

The Greeks and the Sea

Michael Wright

From the *Lonely Planet Guide* to [modern] Greece:

Greece consists of a peninsula and about 1400 islands... The land mass is 131,900 sq. km. ... In Greece, no area is much more than 100 km. from the sea... The much indented coastline has a total length of 15,020 km. ...

... and what's true of modern Greece was true of the land occupied by Greek people in antiquity, with knobs on. The Greeks were a people accustomed to being near the sea. In the *Odyssey*, the shade of Teiresias prophesies that Odysseus will finally get home safely and kill the men who are after his wife and property, but then he imposes an odd task:

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...so that our crimson-painted ships and the oars that serve those ships as wings are quite beyond their ken. And this will be your cue – a very clear one, which you cannot miss. When you fall in with some other traveller who speaks of the ‘winnowing-fan’ you are carrying on your shoulder, the time will have come to plant your shapely oar in the earth and offer Lord Poseidon the rich sacrifice of a ram, a bull, and a breeding-board.
Odyssey 11, l. 121 ff. trans. E.V. Rieu, Penguin Classics

The point of this can only be that Homer’s audience thought it a difficult thing to reach a place where the people were so ignorant about the sea.

The sea provided not just salt, but fish as a source of protein: no triviality to people who, apart from at sacrifices, regularly ate, as someone wrote: “meals of two courses: the first was a sort of porridge, and the second was a sort of porridge” of peas, beans and so on: like humus, perhaps.

Then there was travel. Earlier in the *Odyssey*, Telemachus goes to visit Nestor at sandy Pylos and plans to travel on to see Menelaus at Sparta. Nestor offers him a choice:

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Odyssey 3, 323 – 326 trans. E.V. Rieu, Penguin Classics

Telemachus would have to have sailed about 100 miles, more if he didn’t care to cross the open sea, out of sight of land, between capes Akritas and Tainaro; and then he would still have had a journey inland of about 24 miles. Overland, the distance from Pylos to Sparta is 44 miles as the crow flies. Of course the road would not have been straight, but we would not hesitate to go that way; and yet, for Telemachus, these seem to have been

real alternatives. As it was, he chose to be driven by Nestor’s son in a chariot, and it seems to have taken the best part of two days each way, even though we may imagine that the Gerenian chariot-warrior’s son drove a fairly sporty rig.

So the sea provided the means of communication and of transport of goods, in a country in which people lived mainly in small areas such as river valleys, and in which the going by land from one such area to the next was often difficult. Some present-day Greek roads seem bad enough in a modern car, but many of these have been made using dynamite, and only in the last hundred years.

In Xenophon’s great real-life adventure story, *The Anabasis* (“the journey up-country” – away from the sea) a mercenary army of Greeks marches from Asia Minor almost to Babylon, only to see their paymaster Cyrus killed at the battle of Cunaxa. All that’s left for them to do is to march home again, which they do by striking North through Armenia to the Black Sea. One of the great turning points is the moment when, from high ground near to Mount Ararat, the army sees the sea:

...When the guide arrived, he said that in five days he would lead them to a place from which they could see the sea; ... They came to the mountain on the fifth day, the name of the mountain being Thekes. When the men in front reached the summit and caught sight of the sea there was great shouting. Xenophon and the rearguard heard it and thought that there were some more enemies attacking in the front, ... quite soon, they heard the soldiers shouting out ‘The sea! The sea!’

trans. Warner, Penguin Classics

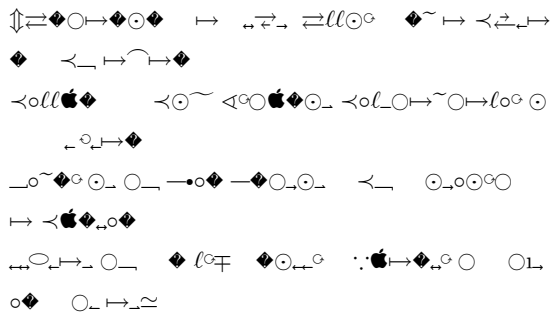
→→ll→→→→ →→ll→→→→ This was the Greeks’ recognition of a return to a more familiar environment.

For most Greeks, in one way or another, the sea was part of the normal habitat. It provided a customary boundary, a source of food, a livelihood, and a highway for trade and communication.

As the population grew, few settled areas of Greece were wholly self-sufficient but many had produce of some sort beyond their own needs to sell. This led to “local” trade, and then there was larger-scale, long-distance trade. Looking at recent history we think of the Greeks as great traders on a big scale, encouraged by their geographical position in the middle of the Mediterranean, between East and West, North and South. To some extent this modern state of affairs seems to stem from the Turkish occupation, during which the Turks either could not control Greek maritime activity or were content not to try.

