

The ships of the Sea Peoples

S. Wachsmann

Israel Department of Antiquities and Museums, PO Box 586, Jerusalem, Israel 91000

The textual evidence

The various ethnic groups comprising the Sea Peoples are known primarily from Egyptian, Hittite, North Syrian texts and the Bible (Wainwright, 1939, 1960; Kitchen, 1973; Sandars, 1978). Egyptian representational art permits the identification of several of these peoples while significant advances have been made in the study of the material culture of those groups that settled in the southern coastal region of Palestine (Dothan, 1967). Here the discussion is limited to the maritime aspects of these peoples which appear in the contemporary textual remains.

The Sea Peoples begin to be felt as an entity in the eastern Mediterranean as early as the 14th century. From the beginning they appear as sea raiders or mercenaries. Nowhere do the texts portray them in the rôle of traders. In this they were following an age-old Aegean tradition. Thucydides (1:5:1), describing the state of affairs of Aegean seafaring prior to Minos' thalassocracy, writes:

For in early times the Hellenes and the barbarians of the coast and islands, as communications by sea became more common, were tempted to turn pirates, under the conduct of their most powerful men; the motives being to support their own cupidity and to support the needy. They would fall upon a town unprotected by walls, and consisting of a mere collection of villages, and would plunder it; indeed this came to be the main source of their livelihood, no disgrace being yet attached to such an achievement, even some glory.

In EA 38 it seems that people of the land of Luki had molested Egyptian territory and the Pharaoh apparently thought that the Alašians were in collusion with them. The king of Alašia denies these charges and claims that he also

suffers from raids on his coastal settlements.

In the Rib Addi correspondence of the El Amarna texts mention is repeatedly made of the *miši*-People (Note 1). While this group is enigmatic, their connection with ship-based warfare is clear (Linder, 1970: 93–4). It has been suggested that they are to be considered early forerunners of the Sea Peoples (Säve-Söderbergh, 1946: 65–6, n. 1), although this view has not gone uncontested (Lambdin, 1953).

Of particular interest is EA 101: 36 in which *miši* ships are described as having penetrated into Amurru, a clear allusion to a task force using a navigable river (the Orontes?) to attack an inland target.

In an Hittite tablet containing an inscription of Shuppiluliuma II, mention is made of an Alašian fleet (Güterbock, 1967: 78):

My father [...] I mobilized and I, Shuppiluliuma II, the Great King immediately [crossed/reached (?)] the sea. The ships of Alašiya met me in the sea three times for battle, and I smote them; and I seized the ships and set fire to them in the sea.

Güterbock (p. 80) has already brought attention to the apparent disagreement between this document and the kiln texts from Ugarit in which Alašia is depicted as an ally of Ugarit and hence of the Hittites; the implication being that the Alašian fleet referred to by Shuppiluliuma II did not belong to the indigenous population but rather to the enemies (Sea Peoples) of the Ugaritic texts. An alternate explanation suggested by Lionel Casson (private communication) is that these documents may indeed reflect actual history, that is, a change in alliances between the principal actors in this drama.

A similar sea battle appears to have taken

place between ships of the Shardanu and Egyptian contingents during the reign of Ramses II (Sandars, 1978: 50 and n. 14 for additional bibliography; the reference to *Tanis II* there should be to pl. 2 no. 78).

These texts are also of prime importance inasmuch as they are the earliest recorded evidence for battles taking place between ships at sea. The battle between the Egyptians under Ramses III and the Sea Peoples portrayed at Medinet Habu (discussed below), apart from being chronologically later, appears to have taken place at the entrance to the Nile Delta, not in the open sea (Nelson, 1943: 43–4).

In the Mycenaean kingdom of Pylos over 800 'watchers' assigned to guarding the coast against a possible attack from the sea are recorded on five Linear B texts (An 657, 654, 519, 656, 661; Ventris & Chadwick, 1959: 187–94; Chadwick, 1976: 175–79). The attack, when it did come, in the spring of that same year, was successful—the site of Pylos was pillaged and burned. Chadwick (pp. 178–9) considers the raiders to have probably been seafaring contingents of the Sea Peoples.

Following their settlement on the southern coast of Palestine it seems likely that the Sea Peoples more or less gave up piracy. Nowhere is there written proof for this assumption; however, it may be inferred from the following considerations:

(1) The Syrian ship upon which Wenamon travelled put in at Dor, a city which belonged to the Tjekker (BAR IV: 565). Had the latter been engaged in brigandage at that time, it seems unlikely that the ship would have stopped there.

(2) In fact, Dor of the Tjekker seems to have been a port of 'good repute'. Wenamon had no trouble in having his case heard before Beder, their king. Anson Rainey has pointed out to me (private communication) that Beder was knowledgeable in maritime law: when Wenamon demanded that he repatriate the gold and silver which had been stolen from him by a crew member of his own ship, the Tjekker king pointed out to him that the thief was not one of his nationals and he was, therefore, under no obligation to make amends. Indeed, when later Wenamon 'liberated' 30 deben of silver from the Tjekker he was clearly acting outside the law (BAR IV: 566–8).

Important information concerning the tactics used by the Sea Peoples in their sea-going ships and the make-up of their fleets is to be found in a group of texts from Ugarit. These relate to the very last days of that great Late Bronze Age maritime centre. Five texts [UT 2062, RS 20.238, RS 20.18, RS 20.162 and RS L.1 (Virolleaud, 1965: 88–9; Nougayrol, 1968: 87–9, 83–5, 115–6, 85–6)] which had been in the process of being fired in a kiln when Ugarit was sacked include maritime aspects of the deteriorating situation because of the advance of the Sea Peoples (Astour, 1965). Two are of particular interest.

