

INTRODUCTION

The subject of this book is not one of the great literary, historical or philosophical problems with which the student of the Greek civilization of antiquity is faced. The book is written in the belief that those who have an interest in those problems may be ready to see that civilization illustrated, perhaps even illumined, by an examination of some part of its constant background of seafaring.

The constant and close reliance on the sea, and on the ships that sailed it, could not have failed to influence the language of the ancient Greeks, the metaphors and pictures in which their ideas were expressed. The result is that passages of Greek poetry and prose writing are often inscrutable without a knowledge of the nautical practice which lies behind them, and modern ignorance has led on occasion to corruption of the text. More frequently, historical events depend for their correct assessment on a knowledge of nautical matters. Unless we know what rowing in a *trieres* meant, we can hardly expect to understand the battles and voyages, the problems of training, transport and supply in the fleets of the fifth and fourth centuries. Finally, one of the joint authors was led to the subject in an attempt to find an explanation for a simile in Plato. In the myth of Er in the tenth book of the *Republic* Plato illustrates his picture of the universe saying that it is bound with a bond of light 'like the *hupozmata* of *triereis*'.

Torr's *Ancient Ships** is a fine book, but now rather out of date. It is also unscientific in its treatment of evidence. Koester's '*Das Antike Seewesen*'† is equally unscientific. It covers less ground than Torr and is equally out of date. Casson's recent *The Ancient Mariners*‡ takes a much wider canvas than we shall attempt, and is accordingly unable to treat the evidence of Greek antiquity in detail. Modern works of reference are most unsatisfactory. One example is perhaps sufficient. Liddell-Scott-Jones gives under *trieres* Tarn's explanation of the rowing system, apparently unaware that such a system is totally unsupported by any evidence, is based on the demonstrably untrue assumption that two-level ships did not exist before the *trieres*, and requires furthermore a length of hull and of oar which conflicts with the evidence,

* Cambridge, 1894.

† Berlin, 1923.

‡ London, 1959.

INTRODUCTION

unmistakable in the case of the hull at least.* Under the names for the three classes of oarsmen, *thranites*, *zugios* and *thalamios*, Liddell–Scott–Jones gives a completely different, and more sensible, explanation of the oar system. If we look under *tetreres* and *penteres* we find no explanation at all.

The main object of this book will be to collect all the evidence for the Greek oared ship between 900 and 322 B.C. We shall draw the conclusions which seem to us necessary both about the oar systems and about the other features of these ships. But we hope that if the reader considers that we have drawn the wrong conclusion we shall at any rate have provided the material with which a better conclusion may be reached.

Representations of Greek oared ships are preserved from earlier centuries than the eighth. These early examples appear to be simple oared ships rowed at one level, and to have had the characteristic build of the later ships, an L-shaped keel with the lower limb of the L lengthened and terminating forward in a ram. We have no literary texts to enlarge our knowledge of these ships, unless the Linear B tablets with their references to rowers can be taken to be such. In the eighth century a flourishing Greek civilization around the eastern basin of the Mediterranean had close connections with the sea, over which passed virtually all its main lines of communication. This civilization produced epic poems, in particular the *Iliad* and *Odyssey* in which sea voyages play so large and intimate a part. It also produced, at Athens, the pottery of the Geometric style, on which contemporary oared ships frequently appear, more probably for their own sake than as illustrating a story, although some are certainly illustrations.

In the following centuries at Athens first black- and then red-figure pottery makes reference to oared ships, and the growing volume of literature of all kinds provides a commentary, particularly explicit in the historians. In the fifth and fourth centuries, when the *trieres* becomes the universal ‘capital’ ship, while the production of literature is in full flood, the supply of representations of ships shrinks to a mere handful. While the black-figure painter often decorated his vases with ships as objects interesting for their own sake, the red-figure painter is an illustrator; and ships, or more frequently the sterns of ships, appear only as stage properties in scenes of mythology. The painter will then only show a *trieres* by anachronism. It is fortunate however that we have a ship portrait in relief on stone from the end of the fifth century.

* For arguments against Tarn’s theory see *Mariner’s Mirror* 27 (1941), 14–44 and *CQ* xli (1947), 122–35.

