

WERE NECHO'S TRIREMES PHOENICIAN?

(PLATES VI-VIII)

MOST academic disciplines are bedevilled with perennial *crucis* which seem destined to sprout up generation after generation to vex the ingenuity of their practitioners. The science of nautical archaeology is no exception. It is, however, doubtful whether any of its problems can vie in this respect with that of the ancient trireme. The arrangement of the oars, date of introduction, inventor and many other difficulties have been for decades—sometimes for centuries—the subjects of bitterest controversy. In these discussions the evidence of Herodotus of Halicarnassus, the earliest surviving Greek historian, has played an all-important role, in particular an extremely interesting passage which occurs in his account of Ancient Egypt in Book ii.

When he had desisted from the canal Necho turned his attention to military campaigns and triremes were constructed, some for the Mediterranean and others in the Red Sea for operations in the Erythrian Ocean. The slipways of the latter are still to be seen. And these ships he put to use when the need arose. (ii 159, 1-2)

I have recently discussed the implications of this text in an attempt to show two things.¹ First, a considerable body of evidence was presented which proved that, despite recent denials, warships built for ramming of a totally un-Egyptian type were certainly being used in Egypt during the Saïte Period. Secondly, it was argued, essentially on the basis of Thucydides i 13, that Greek triremes were in existence during the Cypselid tyranny at Corinth (c. 657-583 B.C.)² and that, in all probability, the triremes of Necho derived from such Greek prototypes.

The second half of my thesis does not agree with the conclusions of M. Lucien Basch, who argued in an article published several years ago that Necho's triremes were of Phoenician, not Greek, extraction.³ I should be amongst the first to acknowledge the undoubted brilliance of M. Basch's study, but on this matter I find his results extremely difficult to accept. It is this disagreement which forms the motive for the present enquiry. Let me begin by tabulating the evidence on which his opinion is based:

- (1) He argues that there were two radically different types of trireme in existence during the Archaic and Classical Periods—the Greek and the Phoenician. The former was a long, narrow vessel built like a racing eight and needing an outrigger (*apostis, παρεξαιρεσία*) to provide sufficient leverage for the topmost row of oars. The latter, on the other hand, he claims to have been very different on the basis of several arguments:

In the course of writing this article I benefited much from the comments and advice of J. S. Morrison, Wolfson College, Cambridge, R. T. Williams, University of Durham, W. G. G. Forrest, Wadham College, Oxford, and my colleague, Professor J. P. A. Gould, University College, Swansea. The views expressed are, however, my own.

For permission to publish photographs I am indebted to the trustees of the British Museum, the Dept. of Near Eastern and Classical Antiquities of the National Museum, Copenhagen, the Staatliche Museen, Berlin, l'Institut Français d'Archéologie Orientale, Cairo, and the Editor of *The Mariner's Mirror*.

¹ 'Triremes and the Saïte Navy', *JEA* 58 (1972), p. 268 ff.

² The High Chronology is much more likely to be correct than the Low (Lloyd, *op. cit.*, p. 277, n. 4; S. I. Oost, 'Cypselus the Bacchiad', *CPh* 67 (1972), p. 16, n. 26).

³ 'Phoenician Oared Ships', *The Mariner's Mirror* 55 (1969), p. 230 ff. This view has been enthusiastically welcomed by L. Casson ('Another Note on Phoenician Galleys', *ib.* 56 (1970), p. 340; *Ships and Seamanship in the Ancient World*, Princeton, New Jersey, 1971, p. 81, n. 19) and D. Harden (*The Phoenicians*, Harmondsworth, 1971, p. 115).

(a) The famous Sennacherib reliefs dating *c.* 690 B.C. and depicting the flight of Luli, King of Tyre and Sidon, to Cyprus in 701, portray Phoenician biremes, some of which are clearly warships built for ramming (PLATE VIa). They are equipped with a deck for warriors built over the upper row of oarsmen and are embellished with a row of shields along the side. The others are double-ended and much less martial in appearance. From these reliefs M. Basch argues as follows. 'A continuous deck extending right across the ship cannot, for reasons of stability, be reconciled with a long, narrow ship such as the Greek galley of the seventh and sixth centuries' (p. 148). Since Luli's ramming galleys have such a deck, he infers that 'the "long" ships were such only in appearance; they were surely a military version of the round ships'.

(b) Coins from the Phoenician cities of Aradus, Byblos and Sidon dating *c.* 450–332 depict triremes characterised by shields, an upper deck completely covering the top row of oarsmen, corbel-shaped bows and, sometimes, sterns, a large ram and a bow shelter (PLATE VIb). M. Basch insists that wales are absent. On the basis of these coins he claims that 'we can say that Phoenician galleys of the fifth and fourth centuries were the direct descendants of Luli's ships and only differed from them in appearance by the addition of an eye-shaped forecastle and in construction by the change from the breme to the trireme'.⁴

(c) The National Museum at Copenhagen boasts a terra-cotta ship model⁵ which shows points of similarity with the triremes on Phoenician coins, viz. oars emerging at three levels, a continuous deck, large ram, a row of shields and a corbelled bow (PLATE VIIa). It is, therefore, taken to represent such a ship. Its hull shows no wales, the bow has a 'complicated and swollen shape' and a *παρεξειρεσία* is lacking.

(d) Phoenician triremes are described in literary texts. The presence of 'the continuous deck influencing the whole design of the ship' is supported by Herodotus (vii 184; viii 118–19) and by Plutarch (*Themistocles* xiv 2) who describes the Greek ships at Salamis as being of light draught (*ἀλιτενεῖς*) and rather low (*ταπεινότερας*) as compared with the ships of the Phoenicians⁶ which had high poops and lofty decks. He also claims that two passages in Herodotus (viii 10, 1; 60, a) indicate 'that the Greek ships were more lightly built and more fragile than those of the Phoenicians, with heavier and more solid hulls which wore out less quickly'.

M. Basch then combines this material and reconstructs a Phoenician trireme which was, in origin, essentially a round ship equipped with a ram and propelled by three rows of oarsmen per side. It, therefore, differed from the Greek in being bigger, sturdier, rather bluff in the bows, continuously decked and sufficiently beamy to dispense with the outrigger.⁷

- (2) The Phoenician trireme was invented in the seventh century at Sidon, whereas triremes did not appear in Greece until the sixth century.⁸ This assertion is based on a statement of Clement of Alexandria that the trireme was invented in that city,⁹ the conviction that 'since Sidon was completely destroyed in 676, the transformation must have taken place before then,¹⁰ though after 700', and the complete acceptance of J. A. Davison's arguments against the invention of the trireme at Corinth in the seventh century.¹¹
- (3) Herodotus informs us (iv 42) that Necho sent Phoenician sailors on a voyage to circumnavigate Africa and that is claimed to indicate naval dependence.¹²
- (4) There is a tradition of Egyptian reliance in shipbuilding on the Levant 'sometimes perhaps for types of ships and always for timber'.¹³
- (5) The Louvre owns two golden *bouts de collier* which are claimed to be representations of Necho's triremes. Of these M. Basch writes: 'We cannot expect great accuracy in an object of this sort, but we can at once see characteristics which are not Greek but Phoenician. There is an enormous ram, very long and plain, whereas the Greek ram at this date was in the shape of a boar's head, and—above all—there is a continuous row of shields running right forward with a rail above and below them.'¹⁴

Such, then, is the underpinning of M. Basch's now widely accepted opinion that Necho's triremes were Phoenician. Detailed analysis will, however, reveal that it is not such a

⁴ *Op. cit.*, p. 152 ff.

⁵ N. Breitenstein, *Catalogue of Terracottas, Cypriote, Greek, Etrusco-Italian and Roman*, Copenhagen, 1941, p. 56 with pl. 63, no. 520.

⁶ The word Plu. uses is βαρβαρικά but it is clearly the Phoenicians whom he has in mind. Xerxes' fleet did, however, contain a considerable number of Ionian ships.

⁷ *Op. cit.*, p. 157 ff.

⁸ *Op. cit.*, p. 232.

⁹ *Stromateis* i 16, 76.

¹⁰ This point appears also *ap.* J. A. Davison, 'The First Greek Triremes', *CQ* 41 (1947), p. 21, n. 1.

¹¹ *Op. cit.*, p. 18 ff.

¹² Basch, *op. cit.*, p. 231 ff.

¹³ *Loc. cit.*

¹⁴ *Op. cit.*, p. 232.

sturdy structure as it may appear at first sight. I shall now proceed to analyse this evidence point by point.

(1) The argument from Luli's biremes is specious. Since continuous decks are known to have been fitted on Greek triremes,¹⁵ it is obvious that Greek war-galleys were capable of carrying them without incurring an unacceptable loss in stability. Therefore, the presence of such a feature on Luli's biremes does *not* indicate that their structure was basically different from the Greek. In particular it does *not* prove that they were 'round' rather than 'long' ships.

With the collapse of this argument the evidence of the coins, which is dependent on it, assumes a completely different light. Basch is quite correct in affirming that these ships are a development of Luli's ramming biremes but, since it is perfectly possible for the latter to be Greek in structure, the same must hold true of the triremes on the coins. Indeed, several features suggest that this is, in fact, the case. Basch himself admits that the bow shelter is Greek.¹⁶ The lines of the bow have Greek parallels.¹⁷ Surface markings on the coins of M. Basch's pl. 7, despite his special pleading,¹⁸ are perfectly consistent with the presence of the wales found on Greek triremes. Certainly, the absence of an elaborate Greek ἄφλαστον at the stern cannot be taken seriously as proof to the contrary, since such a complex treatment of the wales and keel was not structurally necessary and may simply not have appealed to Phoenician tastes. Furthermore, the coins cannot be used to demonstrate the non-existence of the παρεξαιρεσία since, as Greek representations show quite clearly, this was a feature of such complexity that artists frequently omitted it, a lapse all the more likely when they were working to a scale as small as that of the coins.¹⁹ On the whole, therefore, it seems that M. Basch has gone too far. The coins, like the Luli reliefs, do not provide evidence of a fundamental difference in structure between the hulls of Greek and Phoenician triremes.