RS 20.238 is a copy of a dispatch sent by the king of Ugarit to the king of Alalakh. In it the latter is informed that cities belonging to Ugarit have been destroyed by a flotilla of seven enemy ships. In another letter, RS 20.18, the 'Great Minister of Alalakh' writes to the king of Ugarit informing him that some of the latter's ships have apparently been surrendered to the enemy. He also includes a report on enemy movement—20 enemy ships have escaped, departing hastily and taking cover in a mountainous coastal area. Their present position is not known.

These texts seem to allow several relevant conclusions. First, the number of enemy ships in any given group is relatively small (seven and 20), particularly when compared to the 150 ships that Ugarit is requested to provide in UT 2062. Second, on occasion, Syrian ships were pressed into service in the Sea Peoples' naval complement suggesting that their fleet was more polygot than one would assume from the Egyptian evidence. Third, the tactics used by the Sea Peoples take the form of piratical coastal raids by small flotillas of ships. They arrive at a seaside settlement, pillage it, and then set it to the torch, disappearing without a trace before the local military can engage them in a pitched battle. Finally, ships which functioned in the manner just described must have been able to move when necessary under their own propulsion—that is, *they must have been oared galleys*. Since the entire method of attack was based on hit-and-run tactics, it is inconceivable that these ships were dependent solely on the vagaries of the wind for locomotion. Apart from this, we would expect ships used in this manner to be swift,

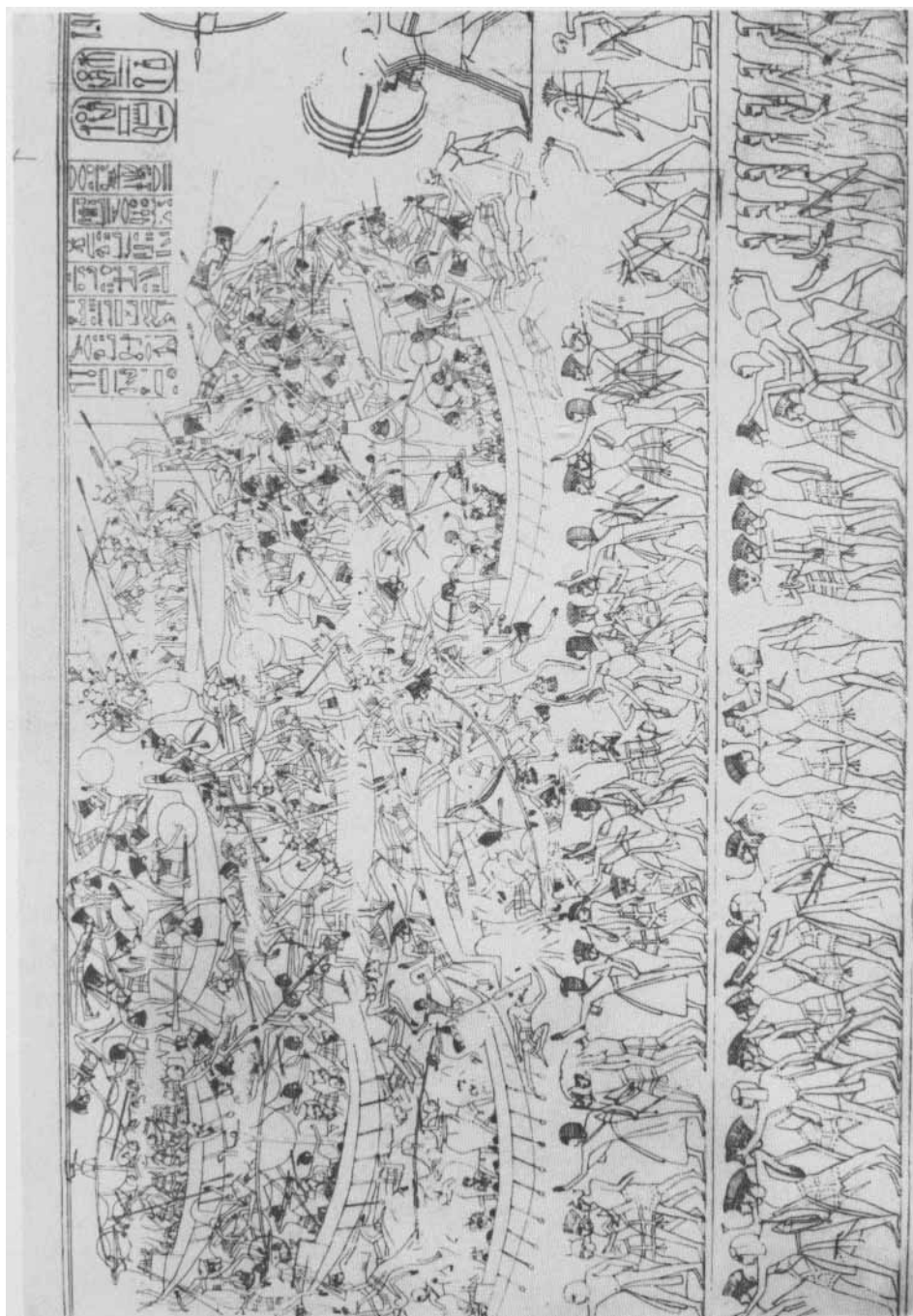


Figure 1. The naval battle as portrayed at Medinet Habu. After Nelson *et al.* (1930: pl. 37).

