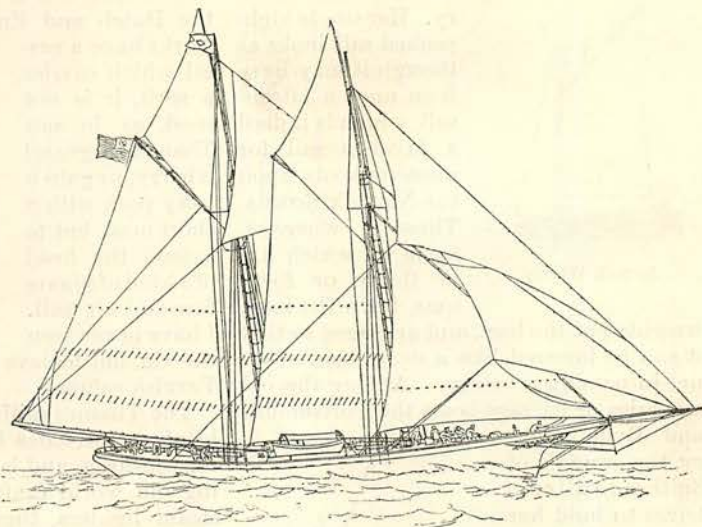
always been her draught of water aft, or a deep heel. This is still the character of a modern racing cutter, which with her deep leaden keel is in model little more than an axe blade set on edge. Of course such vessels do not rise at a sea, but go through it like a fly-wheel of eighty tons weight. It was formerly said of horse-racing that it improved the breed of English horses, and of yacht-racing that it led to improvements in naval architecture.

Of late this has certainly not been the case with either sport, for our racers are good for nothing else, and our yachts up to a certain size are mere sailing-machines. I say up to a certain size, because there is a point at which excessive draught of water acts as a check upon the use of lead and leverage, so that very large yachts must still be built with some kind of ship-shape form about them.

Some years ago, when the New York pilot-boat (for she was nothing more) the *America* came to England and beat our best yachts, there was one man who seemed to thoroughly understand the situation, and this was Mr. Weld, of Lullworth Castle, a first-rate amateur yachtsman and builder. He soon made alterations in his yacht, the *Alarm*, which enabled her to meet the new-comer. My old friend Mr. John Nichols was Mr. Weld's sailing-master, and chancing one day to be looking over some prints of the lines of old French war ships, said: "Why, here is exactly the *Alarm's* middle section! Squire Weld must have seen this book." I mention this merely to show how far advanced naval architecture was in France a hundred years ago, for very few men know a good sailing model better than that old yachtsman Captain John Nichols, the longest-headed man in Southampton.

But to give the yachts and their wings their due, I believe it would be hard to find a finer instance of efficient fore-and-

aft sail-power, with every inch doing its work, than is shown in this portrait of the schooner *Henrietta*, winner from two other schooners of a race from New York

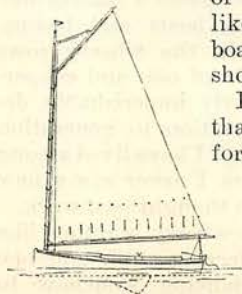


The *Henrietta*.

to Cowes Roads, the distance, some 3000 miles, being sailed in fourteen days.

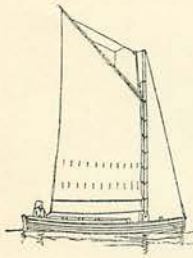
These American schooners owed much of their speed and success to the wonderful fit and cut of their sails, for which the New York river craft and coasters were remarkable, and I believe that the New York sail-makers owed this knack of making sails set flat to their Dutch and Swedish ancestors, every inch of whose low, stumpy canvas was and is always set to the greatest advantage. This yacht *Henrietta*, like the *America*, was simply a glorified New York pilot-boat, a class of little schooners built expressly for speed, and cruising in all weathers in the Atlantic. Our Liverpool pilot-boats, which work in St. George's Channel, are a class of schooners not unlike the New York boats, but built to meet shorter seas.