INTRODUCTION

Epigraphy supplies a limited amount of information in the fifth century. The decree of Themistocles before Salamis, preserved in a fourth-century version, is perhaps more valuable for its intrinsic interest than for the information it gives. But in the fourth century the ‘naval lists’, inventories of ships and their gear as they were handed on annually from one board of dockyard supervisors at Piraeus to another, supplement and enlarge in many important respects the knowledge of the contemporary oared ships which we can derive from literature and art.* The naval lists tell us that in the year 330–329 B.C. the *tetreres* had been introduced into the fleets of Athens. Five years later the *penteres* appears in an inventory. We shall consider the possible reasons for, and the nature of, the new developments, but we shall not pursue the history of the oared ship beyond this vital stage in its evolution. The subsequent history of the oared ship merges with the history of the fleets of Alexander’s successors, of Carthage, Rome and Byzantium. We close our account with the year when Macedonian troops occupied the naval installations of Athens, and brought to an end once for all the era in which a city-state, with a few hundred *triereis*, had been able to dominate the civilized world.

NOTE ON TERMINOLOGY

For the benefit of Greekless readers no Greek appears in the text or footnotes. Arabic numerals in the text refer the reader to the Greek texts collected in separate sections of each chapter. A number of Greek words do nevertheless appear in the text in English letters, the names of things the nature of which is being discussed, e.g. *hision*, *hupozoma*. Quantities are marked in the Glossary of Greek words. Where there is a convenient anglicized form of a word or name, e.g. pentekontor, trierarch, *Persians* (for the title of Aeschylus’ play), this has usually been used. In the case of the names for ship types, *trieres*, *tetreres*, *penteres*, we have thought best to retain the transliterated Greek forms rather than adopt the convenient anglicized forms of the Latin *triremis*, etc., familiar though they are to English readers. Our reason is the lack of certainty that the *trieres*, *tetreres* and *penteres* were in fact identical to the *triremis*, *quadriremis* and *quinqueremis*.

* The foundations of the study of these lists were laid by August Boeckh’s great work *Urkunden über das Seewesen des Attischen Staates*: hergestellt und erläutert von A. Boeckh, Berlin, 1840 (vol. III of his *Staatsverwaltung der Athener*). All subsequent workers in this field must acknowledge a debt to him.

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J. S. Morrison and R. T. Williams
Excerpt
[More information](#)

THE HOMERIC PERIOD: 900–700 B.C.

οὐ γὰρ Φαιήκεσσι μέλει βιὸς οὐδὲ φαρέτρα,
ἀλλ' ἴστοι καὶ ἔρετμὰ νεῶν καὶ νῆες εἶσαι,
ἣσιν ἀγαλλόμενοι πολιτὴν περόωσι θάλασσαν.

Homer, *Odyssey* 6, 270–2

‘For the Phaeacians take no interest in the bow and the quiver, only in masts and ships’ oars and balanced ships, in which they take delight as they cross the grey sea.’

I

SHIPS OF THE BRONZE AGE

SUMMARY

The earliest purely Greek representations of an oared ship come from Volos in Thessaly on the Middle Helladic (i.e. Bronze Age) vase found in 1956 (BA. 1, Pl. 1*a*). Most authorities suppose that the Greeks began to arrive in Greece during this period and added their culture to that of the existing people, who had close affinities with Crete, the Islands and S.W. Asia Minor. There is disagreement as to the area from which the Greeks came: those who believe that they came by sea from N.W. Anatolia may point to these ships as some slight support for their theory, for they resemble the ships on the silver dagger blade from Dorak in Phrygia of the third millennium B.C.* That the place where the vase was found (Kastro tou Golou) has been identified with the site of the ancient Iolkos, with which the Argonaut myth is closely associated, led the excavator, Theochares, to call these ships 'a significant promise of Iolkos' developing maritime enterprise which eventually led to the launching of the good ship *Argo*'. It is interesting to note that even at this early date Greek ships were equipped with a ram, which determined naval tactics for centuries.

By the Mycenaean period (Late Bronze Age) it is clear from the Linear B tablets found at Pylos in Messenia that the oared warship was an important element in the defence strategy of the Homeric Nestor, for they record † tallies of crews drawn from various Pylian townships detailed for service at Pleuron in order to face the threat of some external danger. Perhaps only by coincidence the best preserved of Mycenaean ship representations comes from Messenia (BA. 2, Pl. 1*b*): from this, and to some extent from the others, it is possible to get some idea of the ships in use during the Mycenaean era.

Mycenaean warships were certainly equipped with the ram (BA. 2 and 6, and probably 3, Pl. 1*c*, and 5), propelled by both oar and sail (BA. 2-4) and

* Particularly as to the ram and the arrangement of the oars on four of the ships. Mellaart, *Illustrated London News*, 28 November 1959.