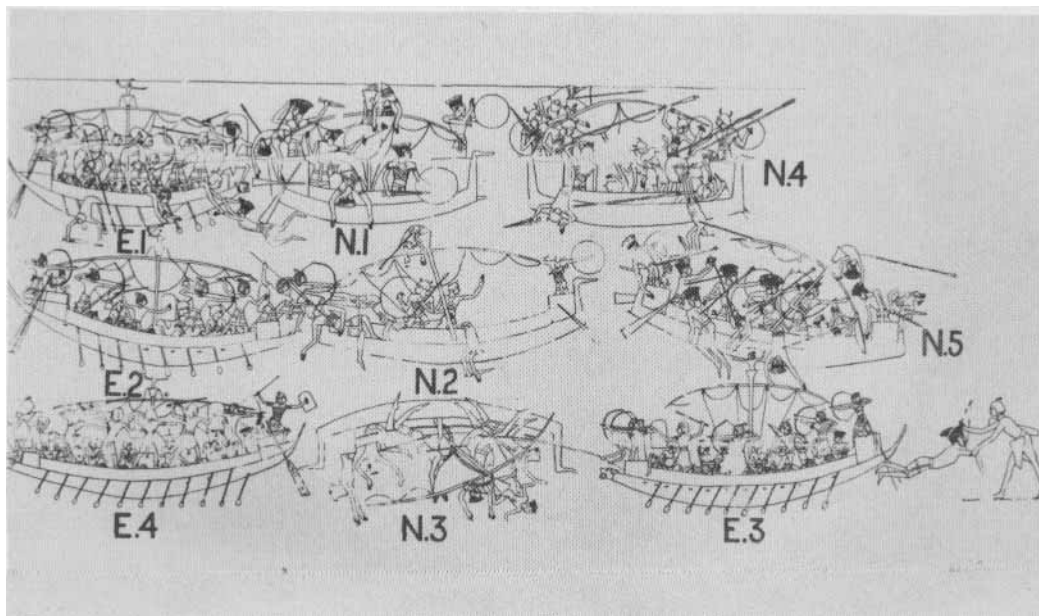


Figure 2. The scene of the naval battle with the figures of the floating bodies removed. After Nelson (1943: fig. 4).

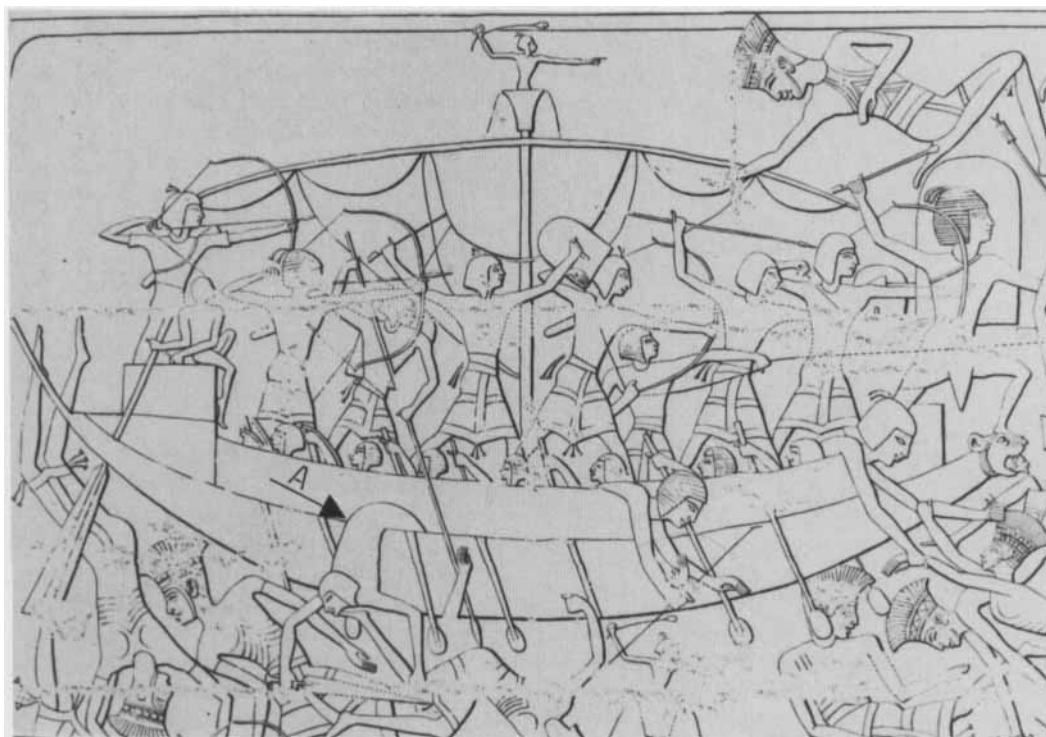


Figure 3. Ship E.1. After Nelson *et al.* (1930: pl. 39).

probably with a relatively high beam/keel ratio. While there must have been some room for the storage of plunder it is reasonable to assume that cargo space was at a minimum.

Medinet Habu

Let us now consider the iconographic evidence for the study of the indigenous craft used by the Sea Peoples. Undoubtedly the single most important representation is the relief of the naval battle in which Ramses III defeated a coalition of Sea Peoples including the Peleshet, Tjekker, Denyen and Sheklesh in his eighth regnal year *c.* 1186 BC. The relief appears on a wall of his temple at Medinet Habu (Fig. 1).