It is to the Americans that we are indebted for the centre-board or Una-boat—a sort of skimming-dish that has produced a large crop of second-rate amateur boat sailers;



American Centre-board Boat.

in fact, these boats are so handy in smooth shallow water that they may be called the landlubber's boat. Here is another and much older type of smooth-water craft,



Norfolk Wherry.

the Norfolk wherry. Her single high-peaked sail looks as though it may have been once a lateen-sail, which is indeed a favorite sail for pleasure-boats upon the Norfolk Broads. These wherries, some of which are of thirty or forty tons, have the mast weighted at the heel, and arranged so that it can be lowered like a steam-boat's funnel in passing a bridge. Among the old wherries or passage-boats the Portsmouth and Ryde wherry, the gondola of Spithead, still contrives to hold her own, and ply for hire from the common hards of Portsmouth and Southampton.

It is the same old sea cab that tended our fleet day and night, winter and summer, out among the short punishing seas and tide-rips of Spithead in Nelson's time, while before steam the larger Ryde wherries worked the ferry between the main and the Isle of Wight.

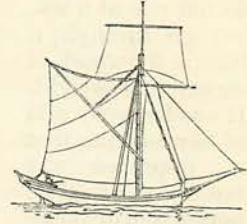
For all sound good qualities no boats exceed them. The masts being short, the long sprit has only to be taken out, and with the mainsail rolled up, and her foresail and mizzen all inboard, the boat is under storm canvas at once, yet still well under command. When the sprit is down the low mast makes a wherry extremely handy for going alongside a man-of-war with her projecting boats and booms. Besides sailing well, the wherry rows splendidly, and built of oak and copper-fastened, she is nearly imperishable, descending from generation to generation of watermen. Though I have lived among these boats for years, I never saw a new one, or one that was thought past work.

The model of the wherry is rather like that of a Scotch herring skiff, and one of these skiffs chancing somehow to wander south among the Southampton

watermen, was at once recognized by them, and rigged as a wherry, and was found to sail as well as the best wherry of her length.

The sprit-sail is essentially the sail of the Dutch and English, for though the Turks have a vessel which carries a sprit, it is not used, as in our Thames barge and wherry, to gain a lofty peak with a short mast, but to extend the head of a kind of square fore-and-aft sail. I have never seen the rig, but believe the vessel is called a Turkish caïque.

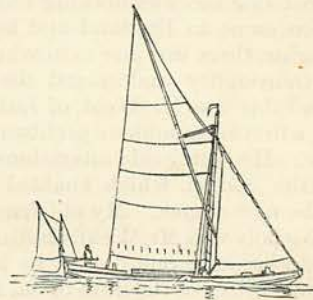
The Thames sailing barge, with all her bright color, dates back, like the wherry, for centuries, and is really a very flourishing old world craft indeed, and spite of steam-lighters, tugs, etc., is still found economically well adapted for the carriage of bricks, manure, straw, hay, etc., and for the winding navigation of the lower Thames. Her small draught of water enables her to work her way close inshore, and take advantage of every eddy, and this, with the splendid set of her perfectly wind-tight sails, dressed with ochre and fish oil, and power of holding her way as she shoots up in the wind



Turkish Sprit-sail.

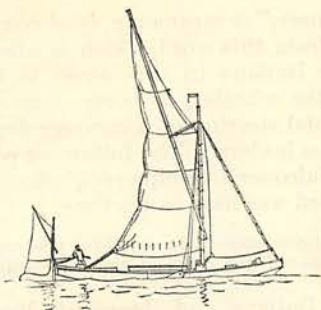


Portsmouth Wherry.



London Barge, or Dumphy.

in tacking, makes it a hard matter for a fast-sailing boat to hold her own with one. The sail of a Thames barge, owing to the fixed position of the head, cannot be reduced by reefing beyond one row of reef-points, tied up at times to allow a load of straw to be carried. This is one drawback of a large sprit-sail, which, as the wind increases, instead of being reefed, is gathered back foot by foot by brails.



London Barge, Mainsail brailed in.

The barge's tiny mizzenmast is stepped upon the rudder-head, and the mizzen-sheet made fast to the after-end of the broad rudder, so that this little mizzen is really a second rudder in the air, acting in unison with the one below. I can never see one of these great sailing barges in an upper reach of the Thames or Medway without admiration and respect for the ingenuity which contrived a vessel that, with a draught of some three feet, can, handled by two men, carry sixty or seventy tons of bricks or coal to where she lies, far up among the fresh-water weeds and lilies; with all that tangle of rope, mast, and brown sail now flat upon her deck, yet so easily raised or lowered as she passed a bridge; and with scarce any free-board, and no hold of the water below, yet able with her great lee-boards to hold a fine wind, or turn in her length, and make long sea-voyages far out round stormy headlands, almost out of sight of land.