† Ventris and Chadwick, *Documents in Mycenaean Greek*, An. 1 and An. 610.

THE HOMERIC PERIOD

steered by steering oars from the stern (BA. 2 and 5). The balustrades at bow and stern above the level of the gunwale presuppose platforms fore and aft. Bow and stern are high, but there is no uniformity about the method of decorating them. The chief controversy arises over the interpretation of the horizontal and vertical lines between bow and stern. The interpretation which seems most likely will be mentioned first. The upper horizontal represents the line of the near-side gunwale, the lower line the line of the keel. This interpretation gives all the ships a seaworthy appearance, puts them in proportion, and in the case of BA. 3 is unimpeachable. The verticals between the horizontals in BA. 2 can be explained as decoration; for not only was this method of decoration used on later ships (e.g. Boeotian fibulae, Arch. 13–16, Pl. 8*d*; Corinthian plaque, Arch. 44; and the Etruscan amphora, Louvre E. 752), but on the terracotta model, BA. 7, on which there can be no doubt as to what is the hull, there are similar vertical markings on the outside. It would be a mistake to imagine that because the painter leaves an area reserved in the colour of the clay, he intended to represent void. On certain Geometric ships (Geom. 2–6) the rectangles formed by such vertical lines represent ‘rooms’ (i.e. rowing spaces) of the oarsmen, since tholepins appear one in each rectangle. Thus BA. 2 has space for 25 such ‘rooms’, and may therefore be of pentekontor size. But it must be noted that whereas on the Mycenaean ships the vertical lines appear to be only decorative, on the Geometric ships the lines may represent a structural feature. On BA. 3 and 4 there is a single vertical amidships between the two horizontals. This may represent a mast, but if so, why is it shown *outside* the hull? It may be a single vertical on a roughly drawn ship in place of the series which appears on the carefully drawn BA. 2. However, a parallel for the rendering of the mast outside the hull can be found on BA. 8: this latter is not a warship with ram, but a merchantman, and has a hold; the side of the ship is cut away so that we can see what is going on below.

The other interpretations of these verticals make a thoroughly unseaworthy ship. It has been suggested* that the upper horizontal represents a deck and the verticals its supports: on this interpretation the hull must consist only of the lower horizontal, and thus be several times shallower than its own superstructure. The same objection may be made against the interpretation which makes the upper line a rail and the verticals its supports. There

* Kirk, 118.

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Excerpt

[More information](#)

SHIPS OF THE BRONZE AGE

may well have been rails on Mycenaean ships, but not of the height shown in the painting.*

The sail on BA. 3 is made up of small squares, and thus conforms to Geometric practice (see Geom. 7–9 and p. 54).

CATALOGUE

BA. 1. Plate 1*a* (after Theochares). Fragments of a matt-painted Middle Helladic vase from Volos (Iolkos). c. 1600 B.C. Theochares, *Archaeology* 1958, 15; Lord William Tylour, *The Mycenaean*, 163, fig. 74; Orlandos, *Ergon* 1956, 46; E. Vermeule, *Greece in the Bronze Age*, fig. 43*a*.

Two ships to right. The better-preserved group of fragments shows a prominent ram and part of the bow aft. The hull was decorated with a zigzag pattern within an ellipse.† There are five diagonal lines painted downwards from the keel just aft of the ram, but these diagonal lines did not continue along the hull: they have been interpreted as oars, but in this case it is surprising that they are set so near the ram and that they are not apparently continuous.‡ To judge from the other bow there were similar diagonal lines above the bow, and the top corner of the bow on Pl. 1*a* has been restored on this evidence. Theochares also restored a second pair of oar groups further aft balancing those forward, but there is no apparent evidence for these nor for the shape of the stern. A short piece of a thick diagonal line in front of the bow on the second group of fragments has been ingeniously restored by Theochares as part of the steering oar of the other ship.

BA. 2. Plate 1*b* (drawn by W. Dodds after Kourouniotes). Mycenaean pyxis from the Tragana Tholos Tomb, Messenia. Kourouniotes, *Eph. Arch.* 1914, 108, figs 13–15; Casson, *The Ancient Mariners*, pl. 3*b*; Furumark, *Mycenaean Pottery*, 333, fig. 56, 40, ship 2 (dated to Late Helladic IIIc, 1; but wrongly drawn); E. Vermeule, *Greece in the Bronze Age*, fig. 43*b*; Kirk 118, B. iv.