Nelson (1943) has shown that the scene is organized on the basis of three conceptual elements: spatial, ideological and temporal. The last of these is expressed by three groups of two ships, each comprising one phase of the battle (Fig. 2); thus ships E.1–N.1 indicate the beginning of the battle, ships E.2–N.2 signify the middle stages of the battle, while ships E.3–N.3 represent the conclusion of the battle in which a ship of the Sea Peoples has capsized. The fourth and final temporal element of the battle is shown by a single Egyptian ship, E.4, which is leaving the area of the battle and bringing bound captives to the shore. Ships N.4 and N.5 are not included in the temporal element; rather they come to take the place of the fleeing enemy in the normal land battle scenes. Their purpose is to represent the ideological concept of the Pharaoh as a frightening and irresistible might.

It is to be expected that the artists stereotyped the Sea Peoples' ships into one form only, in keeping with their generalizing portrayal of the naval battle. We need not assume that this was the only ship type in their service; the same is true of the Egyptian ships—even though an accompanying inscription indicates that at least three types of craft took part in the battle on the Egyptian side (BAR IV: 65) only one ship type appears in the relief. It would perhaps be more correct to say that we are seeing five representations of the same ship rather than five different ships.

When studying the reliefs at Medinet Habu we must keep in mind that they were originally painted and that in art of this type the Egyptian artist did not distinguish between relief and

painting, rather treating them both as part of the same art. In fact, the plastic representations appear to have been subordinate to the painting (Nelson *et al.*, 1930: 7). Thus many details which appeared only in paint have been lost; this explains why some elements are not always represented consistently. Note, for example, that in ship N.2 (Fig. 4) the brails appear on the left side of the mast only—not on the right.

The Sea Peoples' ships lack oars in the relief. This seems particularly incongruous if they were indeed oared galleys. Casson (1959: 41–2, 1971: 38) has suggested that, since the texts indicate a surprise attack sprung by the Egyptians (Nelson, 1943: 43; BAR IV: 77), they may have caught the enemy at anchor or before they could run out their oars. In any event the northerners' ships are clearly portrayed as being stationary at the time of the battle—lacking oars and with sails brailled up. However, a close re-examination of the Sea Peoples' ships on the relief indicates that they were indeed oared galleys, as we would expect from the pirate raids recorded in contemporary texts.

The ships of the Sea Peoples

The Sea Peoples' craft have a gently curved hull ending in angular vertical stem- and sternposts, both culminating in bird-head decorations. At bow and stern the ships have raised fore- and after-castles.

Something of the structure of these ships may be learned from a close study of the horizontal parallel lines which appear on the ships and the manner in which the live warriors and dead bodies are placed in relation to them. Care must be taken when interpreting this evidence, however. The relief appears to have been carried out by artists of varying capabilities (Nelson *et al.*, 1930: 9–10); some of the artists were not above making errors in relation to the ships' construction. Note, for example, the figure in ship E.1 (Fig. 3A) bending over to grasp a sword from the floating body of an enemy warrior. Unlike the two other soldiers plausibly portrayed leaning over the screen, the upper body of the former is placed in an impossible manner, leaning over the line which represents the gunwale and the screen.

The hulls of four of the Sea Peoples' ships (Figs 4–7) are defined by three horizontal

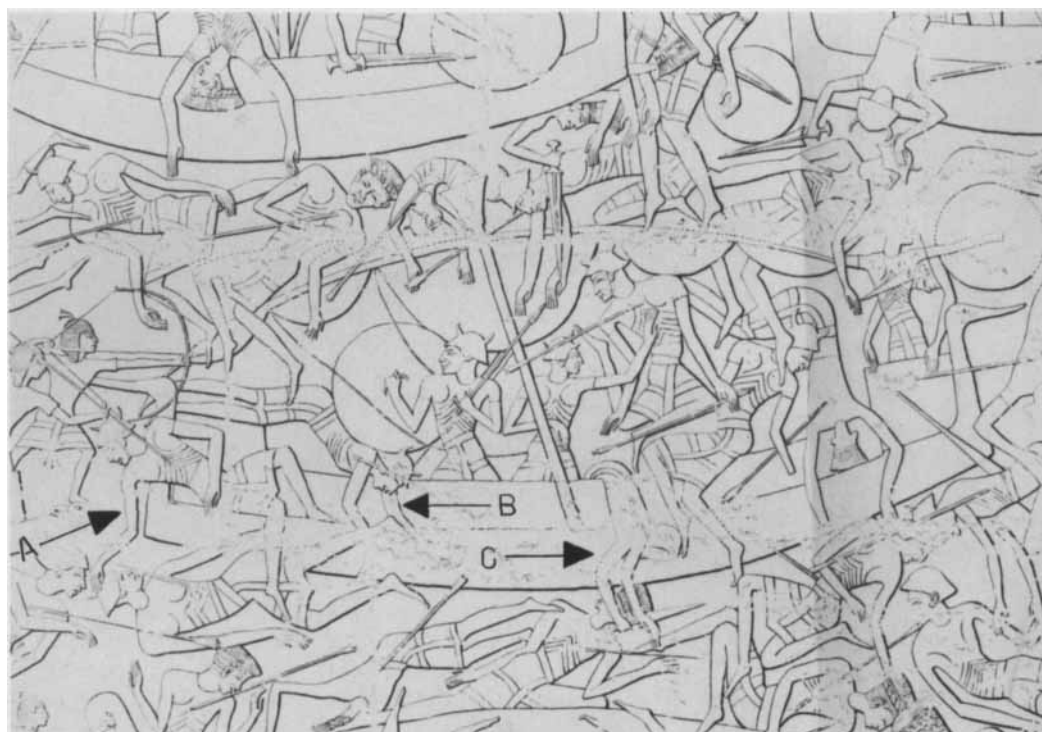


Figure 4. Ship N.2. After Nelson *et al.* (1930: pl. 39).