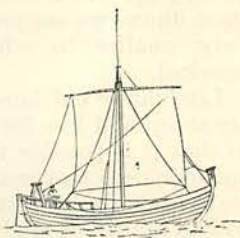
In truth, if the shipping of the Middle Ages was as well found and fitted for its work as this London barge, naval architecture was not far behind that of the land. And yet one is asked to accept something like this quaint heraldic device as a portrait of a sea-going ship of the thirteenth century.



Sailing Ship of the Thirteenth Century.

Until the introduction of steam, nothing connected with the sea was ever disposed to advance in a rapid or striding way, and it is most unlikely that sailing vessels leaped, so to speak, in two hundred years from this curious old manuscript and nondescript craft to ships like the Genoese carrack and others of the fifteenth century. It is true that Southern seamen were very likely rather in advance of the Normans, but I suspect that

we need not go farther back than the present single square-sailed craft of Norway for a true picture of the small square-sailed ship of the thirteenth century. I regret not being able at present to give a better idea of this vessel. They sail wonderfully well, and English yachtsmen who have met them in a seaway have found them hard to beat.



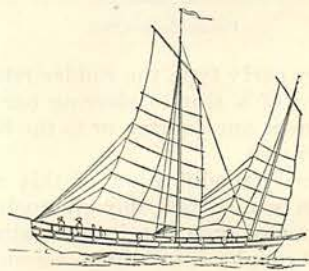
Norway Boat.

I mentioned before that the Chinese, besides their fair-wind or monsoon trading junk, know how to build fast weatherly sailing craft, like this piratical junk and the smuggling craft below it. Now we have been always told that the Chinese are, or were until quite lately, exactly where they were in all things a thousand years ago.



Chinese Pirate Junk.

Therefore these vessels may be taken as fair representative types of the naval architecture and sail-power among the bar-



Chinese Smuggler.

barians of northeast Asia much earlier than the thirteenth century. An Arab dhow is another ship representing splendid sail-power, combined with a hull the lines of which agree pretty much with the "wave-line theory" that was fussed over and said to have been discovered by naval architects some thirty years

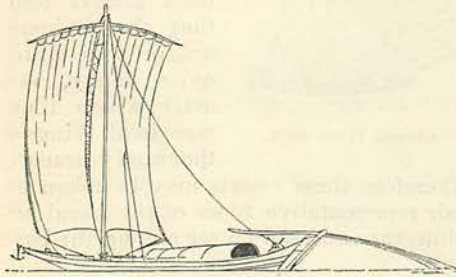


Arab Dhow.

back, but which is common to a number of outlandish old world craft. Like the Chinese, the Arab himself of to-day and all his belongings is the Arab of a thousand years past, and I believe that in one of these dhows we see pretty much the ship, only smaller, in which St. Paul was wrecked.

Like many old lateeners, these vessels are sharp and low forward, and high aft, so that it is possible that when the four anchors were cast out of the stern, they really rode the ship stern to the sea and bow to the shore, ready for the final rush landward when daylight came. There is especial mention that the rudder was triced up or secured, for they "loosed the rudder bands, and hoisted up the mainsail to the wind," "and falling into a place where two seas met, they ran the ship aground."

Owing to being nearly entirely cut off from the world's broad highway, craft upon many of the large Italian lakes are



Italian Lake Craft.

of a very early type, the rudder retaining the form of a simple steering oar slung loosely over one quarter, or to the head of the stern-post.

An early modification of this rudder occurs in boats which, though much of the same general type, are, in navigating the Rhine, brought into direct communication with sea-going craft. In such boats, though the tiller still extends aft beyond the



Lake Constance Rudder.

rudder-head, the rudder itself is either hung by pintals or hinges to the stern-post, or passes through the overhang of the after-end of the boat or counter. The Italian word "timone," the helm of a ship, means also the pole of a carriage and the beam of a plough, and the old sea term



Rhine Barge Rudder.