To begin with, the Greeks regarded the Phoenicians as the first great traders; here’s Homer...

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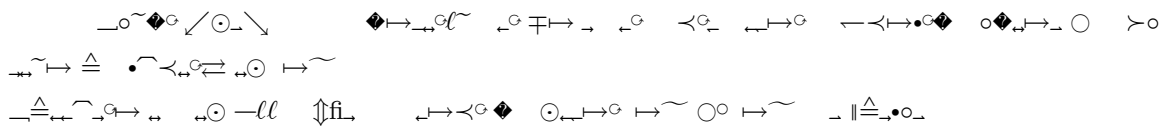


Iliad XXIII, 740 – 744

At once the son of Peleus set out prizes for the foot-race: a mixing-bowl of silver, a work of art, which held only six measures, but for its loveliness it surpassed all others on earth by far, since skilled Sidonian craftsmen had wrought it well, and Phoenicians carried it over the misty face of the water and set it in the harbour, and gave it for a present to Thoas.

trans. Richard Littlemore

... and Herodotus, writing in the middle of the fifth century B.C.:



... Phoenicians ...took to making long trading voyages. Loaded with Egyptian and Assyrian goods, they called at various places along the coast, including Argos, ...

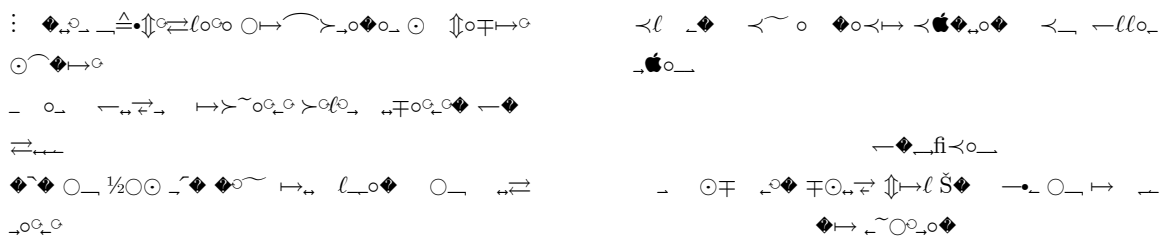
Herodotus, *The Histories*, book 1

trans. de Selincourt, Penguin Classics

Herodotus goes on to explain how trading led on to woman-snatching, and so we come back to Homer and the Trojan War.

But can the Trojan War, supposing it actually happened, really have been no more than a matter of a runaway wife? Perhaps, but it is worth considering Troy's location, well placed to profit from trade through the Dardanelles. The Iliad itself hints strongly that it was common, even for "honourable" men, to make piratical raids over the wine-dark sea. The nasty squabble between Achilles and Agamemnon that kicks the whole story into life begins with the problem of a girl bagged by Agamemnon, who seems to have been the loot of just such a raid on the harbour town of Chryse, just up the coast from Troy.

The Odyssey is especially big on Poseidon, god of the sea. His Olympian seniority signals the sea's importance, and the twin businesses of sacrificing to him and building him temples in prominent places reinforce the point. Odysseus made a bad move in blinding his son Polyphemus, and he was bound to be in for a lot of maritime bother. Surely the shape of the story, and the evident popularity that ensured its survival, have much to do with shared experiences of seafaring. Right at the beginning of the story Athene, disguised as a merchant, drops in on Telemachus:



Odyssey 1.180–184: trading iron for bronze
 My father was the wise prince Anchialus. My own
 name is Mentos, and I am chieftan of the the sea-
 faring Taphians. We are bound for the foreign port of

Temese with a cargo of gleaming iron, which we mean
 to trade for copper.

Trans. Rieu, Penguin Classics

There's an important general point here. By Herodotus's reckoning, Homer lived about 850 B.C. The best modern guess seems to be that, if he did indeed exist as a single individual, his date is later, but before about 700 B.C. In any case, by the time the epics were written down Greece was firmly in the iron age, but the events recalled lay way back in the bronze age, and there seems to be a conscious effort to set a period atmosphere. For instance, swords are bronze and spears have bronze heads (in all but one specific instance). So too are the metallic parts of armour, except for Achilles's heaven-sent replacements. On the other hand, we notice knives, axes and ploughshares of iron, and what is written about the hot stick fizzing in the Cyclops's eye is clear evidence that the author had witnessed the quenching of steel. So what are we to make of this trade in iron? Was it up-to-the-minute stuff, as befitted a goddess, or was it one of those anachronisms that inevitably creep in? Homer is our earliest written source of information on Greek seafaring, but we need to be careful in interpreting *anything* he says as historical evidence, and that goes for what he has to say about boats.