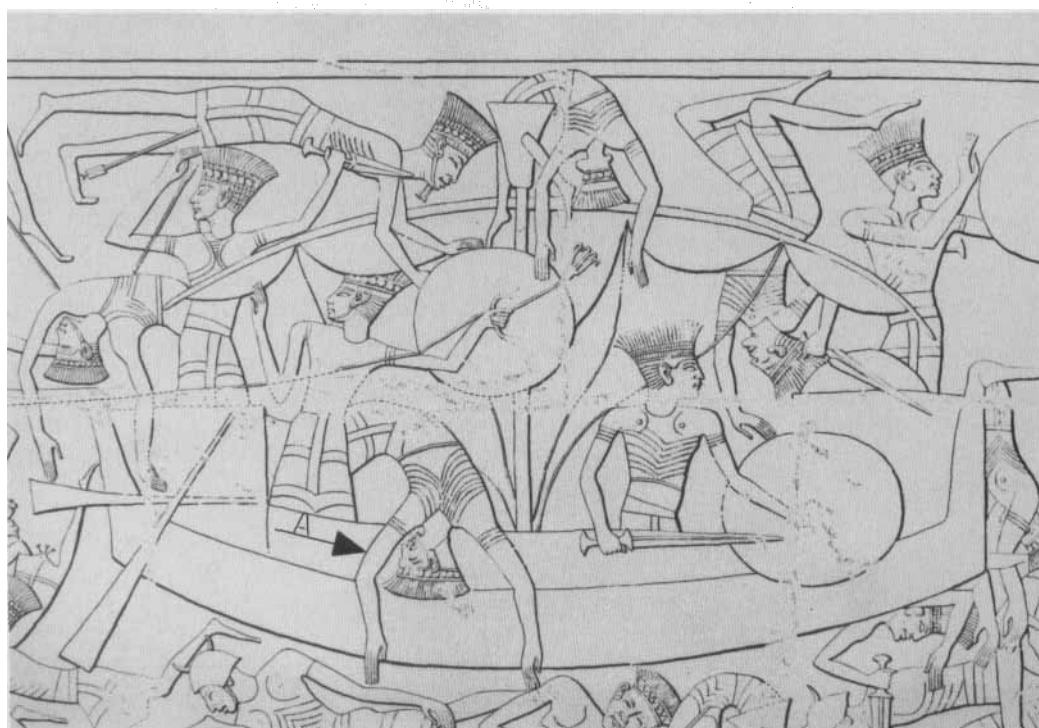


Figure 5. Ship N.1. After Nelson *et al.* (1930: pl. 39).

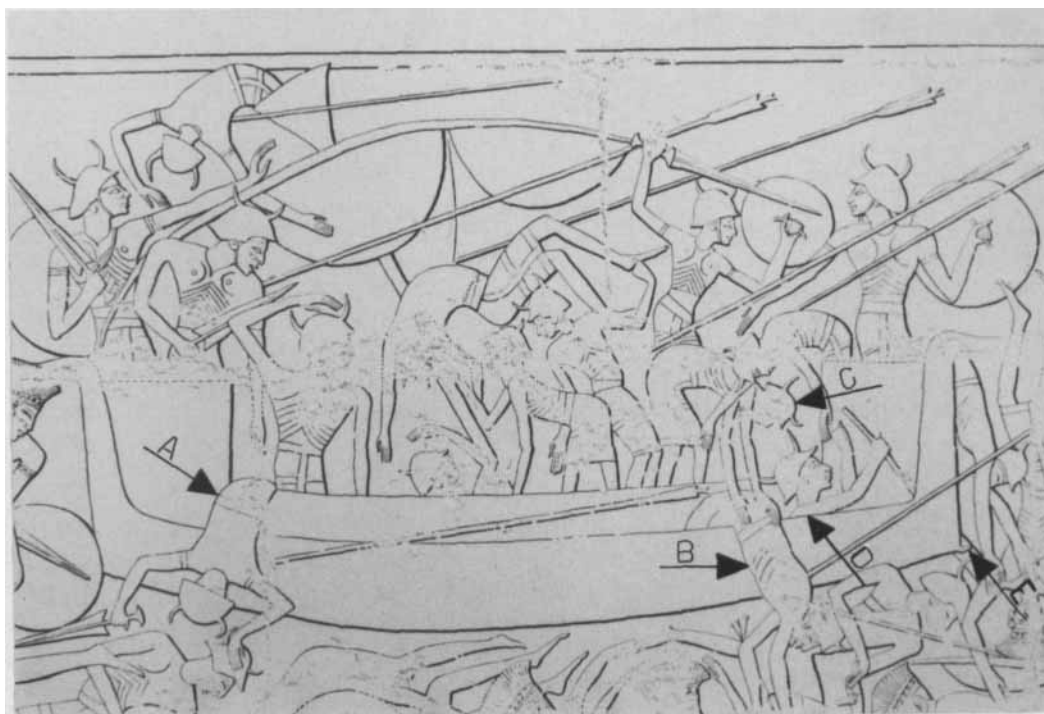


Figure 6. Ship N.4. After Nelson *et al.* (1930: pl. 39).