Ship to right. A continuous thick line runs from the top of the stern post to the end of the short ram: above it is a thinner horizontal line with verticals between the two (for a discussion of this hull see Summary). The stern post is high, inclines slightly aft, and has a bulbous end. The stern compartment has a balustrade and contains a large steering oar with a tiller attached by a pin. The bow compartment too has a balustrade, surmounted by a fish ensign. Several reproductions of this ship inadvertently omit the protrusion in front of the stem together with the decoration immediately behind it. The bow is high. A single rope (forestay) runs from the bow to the top of what must be the mast. The top of the mast has a ring on each side (cf. Arch. 94, Pl. 21*e*).

* On Geometric ships it will be argued that the painter was trying to represent both the profile and the plan views, but Mycenaean painters do not seem to be addicted to such distortions (compare the correctly drawn Mycenaean with the distorted Geometric chariots).

† For a parallel for this decoration cf. the zigzag decoration on at least one ship from the Early Cycladic ‘frying pan’ (Tsountas, *Eph. Arch.* 1899, 90, fig. 22) or Hipponax’ advice to Mimnes (see below, p. 120).

‡ But see the Dorak ships, p. 7 above, for a parallel.

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[More information](#)

THE HOMERIC PERIOD

Three ropes run upwards from the stern: Kourouniotes restored two of these as running to the mast-top (backstays) and the third, the lowest one, to the sailyard, as in Pl. 1 *b*; but in BA. 4 this lowest rope seems also to be attached to the mast. The sail is stylized into a small ellipse.

The restoration in Pl. 1 *b* is indicated by lighter ink.

BA. 3. Plate 1 *c* (drawn by W. Dodds after Froedin and Persson). Stirrup vase from Asine, House G. Froedin and Persson, *Asine*, fig. 207, 2; Furumark, *Mycenaean Pottery*, 333, fig. 56, 40, ship 3 (he dates to Late Helladic IIIc); Kirk, fig. 5; Casson, *The Ancient Mariners*, pl. 3 *c*; E. Vermeule, *Greece in the Bronze Age*, fig. 43 *d* (but the ram has been refined in the drawing).

It is not clear at first sight whether the protrusion on the left is a steering oar or a ram. In shape it is more like a steering oar and the swelling at its extremity tells against a ram, but does not preclude it, for the second vertical from the right of the sail is just as irregular, and the whole ship is very roughly drawn. Against the steering oar theory it may be argued that the protrusion is clearly an extension of the keel line and not an oar set over the gunwale. It is more likely, on balance, to be the ram, with the line of the ram continuing along the bottom of the hull, as in BA. 2. The horizontal line above is the gunwale. Oars are painted roughly across the hull; the two nearest the stern alone reach the gunwale; although these are called oars, they may well correspond to the verticals painted on the hull of the more careful BA. 2. In the centre of the hull is a thicker vertical which seems to be the mast; that the mast is seen through the hull is a piece of distortion which may be paralleled on BA. 8, where figures are seen standing in the bottom of the hold. At the stern the keel does not curve upwards as in BA. 2, but has an elbow. The stern is high and has six protrusions on the inner side and two on the outer. The bow has a straight stem post, and bow screens. The sail is composed of small squares, but there are no ropes.

BA. 4. Fragments from Phylakopi. *JHS* Suppl. IV, pl. 32, figs 11 *a*, *b* (Late Helladic III); Kirk 116, B. 1.

(*a*) Ship to left. The stern ends in four divisions; the stem post is plain and curved. Three ropes from the stern to the mast repeat the arrangement of BA. 2. The horizontal line on either side of the fragment, just below the level of the tops of the bow and stern, seems too low for a yard, but the line does not continue to the bow, so that it cannot be part of the hull.

(*b*) Section of the hull of another ship facing right. Part of the lower hull line is crossed by oars as in BA. 3. On the left is part of the steering oar. On the right, cutting the lower horizontal almost at right-angles, is a thicker line in what must be the same position as the thick central line in BA. 3, which was there interpreted as a mast. Part of the upper horizontal (gunwale) remains at the top of the fragment.

BA. 5. Mycenaean fragment from Eleusis. Skias, *Eph. Arch.* 1898, 71, fig. 11.

Ship to right. The fragment breaks just before the ram. Below the narrow hull are seven rowing oars and two steering oars: the stern is curved.