What do we learn? The ships are "black", with pitch for waterproofing and antifouling; they are "hollow", deep enough to sit inside rather than merely "on"; but they are light enough to be pulled up on the beach. Some, like the boat in which Odysseus returned Agamemnon's girl to her father, and the boat that Telemachus used to go from Ithaca to Pylos, were each worked by twenty men, nippy little cutters. The Boiotian boats that went to Troy are said to have held 120 men each. Thucydides suggests that they all rowed at once, but I don't believe it. By implication, the usual ship was the pentekonter (πεντεκόντης, a boat worked by 50 oarsmen, with twenty five oars each side. This remained a standard size of long-boat for several centuries, and we'll come back to these war boats.

There's just one reference in Homer to a very different sort of boat, for trade. It is embedded in the description of how Odysseus built his own boat to escape from Calypso's island.

First she gave him a great axe of bronze. Its double blade was sharpened well, and the shapely handle of olive-wood fixed firmly in its head was fitted to his grip. Next she handed him an adze of polished metal; and then led the way for him to the farthest point of the island, where the trees grew tall, alders and poplars and firs that shot up to the sky, all withered timber that had long since lost its sap and would make buoyant material for his boat. When she had shown him the place where the trees were tallest the gracious goddess left for home, and Odysseus began to cut the timber down. He made short work of the task. Twenty trees in all he felled, and lopped their branches with his axe; then trimmed them in a workmanlike manner and trued them to the line. Presently Calypso brought him augers. *With these he drilled through all his planks, cut them to fit across each other, and fixed this flooring together by means of dowels driven through the interlocking joints*, giving the same width to his boat as a skilled shipwright would choose in designing the hull for a broad-bottomed trading vessel. &c....

Odyssey 5, 234 – 251

trans. Rieu, Penguin Classics

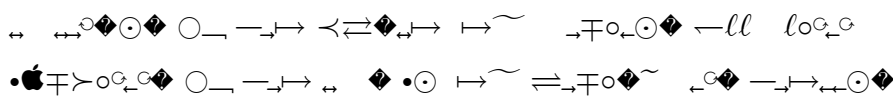
Here Homer gives us technical information, perhaps without meaning to; but equally he knows less than he thinks he knows. For instance, Calypso takes him to find “withered” timber – that is, fully-seasoned. (The passage refers to the practice of ring-barking the tree so that it dried where it stood.) On the other hand, Theophrastus (4th Century B.C.) tells us that the shipwright preferred timber that was still green, so that it could be bent. Likewise, in “truing [his planks] to the line” Odysseus seems to be preparing timber for house-carpentry or joinery; in shipbuilding you want curved timbers, both for the planks and for the frames.

“... a broad-bottomed trading vessel”: I take it that Homer means that Odysseus made his boat with the *proportions* of a merchantman; he was making a sailing-dinghy, not a skiff. Somewhere – I have lost the passage – we get a hint that he had to accept going by sailing boat because he had no rowing crew. I infer that a man of his station expected, like any modern Mr. Big, to “go places” just when he wanted, and that it was infra-dig to have to rely on the wind.

Through archaeology we know much more about trading vessels than about warships, because so far we don’t have any of the latter. There is now really splendid evidence of a number of merchant boats and their cargoes. The Cape Gelydonia shipwreck, found in 1958, dates from about 1200 B.C. and is evidence for an early maritime trade in bronze. The boat was laden down with copper, tin and their alloy bronze, both ingots and scrap for remelting, together with tools for metalworking. This boat may have been Phoenician.

Underwater archaeology is still growing fast, serving up new material almost day-by-day; so, if you go in search of an authoritative opinion you need to be careful: information gets out of date, and many writers are astonishingly cavalier in their assertion of doubtful matters of fact, especially on the internet. What we get from ancient shipwrecks is mainly the imperishable items of their cargo, most obviously the clay jars, amphorae, the universal container in which almost anything might be carried. On shipboard, they got packed close so as not to roll about, and snuggled down in packing material. One nice thing about amphorae is that both style and material were highly specific to place of origin and date. Equally important for our purpose, in their serried ranks they often weigh down, and so protect and preserve, the timbers of the ship’s hull.