Figure 7. Ship N.5. After Nelson *et al.* (1930: pl. 39).

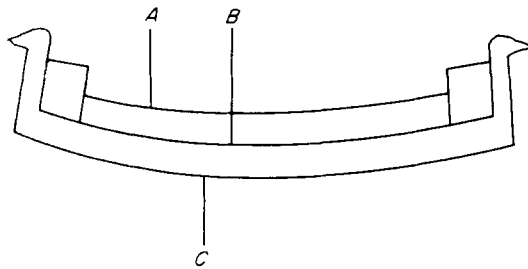


Figure 8. The horizontal lines on ships N.1–2, 4–5.

lines which we shall term, from top to bottom, *A*, *B* and *C* (Fig. 8). At first glance these seem to correspond to the three horizontal parallel lines on the Egyptian ships (Fig. 3) which represent, from top to bottom, the border of the screen protecting the rowers, gunwale and keel (Casson, 1971: 37). A closer study, however, indicates that this is not the case. The following observations help in clarifying the issue.

First, warriors standing in the centre of the ship are covered by line *A* at varying heights

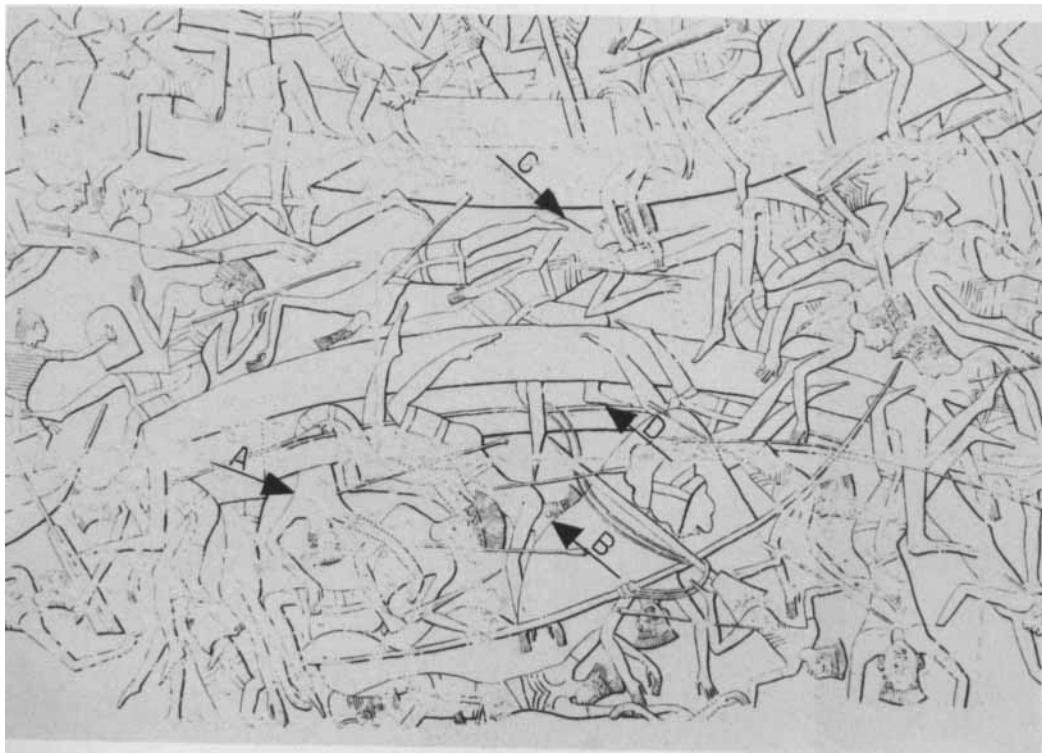


Figure 9. Ship N.3. After Nelson *et al.* (1930: pl. 39).

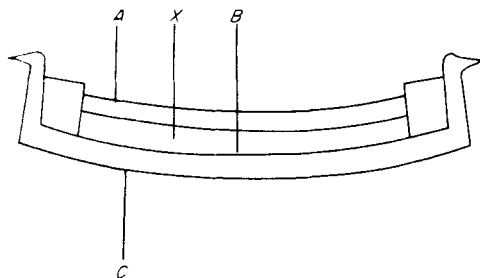


Figure 10. The horizontal lines on ship N.3.

from shin to thigh level (Figs 4–7) while dead bodies bent over line *A* cross lines *B* and *C* (Figs 4C, 5A, 6A; note also 7C and F), thus indicating, if there was any doubt in the matter, that lines *A*, *B* and *C* all represent the profile of the side of the ship facing the viewer and not the area between the gunwales.

Second, line *B* appears as a baseline with bodies appearing directly above it. In ship N.2, the warrior being skewered on the left (Fig. 4A) is resting on line *B*. That this is not accidental is indicated by his left foot being placed on the

same line. To the right of A his companion, B, is falling head first. His body crosses line A but his left arm seems to disappear behind line B. In ship N.4 the helmsman and a dead warrior (Fig. 6B and D) appear directly above line B. The dead man is being held by a companion (C) standing above him and behind line A.

These considerations in themselves indicate that the craft must have had two levels, apart from the raised areas in the castles; or in other words, that it must have been at least partially decked. This negates Casson's assumption (1971: 38) that these craft lacked a deck entirely.