SHIPS OF THE BRONZE AGE

BA. 6. Mycenaean fragment of a terracotta model from Phylakopi. *JHS* Suppl. IV, pl. 40, 37.
 Bow of ship with a short ram. The stem is concave in outline.

Other Mycenaean ship representations are not warships; they include:

BA. 7. Terracotta model from Phylakopi. *JHS* Suppl. IV, fig. 180; *BSA* iii, 23.

A ship without a ram. Vertical bands are painted on the inside (to represent ribs or benches) *and* on the outside. This gives support to the theory (see Summary) that the verticals on the Pylos vase, BA. 2, are not supports of any kind, but decoration. There is an eye on each side of the bow.

BA. 8. Krater from Enkomi. *Swedish Cyprus Expedition*, I, pl. cxxi, 3–4; Furumark, *Mycenaean Pottery*, 333, fig. 56, 40 (dated to Late Helladic III B); Wace and Stubbings, *A Companion to Homer*, 542, fig. 65; E. Vermeule, *Greece in the Bronze Age*, pl. xxxii, A.

Two ships, probably merchantmen.

BA. 9. Miniature stool of terracotta from Phylakopi. *JHS* Suppl. IV, fig. 181.

Stern of ship.

BA. 10. Carving on stone stele, Dramesi (Hyria?). Blegen, *Hesperia* Suppl. 8 (1949), pl. 7 (Late Helladic I); E. Vermeule, *Greece in the Bronze Age*, fig. 43c.

Rough carvings of what are probably merchantmen. There is a similar carving on a stele of Late Cypriot III date from Enkomi (Schaeffer, *Enkomi-Alasia*, pl. 10).

BA. 11. Stirrup jar from Skyros. E. Vermeule, *Greece in the Bronze Age*, fig. 43f (Late Helladic IIIc).

This ship without a ram and having a high curving stern and bow with a figure-head resembles the ships of the Sea Peoples depicted on Egyptian relief sculptures (*Medinet Habu*, vol. I, Publications of the Oriental Institute, University of Chicago, no. 8, 1930, pl. 37).

2

SHIPS OF THE GEOMETRIC PERIOD

PROTOGEOMETRIC

Geom. 1. Plate 1*d* (after Kirk). Cretan bell-krater. Heraklion VI, 8. Desborough, *Protogeometric Pottery*, 241 (dated to *c.* 900 B.C.); Kirk, fig. 6.

Two ships in silhouette. It is difficult to be sure which is the stem and which the stern. The left-hand end is drawn thicker and squarer than the right-hand end, and high solid side screens of this sort are characteristic of bows rather than of sterns. If the left-hand end then is the bow, the protrusion at this point should be the ram. The shape of this protrusion may look a little like the blade of a steering oar, but if it is a steering oar it is surprising that the artist has omitted the loom, although he had no means in this pure silhouette technique of indicating the part between the blade and the loom. This may not be the Attic Geometric way of indicating the ram (this is a Cretan vase and the large majority of Geometric versions are Attic), yet it is clear from the Aristonothos krater (Arch. 5, Pl. 9) that the downward pointing ram of this sort did exist. Apart from the ram, six horizontal planks protrude in front. The keel curves upwards towards the stern, from which four planks protrude.

THE DIPYLON GROUP. LATE GEOMETRIC I.

c. 760–*c.* 735 B.C.

NOTES ON THE INTERPRETATION OF GEOMETRIC PICTURES
OF THIS PERIOD

This Dipylon Group* consists of monumental grave vases often over five feet high and is called after the Dipylon cemetery at Athens, where they were found. They were decorated not only with Geometric ornament, but also

* Most of these vases are fragmentary and dispersed over Europe and America; and it has been a subject of study to attribute the fragments to their parent vases (Kunze and Villard) and the vases to their painters: in this last pursuit Chamoux, Coldstream, Davison, Kunze, Nottbohm, and Villard have done and are still doing much. The chief painter is called the Dipylon master or the Painter of Athens 804 after his outstanding work: an associate of his has been called by Miss Davison the Kunze painter after the scholar who first isolated him, while still other hands have been identified among the general products of this workshop and others. There is as yet no firm agreement about these painters and their works, and the problems are complicated by the fact that more than one painter sometimes worked on the same vase (Davison, 29 ff.). The Geometric period as a whole has problems of chronology, but the dates given to the Group are those of Davison, which have won a wide measure of agreement (see Coldstream's review of her work in *JHS* 1963, 212).