So, we now know what Homer means in the passage that I have put in italics. Throughout antiquity, Mediterranean boats were made in an astonishingly elaborate way. Starting with a keel, the shipwright built the hull shell-first by fastening curved planks edge-to-edge with joining pieces (false tenons or tongues, $\Rightarrow \bar{\tau} \circ \diamond \sim \mapsto \odot$) which were then bored through and pinned together using wooden pegs (trenails, $\bullet \bar{\alpha} \bar{\tau} \succ \circ \odot$). So let’s look more closely at that passage:



Then he bored them all and fitted them to one another,

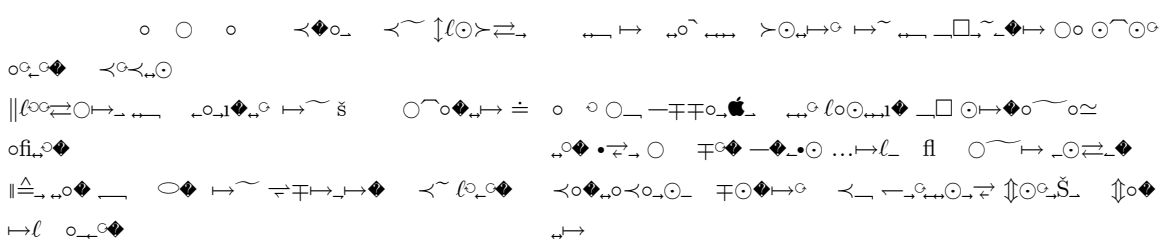
And hammered [something feminine – the boat], setting tongues and pegs into place.

... so Odysseus was building the traditional Mediterranean hull. After making the shell in this way, the shipwright put in frames and whatever other fittings were called for. What Rieu, the translator, did was to massage the text to fit with the prejudice that one man on his own couldn't be expected to make anything better than a raft. He forgot that Odysseus – with a little help from his immortal friends – could do anything! Homer calls him $\lambda\omicron\lambda\epsilon\mu\alpha\sigma\tau\epsilon\varsigma$ (polytropos), a word meaning all sorts of things: much-travelled, versatile, ingenious, changeable...

Homer's wording suggests that the overall shape of the hull depended on its intended use. More to the point, it was governed by the intended means of propulsion: for rowing, the hull cannot be too high or too tubby, while for sailing one wants a wider beam and deeper freeboard, and once a reasonably efficient sailing rig had been developed this, with its much lower man-power, was more economical than rowing. Of the ancient wrecks that have been found, nearly all seem to be specifically sailing boats. A charming reconstruction of one of the most complete, the Cyrenia wreck of the 2nd century B.C., suggests that she was a handy little craft. The original seems to have had a crew of four. Of course "completeness" is relative, and much of the detail of the upper works and the rig is conjectural. This is a small boat, but bigger ones were to a similar pattern, which seems to have stayed much the same for centuries, except that gradually the biggest ones got bigger. By Roman times, there were some monsters, and a second sail carried on a foremast allowed the boat to be better trimmed.

It might seem that a boat with a single square sail could do little but run downwind, but if the balance is got right the boat can reach and even beat to windward. Notice how Cyrenia II, seen here with the wind abeam, has the mast raked a long way back to adjust the weather-helm. Even so, it is not surprising that we hear of boats waiting a long time for a favourable wind. Poor Iphigeneia: the Bermuda rig might have saved her. Equally, with frail boats and notoriously changeable weather, one might well be kept waiting, irrespective of the wind's direction, for it to moderate before one set out.

Once the sailor got to sea, how did he navigate? There is absolutely no reason to suppose that the "ancient mariner" had any instrumental aids at all. The experienced sailor can tell a lot from the set of the waves, the birds, the floating seaweed and so on. He had no compass, of course, but he could tell direction – and in very general terms latitude – by observing the sky. Here Odysseus looks at night for the Great Bear, he most obvious of the circumpolar constellations:



Into the clouded sea.

trans. Wender Penguin Classics

Like many other of Hesiod’s dicta, this is interesting because of his knowledge of astronomy as a way of keeping the calendar.

Of course, much bolder voyages were possible:

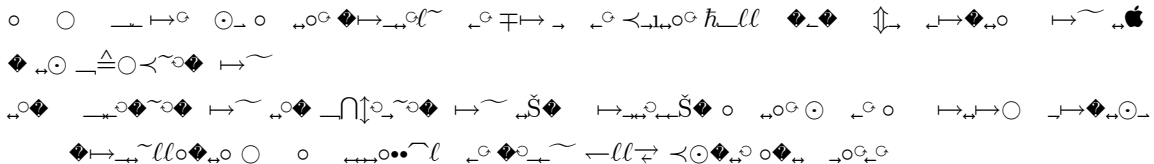
As for Libya, we know that it is washed on all sides by the sea except where it joins to Asia, as was first demonstrated, so far as our knowledge goes, by the Egyptian king Neco, who, after calling off the construction of the canal between the Nile and the Arabian gulf, sent out a fleet manned by a Phoenician crew with orders to sail west-about and return to Egypt and the Mediterranean by way of the Straits of Gibraltar. The Phoenicians sailed from the Arabian gulf into the southern ocean, and every autumn put in at some convenient spot on the Libyan coast, sowed a patch of ground, and waited for next year’s harvest. Then, having got their grain, they put to sea again, and after two whole years rounded the Pillars of Hercules in the course of the third, and returned to Egypt. These men made a statement that I do not myself believe, though others may, to the effect that as they sailed on a westerly course round the southern end of Libya, they had the sun on their right – to northward of them.