The Armant trireme, Basch's strongest weapon, is highly questionable evidence. Such models were normally made as votive offerings by potters who might well have only a cursory acquaintance with the subject, a situation which is particularly likely in this case since the model was almost certainly made by an Egyptian craftsman. Furthermore, given the religious purposes for which they were intended, the makers felt under no obligation to create an accurate likeness and often rested content with work of the most sketchy kind. To quote two acknowledged authorities, 'Technically, Graeco-Egyptian terra-cottas are clumsy work, made with few moulds and a minimum of effort.'²⁰ '... es wiegt das rein schematische Element vor, die Arbeit haftet am Konventionellen und erhebt sich nur selten zu mehr selbständiger Auffassung und zum Individuellen'.²¹ In the present case we are manifestly confronted with a model which fits this pattern perfectly. It is of extreme crudity, so much so that R. C. Anderson²² could write:

Alexanderson²³ reproduced a photograph of this much battered object, but described it as roughly and carelessly made with no claim to be considered a trustworthy representation of its subject. My own verdict would be even more harsh: it *may* be meant for a trireme, but there is nothing whatever to be learnt from it.

Pace M. Basch²⁴ and in spite of the over-cautious *may*, this is surely the only scientific view.

¹⁵ J. Morrison & R. Williams, *Greek Oared Ships*, Cambridge, 1968, p. 161 ff., particularly 170.

¹⁶ *Op. cit.*, p. 156.

¹⁷ Cf. a coin of Zancle dating c. 489 B.C. showing a bow typical of Samian and Corinthian ships (Morrison & Williams, *op. cit.*, pl. 20c (Arch. 89) with p. 111 ff.).

¹⁸ *Op. cit.*, p. 156.

¹⁹ Casson, *op. cit.*, p. 82, n. 27.

²⁰ R. A. Higgins, *Greek Terracottas*, London, 1967, p. 132.

²¹ C. M. Kaufmann, *Ägyptische Terrakotten der griechisch-römischen und koptischen Epoche*, Cairo, 1913, p. 34.

²² *Oared Fighting Ships*, London, 1962, p. 17.

²³ 'Den Grekiska Trieren', *Universitets Årsskrift*, N.F. I, 9, 7 (1914), p. 38.

²⁴ *Op. cit.*, p. 158.



M. Basch may well be right in claiming that the craftsman had in mind a Phoenician trireme but it seems hazardous in the extreme to use such an object to prove that the ship did not possess a *παρεξαιρεσία*, was not equipped with wales—neither of which occurs on Egyptian ships and might well have fallen outside the potter's experience—and had a hull whose proportions differed fundamentally from those of the Greek counterpart.²⁵

What of the literary evidence? It certainly confirms the presence of the continuous deck and other elaborate upper works and shows that these made Phoenician triremes higher and, in view of the weight, caused them to draw more water than those of the Greeks, but beyond that it tells us nothing. Neither Herodotus nor Plutarch give any indications on the nature of the hull.

We conclude, therefore, that there is no reliable evidence that the hulls of Phoenician triremes differed fundamentally from those of the Greeks. The Luli reliefs and the coins tell us nothing about cross sections nor can they be taken to prove that the arrangement of oars differed from the Greek system. It is impossible to circumvent these shortcomings by reference to the Copenhagen trireme since the model's rough workmanship and probable Egyptian origin make it impossible to regard it as an accurate representation. The literary evidence does nothing but confirm the existence of the continuous deck and its effect on seaworthiness. Acceptance of M. Basch's novel trireme is a big step and before we take it we *must* have more than this.²⁶ That is not to say that the triremes of the two nations were identical in appearance. Phoenician rams appear to differ in shape (though we must allow for artistic distortion), the design of the stern is different, shields are carried along the gunwale and a continuous deck increasing height and draught was standard, but such dissimilarities are matters of detail, to be compared with those between Turkish and

²⁵ The inaccuracy of models is a perennial problem in nautical archaeology: *cf.* the bronze model at Athens which was dedicated to Athene at the Erechtheum. This has a *hypo zoma* running along the top of the gunwale instead of around the hull (Morrison and Williams, *op. cit.*, p. 179).

²⁶ Casson has recently suggested that such a flush-sided trireme was employed by the Romans ('Another Note on Phoenician Galleys', *The Mariner's Mirror* 56 (1970), p. 340; *Ships and Seamanship*, pp. XXIII, 125, 143 ff.). The evidence consists of the Ostia trireme (Fig. 125), one of the Pozzuoli triremes (Fig. 131) and a trireme on Trajan's column (Fig. 127). The first does not convince for two reasons. In the first place the ports for the three rows of oars are represented as being disposed *one on top of the other* or virtually so. Such an arrangement must surely have been structurally impossible. Therefore, the sculptor has probably made a mistake and the carving cannot be trusted. Secondly it should be noted that the artist may have represented the three rows of oars as being worked through an outrigger. Casson insists (p. XXIII, 125) that the square fixture preceding the oars is simply a plaque bearing the ship's device, but it could just as easily be the front of the outrigger (*cf.* the structure at this point of Casson, *op. cit.*, Figs. 116 and 133 and of the model published by L. Basch, 'A Model of an Ancient Warship in the Louvre', *The Mariner's Mirror* 52 (1966), pp. 115 ff.). What we may have here is simply a careless representation of a trireme in which the artist has inadvertently inserted all three rows

of oars into the *παρεξαιρεσία*. Clearly it would not be wise to build too much on this relief. As for the Pozzuoli relief, it clearly represents three superimposed banks emerging *below* an outrigger. This Casson treats as essentially a flush-sided trireme but even if the relief is accurate—and it certainly does not look like it—there is no reason to believe that the topmost row of oars is not being worked through the outrigger. They could as easily pass through the bottom as through the side—so . Certainly Casson argues skilfully for the existence of redundant outriggers in ships of other ratings but his evidence seems fragile—in Fig. 124 the oars certainly emerge below the *παρεξαιρεσία* on the starboard side but the level is not consistent. Those nearest the bow are higher placed and suggest that in fact the arrangement was similar to that postulated for Fig. 131. Note, however, that on the port side the oars appear at the level of the outrigger (for such a sobering inconsistency *cf.* Fig. 116, where the port oars are worked through the outrigger and those on the starboard side emerge at a level *below the outrigger*); on Fig. 133 the oars seem to me to emerge from the outrigger in both cases and in Figs. 122–3 the 'outrigger' may simply be a shelf-like projection resembling that in Figs. 119 and 125. As for the trireme on Trajan's Column it would probably allow us to postulate a narrow *παρεξαιρεσία*, since the fixture through which the *θρανίται* work their oars is clearly fixed outside the gunwale. We might, for example, suggest a profile so .

Venetian galleys in the sixteenth century or Dutch and French First Rates in the seventeenth. The fundamental principles were the same but size, design of individual features, decoration, rigging, etc., could often vary considerably.

(2) The evidence for dating the introduction of the Phoenician trireme is totally inadmissible. First Clement. The statements of no classical writer, however respectable, can be accepted at the foot of the letter. If we wish to use them, they must be subjected to a rigorous analysis to establish their reliability. This can often be a highly disconcerting operation, especially in cases like the present where evidence is so meagre, since it tends to reduce the body of data still further but, if our results are to have any claim to be scientific, this must be done. Let us consider the relevant passage. It reads

We have heard that the Persians were the first to make waggons, couches and foot rests and that the Sidonians were the first to build a trireme (*τρίκροτον ναῦν*).

This is clear enough, but when once we place the statement in context its value evaporates completely.

In this section of the *Stromateis* Clement is trying to prove that 'Non-Greeks (*barbaroi*) were the inventors not only of philosophy but also of nearly every craft'. Even the most cursory reading excites the gravest doubts about its historical value. Chapter 15 purports to prove that the foundations of all philosophy were laid by *βάρβαροι* and is riddled with the most abject nonsense. We are quite seriously asked to believe that Pythagoras was either an Etruscan or a Tyrian, Antisthenes a Phrygian, Homer an Egyptian and Thales a Phoenician and in the wake of this we are given details of their education in foreign parts which ascribe their major achievements to barbarian philosophers. Hopfner showed decades ago that such assertions were based on an intricate web of muddled inference and were totally unhistorical.²⁷ The proximity of such material must bode ill for what follows.

When we turn to Chapter 16, these gloomy prognostications are amply fulfilled. Not only does it contain some decidedly confused statements but, infinitely more important, it is quite explicitly a digest of the views of a host of writers who had discussed one of the commonest of commonplaces in later Greek literature, viz. the *πρῶτος εὑρετής* 'first discoverer, inventor'²⁸—an observation which can do nothing but induce the profoundest scepticism of everything that Clement has to say in this section; for exponents of this genre, far from purveying genuine historical tradition, quite obviously provide us with little more than a kaleidoscopic amalgam of *a priori* theorising on the origins of Greek and Roman culture and thoroughly biased and frequently nonsensical Christian apologetic propaganda. Indeed, the rôle of the latter is particularly evident in Clement, where its *Tendenz* is aptly summarised by Worstbrock in the following terms:

Auf das Arsenal der Heurematographie stützen sich die Apologeten, wenn es darum geht, den Rang der heidnischen Wissenschaft mit dem Argument zu schmälern, daß sich die Errungenschaften der Griechen weniger auf ihr eigenes Genie als auf die Fähigkeiten anderer Völker gründen: οὐ μόνως δέ φιλοσοφίας ἀλλὰ καὶ πάσης σχεδὸν τέχνης εὐρεταὶ βάρβαροι (Clemens Alex., *Strom* I, 74, I). Regelmäßig geht man dabei noch hinter die Ägypter zurück und sucht, meist im Anschluß an Josephus, die Chaldäer (Abraham) oder die Hebräer als Quelle der Wissenschaft und der Künste zu erweisen.²⁹

²⁷ Th. Hopfner, *Orient und griechische Philosophie. Beihefte zum 'Alten Orient'* 4, 1925.

²⁸ In general A. Kleingünther, '*ΠΡΩΤΟΣ ΕΥΡΕΤΗΣ*', *Philologus Supp.* 26, I (1933), p. 1 ff.; F. J. Worstbrock, 'Translatio artium: über die Herkunft und Entwicklung einer kulturhistorischen

Theorie', *AKG* 47 (1965), p. 1 ff. Clement actually mentions *ap.* 16, 77, 1 Scamon of Mitylene, Theophrastus of Ephesus, Cydippus of Mantinea, Antiphanes, Aristodemus, Aristotle, Philostephanus and Strato the Peripatetic.