Ship N.3 differs from the other Sea Peoples' ships by having an additional horizontal line between lines A and B (Fig. 9). We shall term this line X (Fig. 10). The key to understanding the three horizontal areas formed by these four lines (AX, XB and BC) is the way in which the floating bodies are arranged in relation to them. The ship has capsized. One figure (C) lies on keel line C. Its left leg disappears behind the hull in area BC, but its foot (D) reappears in area XB! Similarly another body (A) is 'folded over' area AX; its abdomen is visible in area XB while the torso emerges below line A. The leg of another body (B) disappears behind area AX and reappears in area XB passing outside the ship's hull over lines B and C.

These three independent clues indicate that area XB *must have been an open space*; the only logical reason for such an open space is that it served as an open rowers' gallery between a raised screen and the gunwales through which oars were worked. If line X is added to ships N.2 and N.4 the positioning of the figures in relation to them becomes immediately clear. Originally line X was probably painted on ships N.1-2, 4 and 5 as no doubt were the stanchions which must have supported the screen.

While the upper deck apparently ran the full length of the ship from the fore to the after platform, the intertwining of bodies in the manner shown in ship N.3 would be precluded if it had run the entire width of the ship. Planking must have been left out along the sides. This was also the case on later Greek galleys appearing on Geometric pottery. Casson has noted (1971: 51, n. 58) that in some fighting scenes warriors are portrayed standing on the

rowers' benches at a point that was not covered by the raised deck (Fig. 11) and that the part left undecked must have been along the sides where the rowers sat. Figures 12A and B are tentative isometric reconstructions of a Sea Peoples' ship illustrating the basic elements discussed above.

The Sea Peoples' ships carry two (Figs 5 and 7), one (Figs 4 and 6), or no (Fig. 9) steering oars. Of the ships with two steering oars N.1 has both placed on its starboard quarter (the side of the ship facing the viewer) while N.5 appears to have one on either quarter. The oar on the near (starboard) side is held in a support (Fig. 7B). Apparently the normal complement was two steering oars and those lacking are to be attributed to loss during battle.

The steering oars on the invaders' ships now lack tillers. Originally they did have tiller bars; however, these were represented in paint only and have long since disappeared. This seems clear from the manner in which the helmsman of ship N.4 (Figs 6D and 13) is holding the loom of the steering oar in his right hand while his left hand is clenched around a now non-existent tiller bar. Compare this to the two handed manner in which the helmsman on the Egyptian craft are manoeuvring their steering oars. All four hold the tiller with their left hand; two also hold the loom with their right hand.

At the junction of stempost and keel a small pointed projection appears on two of the ships (Figs 6E and 7A). Their position and form invite comparison with the stern device which appears earlier, apparently with cultic connotations (Wachsmann, 1980), on Aegean craft.

The rigging of the Sea Peoples' ships is identical to that carried by the Egyptian craft with which they are engaged. Both carry the newly introduced brailled rig. Indeed, this is one of the earliest appearances of this type of loose footed sail (Casson, 1971: 37 and 69; concerning the probable originators of this rig, see below).

The mast is topped by a crow's nest. The yard curves downward at its extremities and is raised by twin halyards, which appear only on ship N.3 (Fig. 9). The block through which they must have been worked is not represented, nor are other details of the rigging with the exception of the brails.

Turning now to representations of ships of



Figure 11. The deck structure of Greek Geometric galleys. (A) Figures stand on the rowers' benches in an area which is not covered by a deck; (B) the legs of a figure sitting at deck level appear through a 'window' of the open rowers' gallery. (A) After Morrison & Williams [1968: pl. 1e (Geom. 2)] and Casson (1971: fig. 68). (B) Morrison & Williams [1968: pl. 7b (Geom. 38)].

Aegean tradition it becomes apparent that, while there is at present no exact parallel to the Sea Peoples' ships as portrayed at Medinet Habu, all the elements, both decorative and functional, which have been enumerated on these craft are to be found on ships appearing in contemporary Helladic art.

Contemporary ships in the Aegean

Having ascertained that a deck and hull structure very similar to that of later Geometric war

galleys existed no later than the 12th century, several relevant questions arise. Chief among these are:

- (1) What is the relationship between the ships of the Sea Peoples and contemporary Aegean craft?
- (2) What is the relationship between Aegean craft at the close of the Late Bronze Age and the later Geometric warships?