Herodotus, The Histories, book IV

trans. de Sélincourt, Penguin Classics

Although this is about Phoenicians, sailing under orders from the Egyptian king, the point is that it is recorded in Greek literature. Through Herodotus, the sailors’ observations contributed to the Greeks’ world view. Later, and exploring in the opposite direction, we have Pytheas the Greek from Massalia (Marseilles), whose account of his journey does not survive but of whom Barry Cunliffe argues that he might even have got as far north as Iceland.

Massalia had begun as colony of the Phocaeans, from modern Turkey. Herodotus has this to say of them:



The Phocaeans were the earliest Greeks to make long voyages by sea; they opened up the Adriatic, Tyrrhenia, Iberia, and Tartessus. The ships they used for these voyages were penteconters rather than round-bodied ships.

Herodotus, The Histories 1, 163

trans. Waterfield, Oxford World’s Classics

Evidently, by Herodotus’s time, trading in rowing-boats seemed unusual. Remembering that trade, carried out by merchant shipping – rowing or sailing craft – underpins the whole of the developing Greek society about which we read, the Phocaeans and their pentekonters lead us back to a more obvious maritime strand in the literature: naval warfare.

The pentekonter had fifty oarsmen, sitting two-by-two on twenty five thwarts, one man to each oar, twenty five on each side. That’s quite a lot of muscle-power, it was still a general-purpose craft. There may have been a limited amount of decking, perhaps not


much more than a gangway along; the hull was essentially open. The cargo – or loot, if you were a pirate – simply went in the bottom, below the thwarts.

The early idea of naval warfare seems to have been a development of the pirate raid. You used the boats either to get around, beaching them and fighting on shore, or as platforms that you brought together and then fought a land-battle at sea. Plenty of man-power and a long narrow hull leads to speed, and that's a useful strategic advantage; but 25 benches leads to a boat at least some 30 metres – 100 feet – long. This is getting nearly as long as it can be, because the boat is like a beam; you have to keep it narrow in order to row it effectively, but if you make it too long the loads in bending, when it goes through waves, for instance, will become too high and it will tend to break up.

We have illustrations of rather extreme craft which puzzle me. These things look more like racing boats, with almost no room for anyone, or anything, but the crew. Was this some sort of artistic licence? I don't know, but if we have to take these images seriously then there are big questions to answer about how to make the hull stiff enough and how to make any sensible use of the boat.

It seems, though, that someone had had the idea of turning the boat into a torpedo, fitted with a ram at the front for disabling the opponents' boat. These early images are not the only ones that show a pointed forefoot, but it is not clear that it was used for ramming until much later. Then we find a plan for packing in more man-power, with men at two levels. Apart from some rather doubtful images, both these features first turn up in Phoenician boats of about 700 B.C. Actually, these images also bother me because – as shown – the boats do not have enough displacement, and there's too much top-hamper. Most authors seem not to be bothered by any of this, but I wonder whether they have thought it out. Hmmm.

Greek images of much the same system first seem to appear quite a lot later, but these boats look more seaworthy. The sit below the men on the thwarts, in the hold. Their oars come out through openings in the side of the hull. Now, if you fill the hold with oarsmen you may get a terrific turn of speed but the boat isn't much use for cargo; we clearly have a specialized warship. It has been suggested that the new system was used as much to shorten the boat for a given man-power as to double the manpower. This too makes sense in the light of ramming tactics; a shorter boat can turn more sharply in a dogfight; but I believe that point is merely speculation.

In the spirit of getting more of a good thing, the two-tier system led to the development of a three-tier system, the famous trireme. Thucydides attributes the invention of the  (triērēs; trireme comes from the *Latin* name to the shipwright Ameinocles of Corinth, in the early or middle 7th. Century B.C. This was the classic warship about which Herodotus, Thucydides, and Xenophon wrote, and as such it has fascinated students of classical literature throughout the ages. By late antiquity, however, men were writing that the way in which they were arranged had been forgotten, and there have been arguments and preposterous suggestions ever since. What is odd is that many of these go against clear literary and physical evidence that has always been available, and even

against common sense; but the arrangement of the triērēs remained uncertain until our own time.