²⁹ Worstbrock, *op. cit.*, p. 5.

In short, Chapters 15 and 16 of the first book of Clement's *Stromateis* are explicitly dominated by a determination to deprive the Greeks of any cultural achievements whatsoever.

The most cursory glance at the statements in Chapters 15 and 16 will quickly reveal ample traces of this distinguished pedigree. We are seriously asked to believe that the Etruscans perfected sacrifice! The Phrygians are claimed to have invented the clarinet (*αὐλός*) despite the fact that it was known in Egypt centuries before anyone had ever heard of the Phrygians.³⁰ We are told that medicine was invented by Apis and Hephaestus, both gods, though the former had been transmuted into a mortal as early as the fifth century.³¹ Similarly we are blithely informed that Atlas the Libyan (another god!) was the first to build a ship and sail the seas, that iron was discovered in Cyprus by the Idaean Dactyls (gods!) and that Cadmus of Phoenicia invented stone quarrying. The Carthaginians are claimed to have invented the quadrireme, quite mistakenly, since the ultimate source clearly read *Καλχηρόνιοι* not *Καρχηρόνιοι*.³² The Sicels are stated to have invented *krotala*, though the instrument is known to have been used in antiquity in the Far and Middle East well beyond the reach of semi-civilised Sicilian tribesmen.³³ The Noropes of Paionia were certainly not the first to work *χαλκός* irrespective of whether that means copper or bronze.³⁴ We are even expected to believe that Atossa, Queen of Persia, was the first to compose a letter!³⁵ Clearly amidst such a mass of errors it would be possible to find some more or less correct statements. The *Χαλδαῖοι* *did* invent *ἀστρολογία*³⁶ and the Phoenicians *did* invent the alphabet and pass it on to the Greeks,³⁷ but in a passage so blatantly tendentious, riddled with errors and dominated by some of the best known and most fallacious of Greek obsessions, only such statements can be accepted as are strongly supported by external evidence. In the matter in question such is not the case and we have no alternative but to regard the passage as worthless for dating the introduction of the trireme. In fact, in this particular instance the probable process of thought is easy to isolate. If one starts from Clement's standpoint on cultural history—and many Greeks did—the trireme must have a foreign origin. Amongst non-Greeks the Phoenicians were by far the greatest sailors and most distinguished naval fighters. They must, therefore, have invented it. From the Persian Period down to Clement's time Sidon was the most brilliant of all Phoenician cities.³⁸ In addition from Homeric times Sidon was the Phoenician city *par excellence*, so much so that in the *Iliad* and *Odyssey* the noun *Σιδόνιοι* is synonymous with *Φοίνικες*.³⁹ Therefore, the trireme must have been developed there.

As for the second part of Basch's chronological argument, Sidon was certainly terribly

³⁰ Hickmann, *CGC. Instruments de Musique*, Cairo, 1949, p. 122 ff.

³¹ Aeschylus, *Supplices* 268 ff.; Cyril of Alexandria, *Contra Julian*. VI, p. 805 (200-1), 812 (204) (Migne).

³² C. Torr, *Ancient Ships* (ed. A. J. Podlecki), Chicago, 1964, p. 5, n. 12, on the basis of the eponym Bosphorus. The fact that Aristotle (F. 600 Rose³; cf. Pliny, *HN* vii 207) also attributes the invention to the Carthaginians surely indicates no more than that the corruption was at least as old as the fourth century. Confidence in this view is increased by the tradition preserved *ap.* Diodorus Siculus (xiv 42) that the quadrireme was invented in Sicily in the time of Dionysius I.

³³ Hickmann, *op. cit.*, p. 34 ff.; 'Cymbales et Crotales', *ASAE* 49 (1949), p. 524.

³⁴ R. J. Forbes, *Metallurgy in Antiquity*, Leiden, 1950, p. 325 ff.

³⁵ This amazing statement is as old as Hellanicus (*FgrH* 4, F.178).

³⁶ The word covers both astronomy and astrology, though in Clement's time 'astrology' is the most likely meaning (E. A. Sophocles, *Greek Lexikon*, Cambridge, 1914, p. 267a).

³⁷ A. G. Woodhead, *The Study of Greek Inscriptions*, Cambridge, 1967, p. 12 ff.; D. Diringer, 'The Alphabet in the History of Civilization', *ap.* W. A. Ward (Ed.), *The Role of the Phoenicians in the Interaction of Mediterranean Civilizations. Papers Presented to the Archaeological Symposium at the American University of Beirut, March 1967*, Beirut, 1968, p. 33 ff.

³⁸ D. Harden, *op. cit.*, p. 50 ff.; S. Moscati, *The World of the Phoenicians*, London, 1968, p. 24 ff.

³⁹ E.g. Homer, *Iliad* vi 290 ff.; xxiii 740 ff.; *Odyssey* iv 84, 618; xiii 285 ff.; xv 425; W. Wace and F. Stubbings, *A Companion to Homer*, London, 1962, p. 307. Sidon and Sidonians are equally prominent in Herodotus (ii 116; iii 136; vii 44, 96, 99; viii 67-8). Cf. Moscati, *op. cit.*, p. 49.

ravaged by Esarhaddon in 676 B.C.⁴⁰ but the destruction was by no means as great as the official account would suggest. Since Assyrian historical texts show a marked tendency to exaggeration, descriptions of the destruction of defeated foes are always to be taken *cum grano salis*.⁴¹ We need not doubt that Sidon received a very considerable setback but it had recovered most if not all lost ground by the end of the seventh century⁴² and in the early sixth we find her alongside Tyre in the field against Pharaoh Apries (589–570)⁴³ and Nebuchadrezzar II.⁴⁴ Therefore, even if Clement were correct, to take 676 B.C. as the *terminus ante* is the merest special pleading.

M. Basch's third chronological proposition, that Greek triremes did not exist before the sixth century, is equally infelicitous since, for all Davison's objections, there is every reason to believe that they were being built at Corinth during the seventh century.⁴⁵ The chronological position is, consequently, very different from that which Basch delineates. We have viable evidence of the existence of Greek triremes during the seventh century and, therefore, available to Necho whereas we have no acceptable proof of their existence in Phoenicia until much later.

The upshot of this detailed analysis is, therefore, that the literary evidence for dating the invention of a Phoenician trireme at Sidon before 676 B.C. is worthless.

(3) The answer to this argument must be that, even if Herodotus' tradition is correct, it cannot be taken to indicate that Necho was dependent on the Phoenicians for ship-building purposes. They were renowned sailors and navigators whose enterprise, skill and daring yielded to none, not even the Greeks. If Necho had in mind such an awesome voyage, he certainly could not employ Egyptians, and Greeks may well have proved either unwilling or uninterested. The source to obtain exactly the right men was Phoenicia but borrowing Phoenician crews for such a purpose does not necessarily (or even probably) indicate a *general* dependence in naval matters.

(4) The extent of Egyptian reliance on the Levant in shipbuilding is easily definable. All available evidence indicates that it was restricted to the purchase of wood from the Lebanon to make up for the deficiencies of the rather stunted domestic varieties such as the acacia which were unable to provide planks of any great length. Consequently, whenever high quality material was required the Egyptians imported 'cedar'-wood 'pine'⁴⁶ in much the same way as the British imported timber from the Baltic for spars and masts in the days of the wooden sailing ship. In neither case did this commerce involve imitation of ship designs found in the vendors' territory. In fact, as far as the present writer can detect, Egyptian ships in Pharaonic times only once show clear traces of foreign influence. The Egyptian fleet which defeated the Sea Peoples during the reign of Ramesses III consisted of ships whose hull design is certainly Egyptian⁴⁷ but whose rigging is just as certainly not. It is, in fact, identical with that of their enemies. Where did it come from? The evidence suggests the North West:

⁴⁰ R. Borger, *Die Inschriften Asarhaddons, König von Assyrien*, Graz, 1956, p. 48 ff.

⁴¹ E. A. Speiser *op. cit.* R. C. Dentan (Ed.), *The Idea of History in the Ancient Near East*, Newhaven-London, 1955, p. 64 ff. 'The Assyrian royal scribes were prone to hyperbole, hypocrisy, and even falsehood. The modern historian must tread warily through this dangerous forest' (A. K. Grayson, *Assyrian Royal Inscriptions*, I, Wiesbaden, 1972, p. XXI).

⁴² N. Jidejian, *Sidon*, Beirut, 1971, p. 39 ff.

⁴³ Herodotus, ii, 161; Diodorus Siculus, i 68.

⁴⁴ Jidejian, *op. cit.*, p. 40.

⁴⁵ *Vide infra*, p. 52.

⁴⁶ Not 'cedar'; Sir Alan H. Gardiner, *Egyptian Grammar*, 3rd ed., Oxford, 1957, p. 122.

⁴⁷ The presence of embellishments such as the lion figure-head and pavisades do not conceal the traditional Nilotic spoon-shaped hull (with B. Landström (*Ships of the Pharaohs: 4000 Years of Egyptian Shipbuilding. Architectura Navalis*, I, London, 1970, p. 112) and R. and R. C. Anderson (*The Sailing Ship*, London, 1963, p. 30), against R. Faulkner ('Egyptian Seagoing Ships', *JEA* 26 (1940), p. 9) and L. Casson (*Ships and Seamanship in the Ancient World*, p. 36 ff.).

- (a) The Sea Peoples were at least in part the ancestors of the Philistines and the Philistines almost certainly came from Crete.⁴⁸
- (b) The hulls of the Sea Peoples' ships have Aegean parallels.⁴⁹
- (c) The new system was particularly suited to military purposes.⁵⁰ Since, unlike other areas, including the Levant, there is evidence of a distinction between military and merchant vessels in the Aegean from an early period,⁵¹ conditions there were particularly conducive to its development.

It seems reasonable to conclude, therefore, that Egyptian warships imitated this novelty from their Mycenaean-Minoan neighbours. There is no evidence of similar borrowings from Phoenicia.