"timoneer," or steersman, is of course derived from this word, which is also used by the Italians in this sense to distinguish the wheeler, or horse upon which the actual steering of a carriage depends, from the leaders. The following passage from Falconer's "Shipwreck" shows how this word was used in his time:

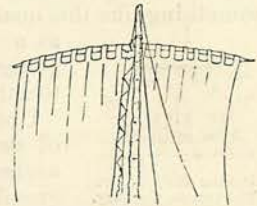
"Starboard again!" the watchful pilot cries.
"Starboard!" the obedient timoneer replies."

The Italians and Spaniards have, in fact, no word, I think, which expresses the rudder as distinct from its tiller, the old word "rother," so spelled by us as late as 1678, and tiller, evidently being of Teutonic origin, while the sea term "helms-a-lee," used in tacking ship, and meaning that the rudder itself is to windward when the tiller is put over or down to leeward, would be nonsense if one word stood for both rudder and tiller.

In these primitive lake boats we have also a very early form of square-sail, slung so that it can be dropped instantly when struck by a gust from between the mountains, but which, like most sails used for inland navigation, has a great hoist, and is very square aloft. These sails are divided down the centre, the mast being so arranged that it can be rapidly lowered forward, not aft, in a squall before the wind.

The way these sails are attached to the yard throws a light, I think, upon the old word "robands," the name of the short tyers formerly used to secure a square-sail to its yard.

In these boats the sail hangs to the yard upon a series of bands or loops made in the head of the sail, through which the yard passes. A handy plan, no doubt, in inland navigation, where a sail left permanently bent, would be a strong temptation to the first poor peasant that might board a boat in the absence of her owner—that sacred feeling about robbing a vessel of her tackling not often extending far above high salt-water mark. Like all very early types, these lake boats are much higher aft than forward, having a look about them of the coot and some other diving water-



Head of Sail, Italian Lake Boat.



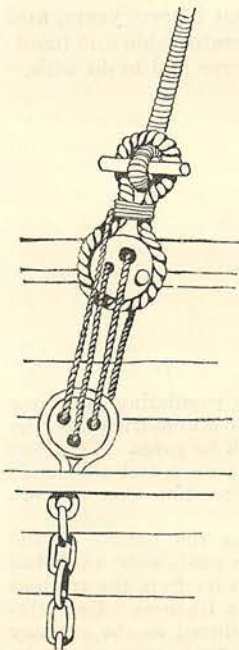
Lake Boat without Sail.



The Coot.

birds in the way they sit upon the water. Poetical writers about the sea are fond of dwelling upon the viking and his influence in early English naval history. But though the personal of England's navy, no doubt, owed much to these hardy Northern boatmen (for they were little more), all the earliest and more important material improvements in naval construction came from Southern nations; and when cannon began to supersede older weapons in Henry Eighth's time, he at once called in the assistance of Italian shipwrights to help him build that fleet of small ships which was destined, under his successors, after repelling the powerful attack of Spain upon our coasts, to make England mistress of the sea for many years. The fact is, these hardy Norsemen were as far behind the architects of the South in matters naval as their rude wooden structures on land were below the fortified cities, castles, and dwellings of the inhabitants of Italy,

Greece, or Spain, who were indeed the earliest civilized rulers of the waves. Among the interesting collection of models in the ancient arsenal at Venice is a splendid sixteenth-century model upon a large scale of a three-masted lateener, mounting many guns, including of course some well-arranged bow chasers. She is fitted with regular banks of oars, and though in this comparatively large vessel the masts are stayed with stout standing rigging, like a modern ship, yet each shroud is fitted with a movable



Movable Toggle-pin above the Dead-eye on a Venetian Three-masted Lateener of the Sixteenth Century.

toggle or oaken pin above the dead-eye, by knocking out which her rigging could easily be cast adrift in case of its being desirable to have recourse to oars in chasing dead to windward.

These are small matters, but they show how far advanced in resource these early shipmen were.

I may here remark, while speaking of dead-eyes, that the word was originally written "dead-men-eyes."