Nobody has found identifiable fragments of any triērēs, and it isn't likely that they will. These boats were not ballasted, so they didn't sink into the mud and get preserved. When a hull couldn't be patched it was probably broken up so that any sound parts could be reused. The most solid evidence, literally, lies in the remains of ship-sheds. Trieres were kept out of the water and under cover when not in service, and the foundations of the sheds built to take them give us limiting dimensions. The many other bits of evidence were finally all stitched together just a generation ago with – vitally – the input from a naval architect (because you can't get around the laws of physics). So, in the 1980s, we finally got a modern reconstruction of a triērēs. How authentic is the reconstruction? Actually, it turns out that the specification for this highly-specialized machine is so extreme that the outcome is highly defined. The thing is only just feasible; so, if one can devise a reconstruction that works at all it has, in all important respects, to be very nearly right.

Triērēs meant *triple-fitted, arranged in threes*. Forget Hollywood reconstructions of galleys with rows of sweating men on each broad bench, working huge oars. As before, each man worked a one-man oar, about the length of the oars of a naval gig and not much longer than a modern racing oar, but now the men sat in lines at three different levels. We have special names, given to each group, and they tell us a lot:

$\rightarrow \ell \rightarrow \text{---} \leftarrow \rightarrow \odot$ men in the hold ($\rightarrow \ell \rightarrow \text{---} \blacktriangle \leftarrow$ << storeroom, hold)

$\bullet \text{---} \leftarrow \rightarrow \odot$ men on the thwarts ($\bullet \blacktriangle \leftarrow$ << yoke, cross-beam, thwart)

$\rightarrow \rightarrow \blacktriangle \text{---} \leftarrow \rightarrow \odot$ men on the gunwale ($\rightarrow \rightarrow \blacktriangle \leftarrow \odot \leftarrow$ << bench, longitudinal beam, gunwale)

The triple-ness lies in the way in which a group of three men, one in each category, was thought of as a repeating pattern along the ship. Each group was just two cubits, the “ $\circ \sim \leftarrow \odot \uparrow \text{---}$ ”, about 0.98m., along from the next, so they were pretty close-packed. The standard triērēs had a rowing crew of 170.

The hull that accommodated these men, 12 tons of meat or more, was a bit of a freak: about 37m. long, 4.5m. in the beam and 2.5m. from keel to gunwale. In effect, it was a pentekonter hull with two extra lines of men each side, one above and one below the “original” ones who sat on the thwarts forming beams across the hull. The men in the hold worked their oars through holes in the side, rather near the waterline. Water was kept from slopping in by a leather diaphragm, an askoma, $\leftarrow \leftarrow \text{---} \rightarrow$, around each oar. This meant that the men at this level could not see out; rowing there would have been quite tricky, and sitting there at all quite claustrophobic. The men on the gunwale worked their oars through an outrigger, the $\leftarrow \rightarrow \odot \leftarrow \odot \leftarrow \odot \leftarrow \sim \rightarrow$ (par-ex-eiresia = alongside, outside, rowing-for-the-use-of).

It is hard to make a timber structure strong without making it heavy, and these boats had to be light. Also, it is hard to make the structure stiff if it is much longer than a tree is tall because there will always be movement at the joints, where either the wood crushes or the pieces pull apart. The hull was therefore turned into a pre-stressed beam by running a highly-tensioned cable along it, the hypozoma, ἵψοζωμα. This may seem weird, but it was good engineering. Without it, the boat would simply have broken its back, or would have to have been far more heavily built. The evidence challenges assertions like this:

“Greece was a society which never came to terms with technology.” (Oswyn Murray, *Early Greece*, Fontana, 2nd. edition 1993.)

These boats were standard enough in dimensions that they were virtually interchangeable, though we read that some were especially fast, perhaps either lighter or in better condition than the rest. Thus, we read about crews walking across the Isthmus at Corinth, each man carrying his oar, bum-pad and the leather strop for hitching the oar, moving from one fleet to another. In naval actions the boats that were put out of action didn't sink; they merely became swamped, and the aim was to tow them away. If they could be repaired, even the enemy's boats could be reused. Otherwise the parts could be cannibalized.

Apart from the oarsmen, there were the officers and a few deck-hands. Then there were the epibatai (ἐπιβάται = epi-batai = “those who go on top”, or “... in addition”). In other contexts, the word means passengers, but here it means armed men: ten hoplites (ἑνὸς ἀνδρὸς ἔξω ἐξοπλισμὸς = “man with ἑνὸς ἀνδρὸς equipment”), with armour, shield and spears, and four archers whose job seems to have been to protect the captain and helmsman. All these together made up a standard complement of 200.