(5) I have recently shown that there is not and never has been any evidence that the Louvre boats depict Necho's triremes.⁵² They probably date to the Hellenistic or Roman Period. Furthermore there is nothing Phoenician about them. The large ram proves nothing since such a feature, *pace* M. Basch, is perfectly consistent with a Greek warship.⁵³ As for the 'continuous row of shields running right forward with a rail above and below them', these 'shields' are quite obviously oar ports. The subject of the jewels is uncertain but quite possibly a *thalamegus*, one of the elaborate state barges used by the Ptolemaic kings and later the Roman governors of Egypt.

Such, then, is the evidence of M. Basch. Our analysis has shown that argument 5 is incorrect, arguments 3 and 4 extremely forced, argument 2 methodologically inadmissible and argument 1 decidedly brittle. He may be right in postulating the existence of a Phoenician trireme different from the Greek in hull form and oar arrangement, but we need far firmer evidence before committing ourselves to such a proposition. Even if it did exist, however, there is *no* evidence that it existed early enough to be of any use to Necho (610–595 B.C.).

Up to this point the argument has been of a somewhat negative character. It is now time to supplement these conclusions with more positive material. In fact the current of available evidence runs strongly and insistently in favour of the traditional view that Necho's triremes were Greek or Greek inspired. In the first place, there is good reason to believe that the trireme was invented in Greece, not Phoenicia, and then passed eastwards. As I have recently shown, there is every reason to believe that behind Thucydides' perplexing statements (i 13) there lies a tradition that the trireme was invented at Corinth during the latter half of the seventh century.⁵⁴ Statements to the same effect by Diodorus Siculus⁵⁵ and Pliny⁵⁶ are probably echoes of this but there is strong corroboration elsewhere. Nicolaus of Damascus actually states that Periander built triremes which were employed on 'both

⁴⁸ Sir Alan H. Gardiner, *Ancient Egyptian Onomastica*, I, Oxford, 1947, p. 200* ff.; V. Desborough, *The Last Mycenaeans and their Successors*, Oxford, 1964, p. 237 ff.; B. Hrouda, 'Die Einwanderung der Philister in Palästina. Eine Studie zur Seevölkerbewegung des 12. Jahrhunderts', *Vorderasiatische Archäologie. Studien Moortgat*, Berlin, 1964, p. 126 ff.; W. F. Albright, *CAH*³ II, Ch. XXXIII (fasc. 51), Cambridge, 1966, p. 25 ff.

⁴⁹ Morrison and Williams, *op. cit.*, p. 11 BA11; E. Vermeule, *Greece in the Bronze Age*, Chicago-London, 1964, p. 258 with fig. 43f-e and pl. XXXIIA.

⁵⁰ Lloyd, *op. cit.*, p. 269.

⁵¹ Morrison and Williams, *op. cit.*, p. 7 ff.; Basch, *op. cit.*, p. 142.

⁵² 'The so-called galleys of Necho', *JEA* 58 (1972), p. 307 ff.

⁵³ Vide Morrison and Williams, *op. cit.*, Geom. 25, 32; Arch. 5, 30, 31, 35, 51–7, 90–3; R. A. Higgins, *Catalogue of the Terracottas in the Department of Greek and Roman Antiquities British Museum*, I, London, 1954, pl. 130, 901.

⁵⁴ Lloyd, 'Triremes and the Saïte Navy', *op. cit.*, p. 276 ff. For the chronology *vide supra*, p. 1, n. 2. *Pace* Torr (*op. cit.*, p. 4, n. 8), Basch (*op. cit.*, p. 232) and Casson (*op. cit.*, p. 81, n. 17) Thucydides' statement that Corinth was the first place in Greece where such ships were built is not meant, as Torr puts it, 'to save the priority of the Phoenicians'. Th. is a highly Graeco-centric historian and to him a phrase like *ἐν Κορίνθῳ πρῶτον τῆς Ἑλλάδος* is equivalent to *πρῶτον*.

⁵⁵ xiv 42.

⁵⁶ *HN* vii 207.

seas' (i.e. the Corinthian Gulf westward and Saronic Gulf eastwards).⁵⁷ Clearly, under normal circumstances we should be obliged to regard the word *τριήρεις* in this text as a possible anachronism but there is too much in favour of it. Not only is Nicolaus extremely well informed on the Corinthian tyranny⁵⁸ but Periander is known to have pursued an aggressive foreign policy in which a powerful fleet would have been a great asset.⁵⁹ It is also reported that he had designs on cutting a canal across the Isthmus of Corinth,⁶⁰ an enterprise which speaks volumes for his naval acumen, while there is now good evidence that the *δίολκος* on the Isthmus of Corinth actually dates to Periander's time.⁶¹ Confidence is yet further increased by the fact that Thucydides' next statement, viz. that Ameinocles journeyed to Samos in order to build triremes there, is vindicated by the similarity between the ships of Samos and Corinth during the Archaic Period.⁶² It should also be observed that there is some archaeological corroboration of the tradition. The British Museum possesses an extremely interesting terra-cotta model dating to the late sixth or early fifth century which was found at Corinth and represents a warship.⁶³ Though crude it displays along both gunwales a prominent strip which is described as an 'applied gunwale'. Surely it is nothing of the sort. A warship model at this period we should expect to be a trireme and triremes were fitted with outriggers at the level of the gunwale in precisely the position where we find the prominent strips. It seems, therefore, reasonable to suggest that these additions are an attempt, albeit sketchy, to indicate the *παρεξειρεία*. Now such embellishments are not unique in ship models from Corinth. In particular an example is found on a fragment for which context and fabric suggest a date in *the late seventh century*.⁶⁴ Is it not possible by analogy that this fragment with its applied strip is the remnant of a model representing a Cypselid trireme and its novel outrigger?

There are, however, two obvious counter-arguments to the thesis that triremes were invented as early as the seventh century. In the first place literary evidence (viz. Herodotus and Thucydides) indicates that large fleets of triremes were not to be found in the Greek world until the latter half of the sixth century when the expansion of Persia clearly created a need for such developments in the Eastern Aegean. If the trireme had come into being in the seventh century, why did it take so long to dominate Greek naval warfare? Such time lags are not, however, difficult to parallel in the history of war. The career of the quinquireme is a case in point. It was invented and in use at Syracuse by the beginning of the fourth century. Yet the Athenians do not appear to have had any as late as 330 and only boasted seven in 324.⁶⁵ Another classic example of the phenomenon is the history of the rifle in the British Army. During the American War of Independence a corps was equipped with the excellent breech-loading Ferguson rifle which was used with great effect until the death of Ferguson in 1780. After that the weapon was abandoned and despite what are to us obvious advantages it was not until 1865 that the breech-loading rifle became the standard infantry weapon.⁶⁶ In both instances we are confronted with time lags of much the same dimensions as that postulated in the case of the trireme. There

⁵⁷ *FgrH* 90, F. 58.

⁵⁸ It is generally agreed that Nicolaus derived most of his Greek history from Ephorus. The Nic./Eph. tradition on the Cypselids owed something to Herodotus but clearly embodies other material. That their information *in toto* is substantially accurate admits of no reasonable doubt (E. Will, *Korinthiaka*, Paris, 1955, p. 460 ff.; cf. the salutary remarks of Oost (*op. cit.*, p. 16, n. 27) on modern hypercriticism).

⁵⁹ Aristotle, *Politics* v 12 (1315b); Nic. Dam., F.58-9; Lloyd, *op. cit.*, p. 278.

⁶⁰ Diogenes Laertius, i 99.

⁶¹ N. M. Verdélis, 'Der Diolkos am Isthmus von

Korinth', *MDAI(A)* 71 (1956), p. 51 ff.

⁶² Compare Morrison & Williams, *op. cit.*, Arch. 89 with Arch. 41 and 44. The Sicyonian vessel of Arch. 38 shows the same characteristic, probably through Corinthian influence.

⁶³ Higgins, *op. cit.*, p. 245.

⁶⁴ A. N. Stillwell, *Corinth XV.ii. The Potters' Quarter. The Terracottas*, Princeton, New Jersey, 1952, p. 195 ff.

⁶⁵ Casson, *op. cit.*, p. 97 ff.

⁶⁶ W. Y. Carman, *A History of Firearms*, London, 1970, p. 107 ff.

is, however, nothing particularly surprising in any of these cases. Conservatism and sheer economics provide perfectly adequate explanations.

The second objection to the seventh century trireme is its absence from the repertoire of Archaic ship representations. This is not, however, as compelling an argument as it appears when we consider the nature of this material. It should be borne firmly in mind that the vast majority of such representations are either Athenian or Corinthian and there are good reasons why both these categories should not contain triremes. As for the Athenian examples, we should not expect them because until the period 490–480 Athens was a second rate naval power at best.⁶⁷ The trireme was not a typical warship there and does not become part of the potter's repertoire. As for the Corinthian material, the items dating *c.* 650 and later are not many and are of very limited value. Apart from two aryballoi—both rather careless—the corpus consists of the votive plaques from Pente Skouphia, many of which are fragmentary.⁶⁸ The quality of this material as evidence is not high. It is limited in provenance and quantity and, therefore, statistically cannot form the basis for sweeping generalisations. It should also be remembered that, although Thucydides is obviously speaking of the existence of triremes at Corinth during the Cypselid tyranny, he clearly considered that their number was not great—*φαίνεται δὲ καὶ ταῦτα πολλαῖς γενεαῖς ὕστερα γεινόμενα τῶν Τρωικῶν τριήρεσι μὲν ὀλίγαις χρώμενα, πεντηκοντόροις δ' ἔτι καὶ πλοίοις μακροῖς ἐξηρτυμένα ὡσπερ ἐκεῖνα*. Evidently he envisages these early Greek fleets as consisting largely of penteconters and similar vessels stiffened with a force of triremes⁶⁹ in much the same way as fleets from the fourth century onwards were progressively stiffened by ever larger polyremes or as the battle fleet of the Royal Navy in the eighteenth century might be stiffened with First Rates of 90 or 100 guns. Therefore, although we are obviously intended to regard the Corinthian fleet as *containing* triremes, we are not obliged to regard them as the *typical* warships at Corinth. If such were the situation, it would not be surprising if the trireme failed to impinge on the artistic consciousness of Corinthian potters. Finally, it should be remembered *re* both Corinth and Athens that the representation of a trireme was an intricate business and that the artists may simply have shied away from so complicated a task. It is a sobering thought that although there cannot be any reasonable doubt that there were some triremes in the Athenian fleet in the last years of the sixth century there are no pictures of triremes on Athenian pots until *c.* 450.⁷⁰