In craft plying among the Venetian lagoons the rudder is so arranged that it

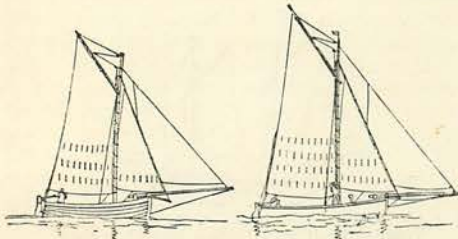


Venetian Craft with Rudder below the Keel.

acts, when lowered in deep water, very much like a centre-board, the form of the hull and position of the after-canvas causing its action to coincide nearly with the centre of effort of the boat's sails. These deep curved rudders, which much resemble those of the Yorkshire cobbles, are hung with great care, and fitted with a purchase or tackle for hoisting them clear of the ground in shoal water; and the lagoon sailor, who no doubt often owed his safety in by-gone times to the light draught of these vessels, still keeps all the splendid iron-work about them not only well oiled, but even brightly polished, while the rudder-heads are lovingly enriched with carving and pictures of patron saints, etc.

So far as I can learn, there are no records of sails and rigging of any value earlier than the fifteenth or end of the fourteenth century, and we owe the little that we do know of shipping before that time to the work of the monks and nuns, who could not know much about a ship and her tackling, or got their ideas at second-hand; it is not surprising, therefore, especially when one sees the hash at times made of such subjects by modern land artists, that their work should give us but a faint notion of the ships of Norman times. If we go back to Roman, Greek, or Egyptian art, the case is much the same, for though we can form a good idea of the look of any class of these people, there is no record of the rig, sails, or look of the

ships they sailed or fought, beyond some conventional odds and ends of their beaks and tails or poops upon coins. What sort of notion should we get of our four hundred feet of ocean steamers, or even of an *Inflexible*, from a contracted image of her upon a penny piece? And when, a thousand years hence, these vessels have all turned again to oxide of iron, and the photos of them faded away, less may perhaps be known of them than some of us know to-day of this old Brighton hoggy, or of the Ithen Ferry shrimper.



Brighton Hoggy.

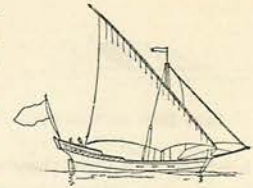
Ithen Ferry Shrimper.

With their high-peaked, boomless main-sail and wide foresail, both these boats have much in common with the lateen rig, but no lateener would take care of herself when struck by a squall as one of these boats will, the foresail, which is really the forepart of a lateen-sail, being easily eased by the sheet or lowered altogether, which is equal to two reefs less

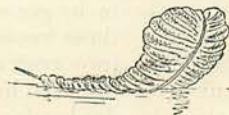
sail at once. The little one-masted lateen-rigged boat shows how, I believe, the idea must have first occurred to some old sail-maker of cutting the sail in the line of the mast, and giving the forepart a sheet of its own.

The rig of the old Brighton boat is, I think, a very early rig among the men of the South Hams. She is not a true cutter, nor exactly a sloop. Her fore-stay and fore-tack go to a strong bumpkin some feet beyond her stem-head. This was made of oak or ash, and wide enough to stand upon, projecting in fact beyond her stem independently of the bowsprit proper, as the beak of a lateener does. She was almost as wide as she was long, with a flat floor and great bilge-keels, clinch-built, and strong enough to take the sand among breakers upon a falling tide, so giving plenty of time for hauling her up.

The Ithen boat is of the same rig, but smaller, and her bumpkin is of iron. She is half-decked and heavily ballasted, being used upon inland waters and never hauled up. I have kept company with one of these boats for the last fifteen years, and found her the most comfortable and handiest one-man craft I ever had to do with.



Old Single-masted Lateener.



Skiff of the Duck Pond.

Editor's Easy Chair.

THE daily newspaper is as absolute as a Legislature, and the only appeal against it lies to the tribunal of public opinion. Its especial function is to report the news, which seems to be a very simple and easy office. But the significance of a report depends very much upon what is called its coloring, and the reporter is the skilful artist who supplies color. The photographer is a reporter whose business it is to describe faces by the use of light. He does nothing himself but regulate the conditions of the sun's action. But what extraordinary reports he submits! How often he gives the faithful outline, but no portrait! The fairest blonde smiles a brunette from the

bewitched plate. The wondering spectator does not recognize his bosom-friend in the countenance upon which he gazes. Yet there are the lines as in the person, and the excellent photographer assures him that the sun cannot lie.

The newspaper gives the outline of the fact, but the impression made upon the mind of the reader may be as far from the truth as the photograph from a likeness. Undoubtedly the play was produced as the reporter says, the very persons took part whom he mentions by name, and the audience filled the house as he truthfully asserts. Here are half a dozen photo—that is to say, reports of the