It wasn't enough to have a good hull and equipment. Finding these crews for a fleet was no picnic. I'm not sure how much is known about the way other cities managed, but we know quite a lot about how Athens did it, largely from the “Decree of Themistocles”, a retrospective record of the arrangements made for the navy in 481 B.C., under threat of the Persian invasion. The state supplied the hulls. Incidentally, the life-expectancy of a wooden structure like this would have been about 20 years at most, so there must have been a running programme of rebuilding. The generals appointed a captain for each ship (triērarch, τριῆραρχος = man who commands a triērēs), on the basis not of competence or aptitude but of social standing. Either he drew gear for the ship from the public store, as his personal responsibility, or he provided his own; and he hired the crew. With only rare exceptions, the crew were free men, working for a daily state wage and perhaps a bonus from the triērarch.

There are some other points that had important bearings on naval tactics. Firstly, the boats were never left afloat for long if it could be avoided, because they needed regular drying-out. We don't know why: whether the hulls leaked, or filled with slop, or the wood itself got saturated, or a bit of any of these. Anyway, free bilge-water in a rowing

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Brekekekex co-ax co-ax.
 Di. I'm beginning to suffer too
 In my behind coccyx coccyx;
 Frogs Brekekekex co-ax co-ax.
 Di. Perhaps that doesn't bother you!
 Frogs Brekekekex co-ax co-ax.

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 Aristophanes, *The Frogs*, 210 ff.
 Frogs ...

The choppy, limping rhythm is just like the way a boat shudders under an inexperienced crew: what we used to call the death-rattle. Anyway, it gets worse... What I find harder to imagine is the experience of 170 naked men, fed largely on beans, sweating away for hours in a very confined space under the Mediterranean sun. Aristophanes offers us some graphic images, in lines that most translators omit:

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Aeschylus ... Yes indeed, when I sat in MY crew,  
 They'd only call for lunch-break, and of course chant "rhuppap-AI" too.  
 Dionysus Yes, by Gad! But they'd let out a fart in the face of the bottom-bench jack,  
 They'd shit on their messmate, and go off and steal the shirt from somebody's back!  
 But now they just argue; the boat loses way,  
 and drifts all over the bay.

Aristophanes: *The Frogs*, 1072 ff.

None of this would have been worth writing if it were not funny; and it wouldn't have been funny if it didn't have a certain ring of truth. The fact is, though, that in its heyday the Athenian navy was powerful and well-drilled.

Athens had become a sea power only about the beginning of the fifth century. On Athenian territory to the East, at Lavrion, were mineral outcrops which yielded argentiferous lead. The discovery of a particularly rich vein brought unlooked-for wealth, and the general mood was in favour of a hand-out: ten drachmas a man. Themistocles, however, persuaded the Assembly to put this lucky strike into building 200 ships for the then-current war against Aegina. Not long after that, knowing that Xerxes was preparing an invasion, the city sent to the Delphic Oracle and – at the second time of asking – got this famous advice:

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... and the goddess Athena
 cannot be appeased by Olympian Zeus,
 who has been begged by many words
 and cunning arguments. I shall tell
 you once more, and my words shall
 be adamant: While all else that lies
 within the borders of Cecrops' land
 and the vale of holy Cithaeron is
 falling to the enemy, Far-seeing
 Zeus gives you, Tritogeneia, a
 wall of wood. Only this will stand
 intact and help you and your
 children. You should not abide and
 await the advance of the vast host
 of horse and foot from the mainland,
 but turn your back and yield. The
 time will come for you to confront
 them. **Blessed Salamis**, you will
 be the death of mothers' sons
 either when the seed is scattered or
 when it is gathered in.

Herodotus 7, 141
 No, Pallas Athene cannot placate Olympian Zeus,
 Thous she begs him with many words and cunning arguments.
 I shall tell you once more, and endue my words with adamant:
 While all else that lies within the borders of Cecrops' land
 And the vale of holy Cithaeron is falling to the enemy,
 Far-seeing Zeus gives you, Tritogeneia, a **wall of wood**.
 Only this will stand intact and help you and your children.
 You should not abide and await the advance of the vast host
 Of horse and foot from the mainland, but turn your back
 And yield. The time will come for you to confront them.
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 And yield. The time will come for you to confront them.
Blessed Salamis, you will be the death of mothers' sons
 Either when the seed is scattered or when it is gathered in.
 trans. Waterfield, Oxford World's Classics

Opinion was divided as to whether the “wooden wall” meant the old palisade around the Acropolis or the new navy, and, on the latter view, the last two lines were taken as a prediction of a naval defeat off Salamis. It was Themistocles, again, who suggested that “*blessed Salamis*” seemed to be in the Athenians’ favour. And so it would prove...