Clearly, then, the case for Thucydides is much stronger than any that can be mustered against him. What is more, his narrative suggests that the pattern established in the spread of earlier types of warship is repeating itself (*vide infra*); for the presence of triremes at Samos soon after their invention at Corinth indicates an eastward drift of knowledge on the new type at an early period. These suspicions are strengthened by the triremes represented on Phoenician coins of the Classical Period; for, despite the retention of certain Phoenician elements such as the shield decoration, these ships give strong indications of being modelled on Greek prototypes.⁷¹

This reconstruction harmonises perfectly with our evidence on the early history of the Mediterranean warship in general. The traditions retailed by Pliny and other ancient writers ascribe all major naval innovations (*navis longa*, bireme, trireme, quinquireme, etc.) either to the Greeks or their Macedonian cousins.⁷² The statement that the quadrireme was invented by the Carthaginians is only an apparent exception,⁷³ whereas Clement's assertion that the trireme was invented at Sidon is quite unique. It is solely in the design of merchant shipping, as we should expect, that we hear of Phoenician pre-eminence; for the

⁶⁷ Morrison & Williams, *op. cit.*, p. 160 ff.

⁶⁸ *Ibid.*, p. 87 ff.

⁶⁹ Ameinocles only built 4 triremes at Samos (*vide supra*, p. 52).

⁷⁰ Cf. Morrison & Williams, *op. cit.*, p. 169.

⁷¹ *Vide supra*, p. 47.

⁷² Pliny, *HN* VII, 207; Thucydides, I, 13; Diodorus Siculus, XIV, 42, 44; Aelian, *VH* VI, 12.

⁷³ *Vide supra*, p. 50.

cymbae, *gauloi* and *hippoi* are all attributed to them.⁷⁴ There is, therefore, virtually no literary evidence of any substantial Phoenician naval invention.⁷⁵ In view of the Greek determination from an early period to find an oriental origin for Greek *Kulturgut* wherever possible (*vide supra*, p. 49) this is highly significant and must surely indicate not only that their traditions on a native Hellenic origin for these types were simply too strong to be budged, but also that everything they knew of Phoenician naval architecture profoundly discouraged such attributions.

Archaeological evidence strongly confirms the Aegean provenance of the major types preceding the trireme and thereby creates a strong presumption in favour of such an origin for that also. The ramming warship was certainly invented in the Aegean area where it occurs as early as the Bronze Age⁷⁶ and, as M. Basch himself admits, it got to Phoenicia from there.⁷⁷ The same appears to hold true of the bireme; for the type first occurs on late Geometric pots dating to the last quarter of the eighth century B.C.⁷⁸ and only at the very end of the century in the eastern Mediterranean.⁷⁹ The priority of the Greek examples, taken together with the fact that the bow profile of some of Luli's war galleys is identical with that of many Geometric ships,⁸⁰ strongly reinforces the statement of Damastes of Sigeum⁸¹ that the type was invented by the Greeks and cannot but suggest that the bireme travelled eastwards from the Aegean to be taken up by the Phoenicians with, however, the addition of more elaborate upper works. The less martial looking biremes which accompany the war galleys on the Luli reliefs, if accurately portrayed, can easily be explained as adaptations of the old Phoenician round-ship to the new naval system, possibly as an *ad hoc* crisis measure. After all, the temporary employment and modification of merchant vessels for military purposes has many parallels in later European history down to the Second World War.

There is, then much to be said for—and little against—the view that the appearance of the trireme in the eastern Mediterranean was the result of Greek influence and that the Phoenician trireme was based on Greek prototypes. The introduction of Greek triremes into the Egyptian navy in the late seventh century would fit perfectly into such a context. How soon the Phoenicians took up the type we cannot say. The development could have taken place at the earliest during the latter half of the seventh century, though there is no evidence of triremes there until the following century and it is, indeed, not at all improbable that the acquisition of such ships was the result of the defeats incurred at the hands of the Egyptian fleet during the reign of Apries;⁸² for Egyptian technical superiority might well explain this somewhat surprising series of naval victories over such renowned sailors. If, on the other hand, the earlier date were correct, it would not be impossible that the Phoenicians, having acquired the trireme, should have passed it on to the Egyptians, but such a hypothesis is unnecessary and certainly not the most economical interpretation of the evidence—and that brings me to another argument.

The two Greek states earliest associated with triremes—Corinth and Samos—both enjoyed close relations with Egypt during the Saite Period. Periander's nephew was called Psammetichus, presumably after Necho's father, the first Egyptian Pharaoh of that name.⁸³ Furthermore, it is extremely curious that we hear of Necho's building triremes

⁷⁴ Torr, *op. cit.*, p. 112 ff.

⁷⁵ This is not to deny their undoubted expertise as *sailors* but that is a very different thing from distinction in ship design—in particular naval architecture. The British, for all their universally acknowledged skill as sailors, have not been responsible for many innovations in naval design. If anything, they have tended for long periods in their history to be rather backward.

⁷⁶ Morrison and Williams, *op. cit.*, p. 7 ff.; Casson,

op. cit., p. 30 ff.

⁷⁷ *Op. cit.*, p. 142.

⁷⁸ Morrison and Williams, *op. cit.*, p. 38 ff.

⁷⁹ *Vide supra*, p. 46.

⁸⁰ Compare them with Morrison and Williams, *op. cit.*, pl. 1e; 2c; 3b; 4c; 10d.

⁸¹ *FgrH* 5, F. 6.

⁸² Lloyd, *op. cit.*, p. 271 ff.

⁸³ Aristotle, *loc. cit.*; Nic. Dam., *FgrH* 90, F. 59.

and constructing a canal between the Nile and Red Sea⁸⁴ and of Periander, his contemporary, that he also built triremes and had ambitions to construct a canal across the Isthmus of Corinth.⁸⁵ Surely this is more than coincidence. Surely this community of interests argues a more than ordinary connection between the two rulers. Indeed, on the Corinthian side, close contacts with the Egyptian royal house would make complete political and military sense, inasmuch as one of the basic supports of the Corinthian tyrants, as of Peisistratus at Athens and many others of his ilk, was close liaison with foreign states, particularly other despots, sometimes at a very considerable distance. Periander married into the family of Procles, tyrant of Epidaurus,⁸⁶ maintained close relations with Thrasybulus, tyrant of Miletus⁸⁷ and Alyattes, king of Lydia,⁸⁸ and was probably also responsible for a marriage alliance between his own family and the powerful Athenian *genos* of the Philaids.⁸⁹ Another aspect of the same policy was the practice of establishing Corinthians as tyrants abroad wherever this proved possible.⁹⁰ There is, therefore, every reason to believe that Cypselid Corinth and Saite Egypt entertained close relations at the very highest level.

As for the Samians, their involvement in Egypt was profound and long lasting. Colaëus of Samos was trading to Egypt certainly before 630 B.C. and possibly before 650⁹¹ and Samos itself figures as one of the three early founding states at Naucratis at a date which is not likely to be substantially later and there it played a dominant rôle for centuries.⁹² There is also a tradition that the sixth-century Samian sculptors Telecles and Theodorus travelled to Egypt and learned enough of Egyptian artistic technique to make a bronze statue using the Egyptian canon of proportion.⁹³ All this reaches its natural culmination in the alliance concluded by Amasis with Polycrates, tyrant of Samos, sometime about 530 B.C.⁹⁴ Samos was, therefore, like Corinth, particularly well placed to pass on the new type of warship.

A further argument in favour of a Greek origin for Necho's triremes is the facility with which Greeks could meet his needs in this respect. Consider the difficulties which such a project faced. The structure and design of the trireme differed entirely from any Egyptian type of ship and native boat-builders could not possibly have adapted quickly enough to dispense with extensive instruction and supervision. Once the ships were built they needed large numbers of oarsmen trained in the very difficult art of propelling a trireme. They must either have been foreign or there must have been sufficient foreign experts to train Egyptian sailors in large enough numbers. Tactics were also a

⁸⁴ Herodotus, ii 158.

⁸⁵ *Vide supra*, p. 53.

⁸⁶ Herodotus, iii 50 ff.

⁸⁷ *Ibid.*, i 20; v 92e ff.

⁸⁸ *Ibid.*, iii 48.

⁸⁹ An alliance between the Cypselids and Philaids is made certain by inscriptional evidence (R. Meiggs and D. Lewis, *A Selection of Greek Historical Inscriptions*, Oxford, 1969, p. 11). It is more than likely that the overtures came from the Philaids but we should remember that daughters were precious political capital and the Cypselids will have disposed of them with a clear view of advantages to be gained. Philaid support would have been well worth a daughter.

⁹⁰ Nic. Dam., *loc. cit.* It would be surprising if the founders of the Cypselid colonies on Leucas and at Anactorium (F. 57) did not fall into the same category.

⁹¹ B. Freyer-Schauenburg, 'Kolaios und die westphönizischen Elfenbeine', *MDAI(M)* 7 (1966), p. 89 ff.

⁹² J. Boardman, *The Greeks Overseas*, Harmondsworth, 1964, p. 134 ff.; M. M. Austin, *Greece and*

Egypt in the Archaic Age. Proceedings of the Cambridge Philological Society, Supp. 2 (1970), p. 22 ff.

⁹³ Diodorus Siculus, i 98, 5-9; R. Anthes, 'Affinity and Difference between Egyptian and Greek Sculpture and Thought in the Seventh and Sixth Centuries', *PAPhS* 107, I (1963), p. 66 ff. Generally speaking statements on alleged visits of Greek philosophers, artists etc. to Egypt are untrustworthy (Hopfner, *op. cit.*, *passim*) but there is much to be said in favour of this one. (This point I shall discuss fully in my forthcoming commentary on Herodotus Bk. II). In any case, for our purposes the very existence of the tradition is highly significant.