... when the Persians came, in 480 B.C., and kept on coming. We don't have time to go step-up-step, so we will fast-forward to Salamis, where the Greek fleet had regrouped after the engagement at Artemisium. Xerxes thought he had them boxed in, but fearing that they would run for it in darkness he had his fleet out at night to form a blockade. So, his men were already tired and had had not breakfast when, in the morning, the Greek fleet put out.

We have an account from Herodotus, which is a good read; and a dramatic one from Aeschylus who was there, as would have been many of the original audience for *The Persians*, which tells the story from a Persian perspective:

At once ship into ship battered its brazen beak.
 A Hellene ship charged first, and chopped off the whole stern
 ...

...

Aeschylus, *The Persians*, 408 – 420.

At once ship into ship battered its brazen beak.
 A Hellene ship charged first, and chopped off the whole stern

Of a Phoenician galley. Then charge followed charge
 On every side. At first by its huge impetus
 Our fleet withstood them. But soon, in that narrow space,
 Our ships were jammed in hundreds; none could help another.
 They rammed each other with their prows of bronze; and some
 Were stripped of every oar. Meanwhile the enemy

Came round us in a ring and charged. Our vessels heeled
 Over; the sea was hidden, carpeted with wrecks
 And dead men; all the shores and reefs were full of dead.

trans. Vellacott, Penguin Classics

Disaster for the Persian fleet: a chaotic rout.

Firstly, there was the feint, persuading Xerxes that the Greeks meant to run. Then there were the battle tactics: Xerxes's large fleet was led into a trap, in a confined space. That done, seamanship counted for much; in such an arena, controlling the ships was paramount. The Persian ships crowded together and fouled one another's oars. This was an own-goal: one of the standard ways of disabling an opponent was to run his oars down.

That first Greek hit, going for the stern, was a classic move; you stood a chance of disabling the other boat by getting a steering oar. You might get the helmsman himself, or the trierarch, perhaps sending him overboard. And because you closed with the enemy from behind, he couldn't ram you.

In order to make contact like this, there were two classic manoeuvres: the periplous and the diekplous:

∠⊙~∠⊙_ peri-plous = sailing around
 ○° ∠⊙_ di-ek-plous = sailing through and out

The periplous was a simple outflanking manoeuvre, but its success depended on having the speed to get past the other ships before they could block your way. The diekplous involved getting behind the enemy formation by ploughing straight through it, which took nerve and good helmsmanship. After that, both manoeuvres depended crucially on making a rapid turn, and then a charge.

Athenian sea-power became for a time the key to the city's control of "allies" and trade routes, and so of her wealth; and so it contributed directly to the astonishing cultural flowering, in Athens, of what has been called the "Greek Miracle". Sadly, but inevitably, it did not last. Over-confidence, and perhaps unrealistic public expectation, seem largely to blame for the débacle of the Sicilian campaign, and then came the Peloponnesian War in which Athens counted too much on the strategic value of naval supremacy.

By the time that Alexander of Macedon over-ran the Eastern Mediterranean in the mid-fourth century, larger ships were being built there: firstly what are usually called "fours" and then "fives" and "sixes". Other city-states, Greek and non-Greek, notably Syracuse and Carthage, followed suit as far as their resources allowed. We do not know with certainty how these larger ships were arranged, but probably the general design of the triērēs was simply enlarged, with longer oars in some or all of the banks which were then managed by two men each. The growing use of these larger ships indicates a change in

naval tactics, probably a move back towards regarding the ship as a mobile fighting-platform. Trières were retained in subordinate rôles.

A great deal of Greek poetry is suffused with maritime imagery. Some, of course, concerns death, and in communities that – like the Peggotty family in *David Copperfield* – lived by the sea, “drown-dead” must have been accepted as a common fate. Here’s an epitaph that my old Greek master used to make us recite. I can’t remember the author:

.·→_θ·ο` ↔↗γ_ο_ ⊙ π~≈ ←^ ○⊙ λl ⊙≈ →_θ ·→_ → P_ _ ○π⊙ ~ _
 ¼ll^ π⊙_ _ → lo_λ→~ ◆○⊙_ λ_◆↔_λ_⊙_◆

A shipwrecked sailor’s tomb am I, but sail on; for when we
 Were perishing, the other ships were putting out to sea.

... and after that, my master would have said: “Very Greek! Very Greek, boys!” ...and that would have been the end of our lesson.