⁹⁴ H. de Meulenaere, *Herodotos over de 26ste Dynastie. Bibliothèque du Muséon* 27, Louvain, 1951, p. 111. It is also worth recalling that Samian involvement in this part of the world is further indicated by their settlement at the city of Oasis, seven days W. of Thebes, probably in the Khargeh Oasis. The date is, however, uncertain (H., iii 26, 1; *cf. Hec., FgrH* 1, F. 326).

problem. The trireme was built to ram, a totally un-Egyptian technique, and a programme of instruction on some scale would have been essential. A considerable body of foreign advisors would then obviously have been utterly indispensable and they were available ready to hand, in no small quantity, in the centres of Greek activity in Egypt. A scant ten miles away from Sais, Necho's capital, lay the great *ἐμπόριον* of Naucratis where Greek merchants and their shipping abounded. Such ships included amongst their crew *πρωρεῖς* who were specialists in charge of the fabric of the ship and, therefore, experts in construction.⁹⁵ They also contained *ναυπηγοί*, 'ship's carpenters'⁹⁶, who were equally well informed. The settlement must, by its very nature, have been filled with large numbers of similarly ship-wise individuals and, what is more, must have had considerable dockyard facilities to meet the wear and tear inevitably attendant upon sea-faring over any distance. Thus, ten miles away from his own capital Necho could find probably all the experts he needed to build his novel type of ship. Furthermore, if, as is likely, the *νήσοι* of Ephesus, Chios, Lesbos, Cyprus, *Samos* etc. mentioned by Hecataeus⁹⁷ were small trading stations like the old *Μιλησίων τεῖχος* on the north west coast of the Delta,⁹⁸ yet further resources will have been available. What of oarsmen? For a fleet of, say, fifty triremes—not a large force by any means—Necho would require about 8,700.⁹⁹ Many of the *ναῦται* in Greek centres of activity will have been able and only too willing to enter Pharaoh's service. It is not at all unlikely that this was the source from which he drew. Alternatively Egyptians may have been employed, but since the Egyptian method of rowing was unsuitable for triremes¹⁰⁰ and since, in any case, hard training was necessary to 'beat together' the crews of such ships,¹⁰¹ a substantial body of drill instructors was necessary. We are fortunate in having definite information on the techniques adopted on at least one occasion for training raw Egyptian recruits. Chabrias employed bilingual *κελευσταί* and constructed temporary platforms on land where the oarsmen could be exercised, a method which yielded satisfactory oarsmen with surprising speed (*ὀλίγαις ἡμέραις*).¹⁰² It is obvious, however, that the expertise of Chabrias and his *κελευσταί* was the *sine qua non*. Where was Necho to obtain such people? The answer must surely be, yet again, from Naucratis and other centres. Greek navies must always have drawn *κελευσταί* and their like in large measure from the ranks of their seafaring community, whether sailors, merchants or fishermen.¹⁰³ When the fleet was not in commission—and usually it was not—the *κελευσταί* would have been found engaged in their normal peacetime occupations, i.e. amongst other things, in the merchant marine. If Pharaoh were in the market for the services of such men, we can be confident that Naucratis would have had no difficulty in meeting his requirements. There is, therefore, every reason to believe that Necho was able to obtain all the foreign expertise he required from a Greek city which was almost planted on his own doorstep. Nothing remotely comparable is known for the Phoenicians in the late seventh-early sixth centuries. It is, of course, true that Phoenicians were in evidence both commercially and militarily¹⁰⁴ but their presence and importance pale into insignificance beside that of their ancient western rivals. Certainly Herodotus mentions a *Τυρίων Στρατόπεδον*, 'Tyrian Camp', at Memphis, south of the Temple of Ptah,¹⁰⁵ but the date of its establishment is unknown and may well be as late as the Persian Period when the Phoenician fleet is known to have been operating in Egypt. All the evidence suggests, therefore, that to meet his naval requirements from Phoenician sources Necho would have had to get experts from Phoenicia

⁹⁵ Casson, *op. cit.*, p. 318.

⁹⁶ *Op. cit.*, p. 320.

⁹⁷ *FgrH* I, F. 310.

⁹⁸ Strabo, xvii 1, 18 (c801-2).

⁹⁹ A trireme required 170 oarsmen (Casson, *op. cit.*, p. 305).

¹⁰⁰ On the Egyptian technique *vide* Casson, *op. cit.*, p. 18.

¹⁰¹ Casson, *op. cit.*, p. 278 ff.

¹⁰² Polyaeus, iii 11, 7.

¹⁰³ Cf. [Xenophon], *Ath. Pol.* i 19-20.

¹⁰⁴ J. Leclant, 'Les Relations entre l'Egypte et la Phénicie du voyage d'Ounamon à l'expédition d'Alexandre', *ap.* W. A. Ward, *op. cit.*, p. 16 ff.

¹⁰⁵ ii 112, 2.

itself, but a ruler endowed with the vision and acumen to attempt the excavation of a canal to the Red Sea,¹⁰⁶ to revolutionise the Egyptian navy and to envisage far-ranging voyages of exploration down the Red Sea,¹⁰⁷ a ruler, moreover, who can show such a capacity for lightning speed of action as to build up within a year of his accession the only Egyptian Empire in Asia since the New Kingdom, is hardly the man to seek in foreign parts what was patently available in his own back yard. It certainly cannot be argued, as by Kienitz,¹⁰⁸ that the triremes were built with the help of the Phoenician cities during the Egyptian occupation, for the simple reason that their construction preceded these conquests. The run of Herodotus' narrative in ii 159 places it before the campaign against Syria and a moment's consideration of the historical situation proves that he is correct. The hard lessons of experience had taught the rulers of Egypt that their defensive strategy must take into consideration the potential threat posed by the Phoenician navy; for it had been used in the attacks on their country in the reign of the Assyrian emperor Assurbanipal.¹⁰⁹ Further, Necho's offensive strategy in Asia had to reckon with the same problem. This policy, partly motivated by fears of growing Chaldaean power, partly, no doubt, designed to re-establish the suzerainty of Egypt as far north as the Euphrates, would have been immensely furthered by domination of the east coast of the Mediterranean. As in the hey-day of the New Kingdom,¹¹⁰ the occupation of Phoenicia would have considerably strengthened the Egyptian hold over the hinterland in that, by cutting out the long and arduous overland march, it facilitated both supply and support of Egyptian forces. To accomplish these aims in the face of possible reaction from the Phoenician fleet the most modern ships available would obviously have been an invaluable asset. That Necho was, in fact, thinking along precisely these lines is proved by the very fact that he bothered to build such a fleet at all since, apart from the Phoenicians, there was no-one else strong enough at sea to make such a measure necessary.¹¹¹ Given this context we can establish the date at which they were built within very narrow limits. Necho ascended the throne in September 610,¹¹² was campaigning in Syria-Palestine in the spring of 609 and had an army on the Euphrates in the summer of the same year.¹¹³ Since, on the foregoing analysis, a viable force of the new type must have been available at the beginning of this campaign, the fleet must have been built and ready for action between September 610 and the spring of the following year.

My final argument powerfully reinforces all that has been said up to now. In ii 154 Herodotus informs us that Psammetichus I stationed his Carian and Ionian Mercenaries in *Στρατόπεδα* on the Pelusiac Branch of the Nile just north of Bubastis and that here they remained until they were withdrawn by Amasis immediately after his accession in 570. There is no doubt whatsoever that this marked the definitive departure of Greek mercenaries from the sites in question. Furthermore, Herodotus states that there were still in his own time physical traces of their presence amongst which he mentions *οἱ ὀλοκοὶ τῶν νέων*, 'the

¹⁰⁶ *Vide supra*, p. 56.

¹⁰⁷ *Vide supra*, p. 46.

¹⁰⁸ *Die politische Geschichte Ägyptens vom 7. bis zum 4. Jahrhundert vor der Zeitwende*, Berlin, 1953, p. 24.

¹⁰⁹ D. Luckenbill, *Ancient Records of Assyria and Babylonia. II. Historical Records of Assyria*, Chicago, 1927, p. 293; A. Piepkorn, *Historical Prism Inscriptions of Ashurbanipal*, I. Chicago, 1933, p. 13.

¹¹⁰ E. Drioton and J. Vandier, *L'Égypte*, 4th Ed., Paris, 1962, p. 396. The XIXth Dynasty occupation (R. Faulkner, *CAH*² II, Ch. XXIII (fasc. 52), Cambridge, 1966, pp. 6, 12) must be seen in the same light.

¹¹¹ At first sight it might seem reasonable to use this general situation as in itself an argument in

favour of my thesis that Necho's triremes were Greek, i.e. it might be asserted that, if Necho were hostile to Phoenicia, the Phoenicians would not have built ships for him, but such an argument would be specious. It would surely have been perfectly feasible for Necho to buy individual Phoenicians, if that had been necessary, irrespective of the international political situation.

¹¹² E. Hornung, 'Die Sonnenfinsternis nach dem Tode Psammetichs I', *ZA* 92 (1965), p. 39.

¹¹³ J. Yoyotte *ap.* L. Pirot *et al.* (Eds.), *Dictionnaire de la Bible, Supplément VI*, Paris, 1960, 382 ff.; J. Leclant, 'Les relations entre l'Égypte et la Phénicie du voyage d'Ounamon à l'expédition d'Alexandre', *ap.* W. A. Ward, *op. cit.*, p. 16 ff.

slipways of their ships'. Now *δλκοί* are features of *naval* bases, being designed to get galleys out of the water whenever humanly possible, and were not used as far as we know for merchant vessels.¹¹⁴ The implications are obvious. Before 570 B.C. Greek military bases in Egypt had facilities for maintaining war galleys. That these galleys were triremes is in the highest degree probable for two reasons. First, the word *ναῦς* 'by itself commonly means a *trieres*'.¹¹⁵ Second, the conclusion that triremes were stationed in the *Στρατόπεδα* harmonises perfectly with the statement in the Stele of Regnal Year I of Amasis where the forces of Apries are described as *kbn(w)t mḥtī m Ḥ3w nbw(t) n rḥ·tw dr·sn* 'triremes¹¹⁶ filled with *Ḥ3w nbw(t)*¹¹⁷ the limit to whose number is not known'.

That these triremes were of a Greek type we should expect from the context itself but the point is placed beyond reasonable doubt by a monument which almost certainly depicts Graeco-Carian war galleys of the relevant period. The Museum of Lausanne possesses a Carian gravestone found in the Saqqara necropolis in Egypt apparently during the excavation of a structure near the Serapeum belonging to the reign of Apries (PLATE VIIb-c).¹¹⁸

¹¹⁴ D. Blackman *op. Morrison and Williams, op. cit.*, p. 181 ff.; Casson, *op. cit.*, p. 363 ff.

¹¹⁵ Morrison and Williams, *op. cit.*, p. 245.

¹¹⁶ For *kbnt* in this sense *vide* Lloyd, 'Triremes and the Saite Navy', *op. cit.*, p. 272 ff.

¹¹⁷ The *Ḥ3w nbw(t)* are a long standing problem. A study of the examples of the term listed and discussed by Vercoutter ('Les Haou-Nebout', *BIFAO* 46 (1947), p. 125 ff.; *ib.* 48 (1949), p. 107 ff.) reveals quite clearly that from at least the Middle Kingdom it was essentially a generic geographical term applied to the peoples living to the N. and N.E. of Egypt and that throughout later Egyptian history it retained that general sense (*cf.* the Edfu Gloss on the term *Dd(w) r n3 m3(w)t n p(3) ym r ḥ3s(w)t mḥt(t) 'Ḥ3(w)t wr(w)t* 'Said concerning the islands of the sea and the many great northern lands'—Sir Alan H. Gardiner, *Ancient Egyptian Onomastica* I, Oxford, 1947, p. 208*). Since, however, it never became an ethnic, changes in historical circumstances in this vaguely defined area would mean that it could embrace different peoples at different times. Hence, with the development of Graeco-Macedonian power in the Near East during the late fourth century, *Ḥ3w nbw(t)* can be used to refer, amongst other inhabitants of the area, to Greeks and Macedonians (Gardiner, *loc. cit.*; Vercoutter, *op. cit.*, 48 (1949), p. 178 ff.). Greeks of Asiatic origin had, however, been coming to Egypt since at least the beginning of the Saite Period and it has generally been assumed that the term *Ḥ3w nbw(t)* can refer to them as early as the XXVth Dynasty. Vercoutter certainly thought so (*op. cit.*, p. 175) and though one of his translations is certainly question-begging (Doc. LXXI, p. 175) there can be no doubt that he is correct. The evidence consists of the correspondence between the Amasis Stele and Herodotus ii 163, 1 which is clearly talking of the same events and where the forces used by Apries are explicitly stated to be *Καράς τε καὶ Ἴωνας ἀνδράς ἐπικούρους τρισμυρίους*. This argument has recently been assailed by C. Vandersleyn (*Les Guerres d'Amosis Fondateur de la XVIII^e Dynastie. Monographies Reine Elizabeth I, Brussels, 1971, p. 144 ff.*) on two grounds: (1) H.'s

claim that the mercenaries were Carians and Ionians must not be taken at the foot of the letter; for he wrote from a Greek point of view and might have ignored other nationalities. (2) *Kbnwt* in the Amasis Stele are, etymologically, 'Byblos-ships'. It is, therefore, possible that they are Syrian or Phoenician ships with crews of the same nationality. The first of these points is easily met. It is true that H. may have omitted to mention troops of other nationalities, but there is no escaping the implication that Carians and Ionians formed a major part of his forces. We may, therefore, admit 'que cet historien rapporte les faits du point de vue grec, qu'il a donc pu passer sous silence d'autres ethnies' without denying that the term *Ḥ3w nbw(t)* can cover, amongst other things, Carian and Ionian mercenaries. The second argument is even more difficult to accept. Certainly the word *Kbnt* appears to mean 'Byblos-ship' but V.'s deduction is inadmissible for several reasons: (1) Despite its etymology the word is used until the Saite Period of purely Egyptian ships (T. Säve-Söderbergh, *The Navy of the Eighteenth Egyptian Dynasty, Uppsala Universitets Årsskrift, 1946, 6, p. 47 ff.*). It is, therefore, patently unsound to argue that the etymology can be taken to reflect the nationality of the type. (2) Though the etymology is 'Byblos-ship' it is just as likely that the term means 'Ship Plying to Byblos' as 'Ship from Byblos' (Säve-Söderbergh, *loc. cit.*). (3) There is excellent evidence that the term *Kbnt* from the Saite Period onwards can be used of war galleys built for ramming whether triremes or larger types *irrespective of their origin* (see above n. 116). We conclude, therefore, that the term *Ḥ3w nbw(t)* in the Amasis Stele includes, without exclusively designating, H.'s Carian and Ionian mercenaries.

¹¹⁸ O. Masson and J. Yoyotte, *Objets Pharaoniques à Inscription Carienne. IFAO. Bibliothèque d'Etude 15, Cairo, 1956, p. 20 ff.* Recent excavations at Saqqâra have amply confirmed the presence of Carian cemeteries in this area (W. B. Emery, 'Preliminary Report on the Excavations at North Saqqâra, 1968-9', *JEA* 56 (1970), p. 6 ff.).

Its date cannot be fixed precisely but Masson and Yoyotte favour the end of the Saite Period or the beginning of the Persian.¹¹⁹ In the lower panel are engraved two pictures of warships of an un-Egyptian type. They are rather cursory and too much should not be inferred from them, but there is no denying that they both bear a striking resemblance to Archaic Greek ships. The ram in both cases is short, stubby and ends in a straight line, contrasting strikingly with the long, pointed rams characteristic of representations of Phoenician warships. The bow profiles of both are strikingly similar to those of figures depicted on Archaic Greek antiquities (cf. PLATE VIIIa-c) while that of the upper vessel is particularly reminiscent of *Corinthian* types (*vide supra*, p. 53, n. 62). Furthermore, it will be observed that the eye depicted on the bow of the upper vessel is slung very low as in Greek galleys and not, in the Phoenician manner, at the level of the bow shelter. For all their crudity, therefore, it is surely legitimate to claim that these carvings represent Greek rather than Phoenician war galleys. Taking all this evidence together, then, we can assert with a high degree of confidence that the *Kbnt*-ships employed by Apries' Carian and Ionian mercenaries were triremes of a Greek type and that creates a strong presumption, even if it does not prove absolutely, that Necho's triremes were obtained from the same source.

It is now time to bring together the conclusions of this study, both positive and negative. The views of M. Lucien Basch on the origin of Phoenician triremes in general and Necho's in particular are not as cogent as they may appear at first sight. The implications of the evidence point elsewhere and may be summarised as follows. There are good reasons for believing that the trireme was invented at Corinth during the seventh century and this means that by Necho's reign the type was available to the Greeks. We cannot say the same for the Phoenicians. The arguments adduced to prove the invention of the trireme at Sidon before 676 will not bear close scrutiny. In fact the appearance of the type in eastern waters was apparently the result of a slow filtration eastwards parallel to the earlier diffusion from Greece of the *navis longa* and bireme. This, in due course, brought the trireme to Egypt and also to Phoenicia, though in the latter case it was apparently adapted to local tastes to produce a vessel which consisted essentially of a Greek hull with the addition of a continuous deck and more elaborate upper works. The date of its appearance in Phoenicia is undetermined. If it belongs to the late seventh century, it would be theoretically possible for the type to have come to Egypt from Phoenicia, but such a hypothesis is not the most natural interpretation of the evidence. Corinth and Samos, the two Greek states first associated with the type, were both embroiled in Egyptian affairs, the former possibly at the highest political level, and they were both excellently placed to pass on the latest Greek naval invention. A Greek origin is also made probable by the fact that the Greek trading factory of Naucratis lay only ten miles away from Sais, Necho's capital, and was able to provide all the experts in shipbuilding, sailing and tactics without which the trireme could not possibly have been introduced into a navy totally unfamiliar with such warships. We have no reason to believe, on the other hand, that the Phoenicians were in a similarly favourable position. If, then, the expertise were Greek, we should expect the product to be Greek also. It should also be remembered that the very fact that the backbone of the Egyptian army was made up of Carian and Ionian mercenaries would tend to orientate a Saite Pharaoh's attention very much in a Greek direction in times of military need. Finally, and most cogent of all, linguistic and archaeological evidence make it probable in the highest degree that triremes employed by Apries (589-70) were of Greek origin and indeed manned, at least in part, by Greeks. This makes it at the least extremely likely that the triremes of his grandfather were obtained from the same source.

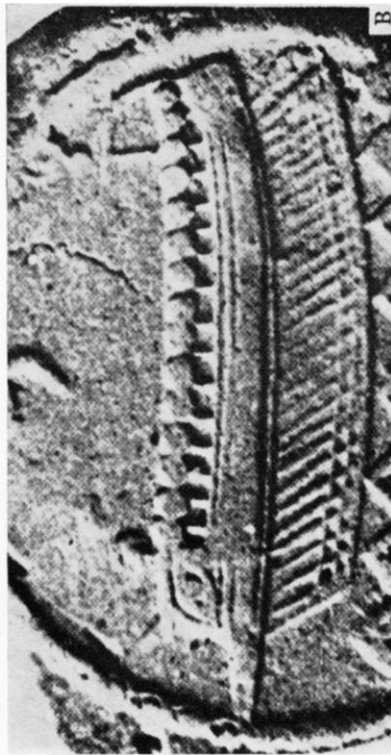
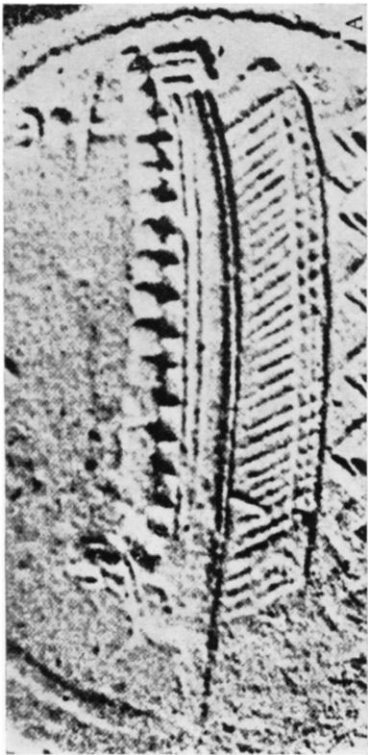
Such it seems to me, is the most probable reconstruction of the *Urgeschichte* of the trireme and its introduction into Egypt, but it cannot be claimed that it is any more than that.

¹¹⁹ *op. cit.*, p. 22.

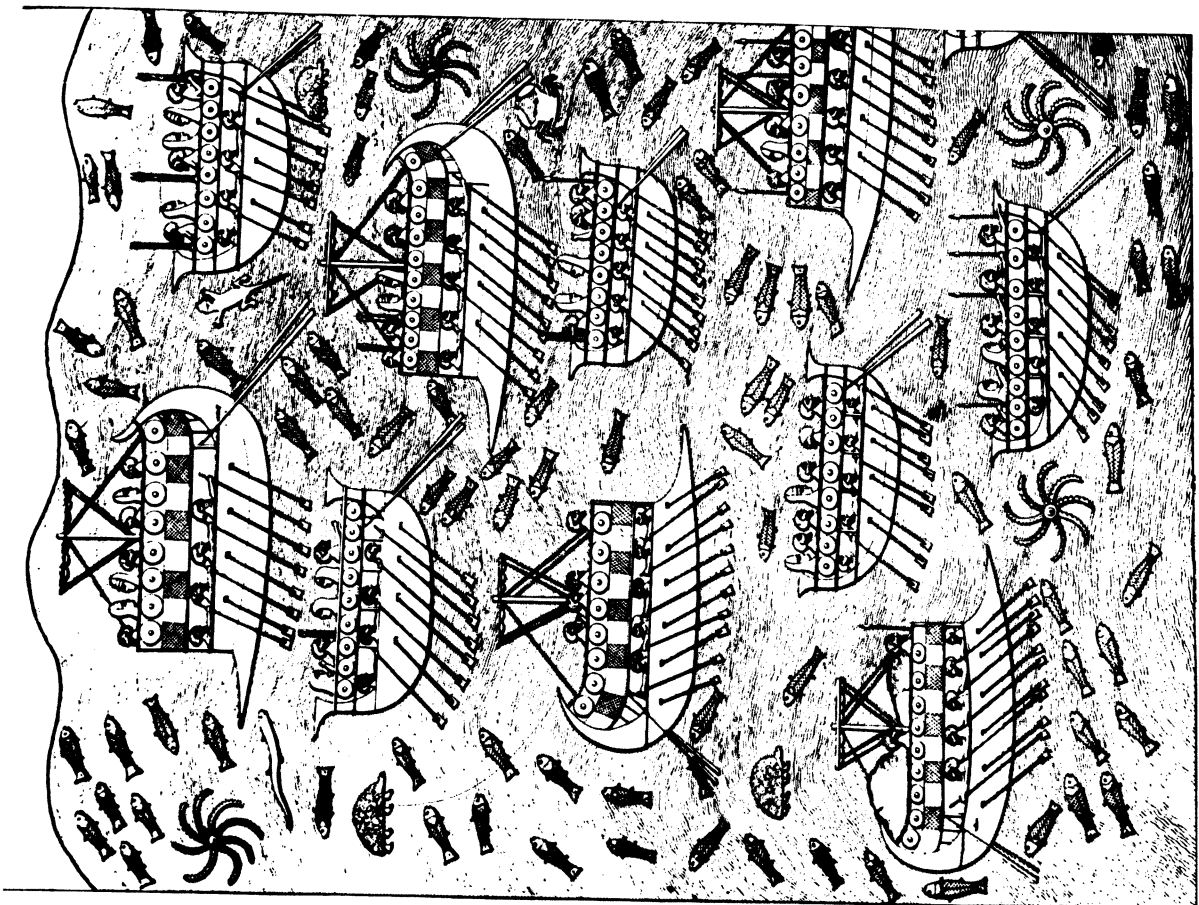
The data are sporadic, to say the least, and future discoveries may well fill in the gaps in such a way as to modify or utterly demolish the picture which I have tried to paint. The views of M. Basch may yet prove correct and mine mistaken. If this should be so, my defence must be that the evidence was analysed from all possible angles and its implications defined as nicely as circumstances permit and that, so treated, it pointed in the direction which I have indicated. Amidst all the uncertainties, however, there is one thing of which we can be quite confident. The last word has not yet been said on Necho's triremes, either by M. Basch or myself.

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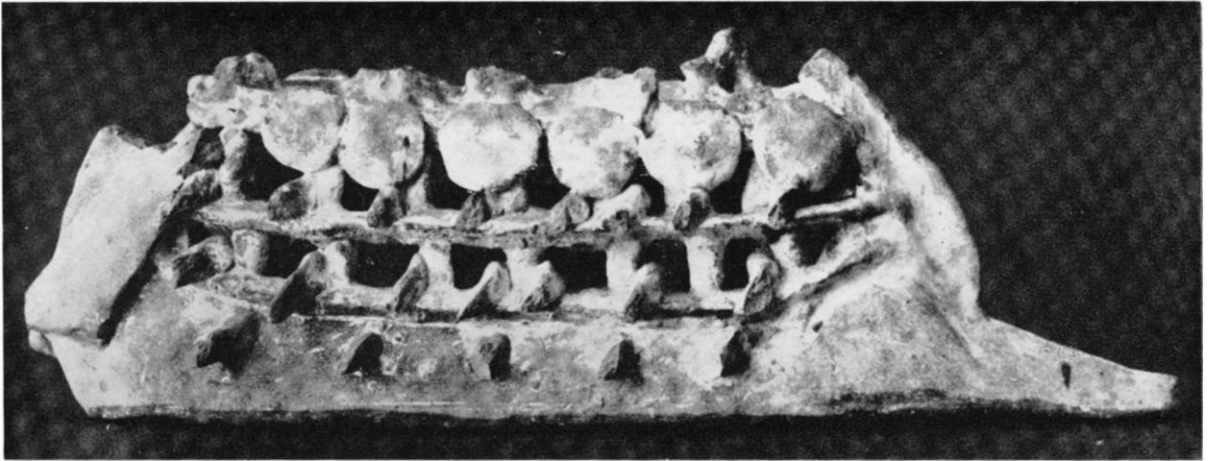


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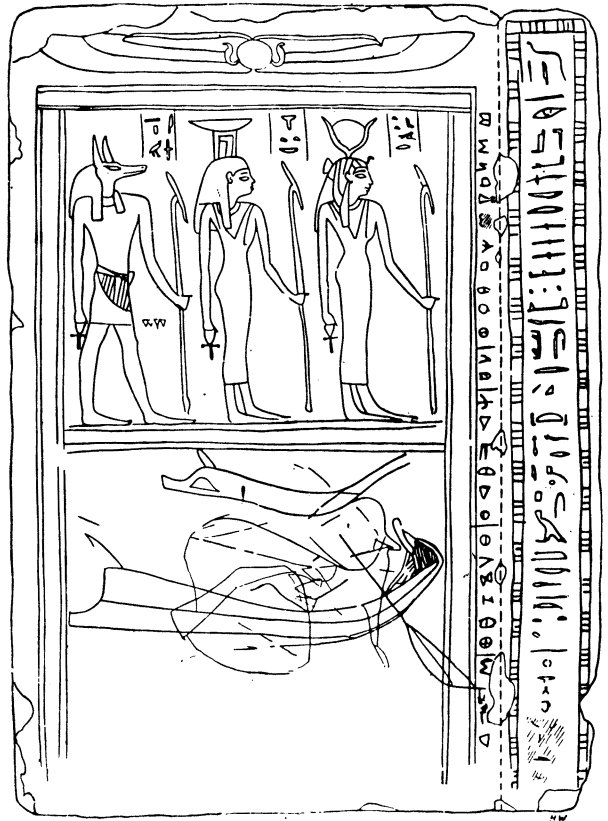
WERE NECHO'S TRIREMES PHOENICIAN?



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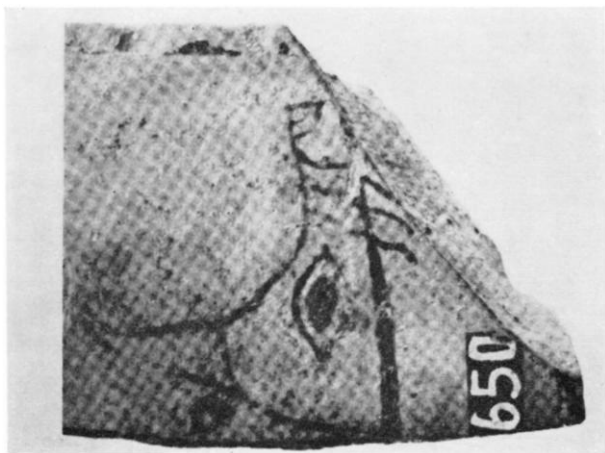
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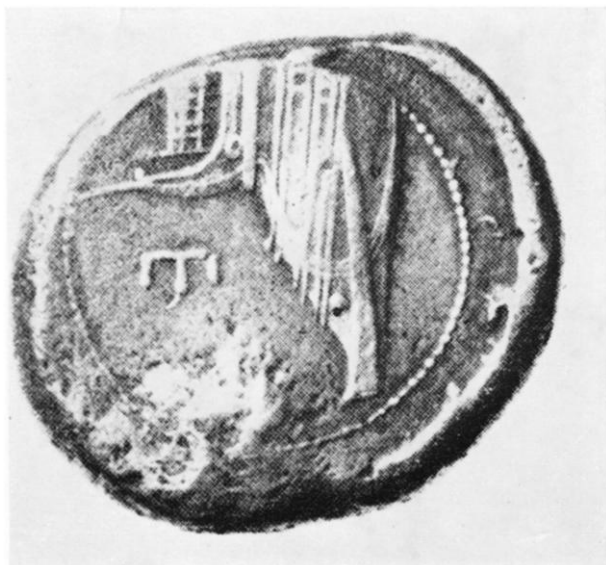
(c)

WERE NECHO'S TIRREMES PHOENICIAN?

(b)



(c)



(a)

WERE NECHO'S TRIREMES PHOENICIAN?