In order to attempt to answer these questions

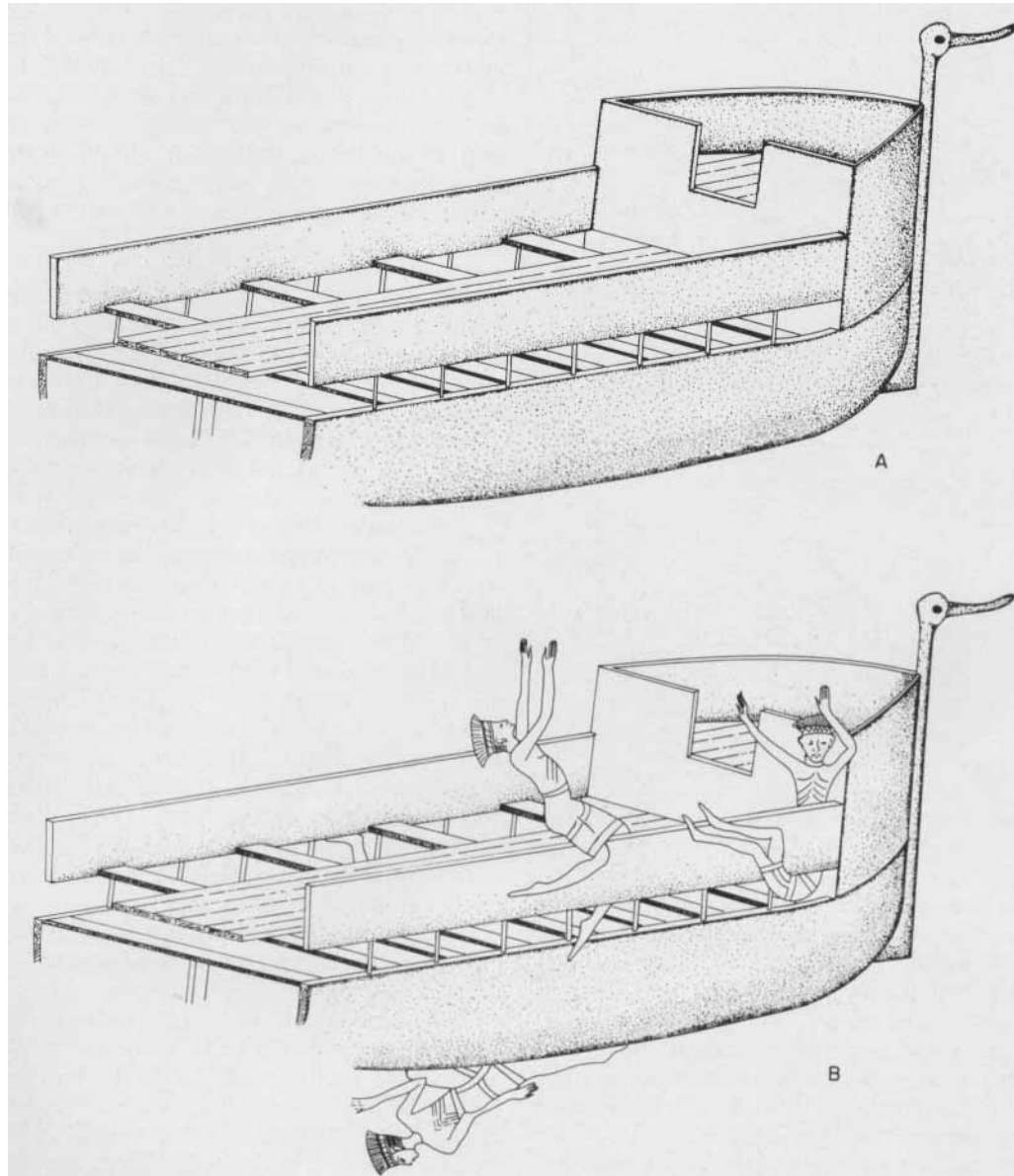


Figure 12. (A and B) Tentative isometric reconstructions of a Sea Peoples' ship illustrating the basic elements discussed. In B the bodies of the fallen warriors in ships N.3 (Fig. 9A–D) have been added. The bodies are drawn to a larger scale than the ship.

it is necessary to review those Aegean ship representations which *may* illustrate oared galleys. In the Bronze Age, a time when the ram does not seem to have yet been introduced as a naval weapon (see below), the best *fossile directeur* would seem to be the existence of an open rowers' gallery below deck level similar to

that which existed on the galleys of the Sea Peoples and of the Geometric Period.

As we shall see, although material is not lacking, its interpretation is very problematic in many cases. Most representations of ships in this period are little more than rough graffiti in paint and/or terracotta. There does not seem to

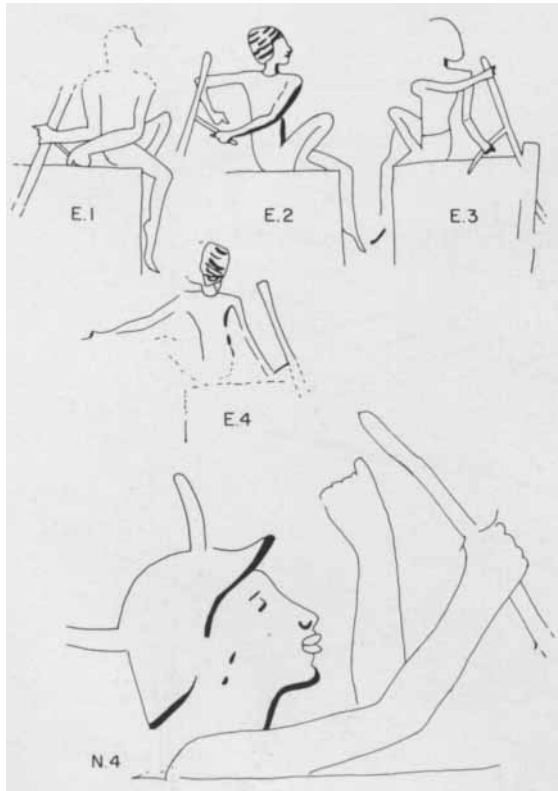


Figure 13. The helmsmen of ships E.1–E.4 and N.4. After Nelson *et al.* (1930: pl. 39).

have been any rigid artistic convention binding the artists who created these works; each ship, or group of ships, therefore, must be considered on its own merit. It is important to remember that we are dealing here with iconographic representations of ships—not with actual ships, scale plans or scale models. The artist illustrated the ship *as seen through his eyes*. Because of this, some elements of the ships' architecture are occasionally telescoped, others expanded or otherwise exaggerated, while others are disproportionately small or ignored entirely. The ability to interpret correctly the craft portrayed is directly proportional to our ability to identify the various elements and reconstruct their relative dimensions.

Ships appearing in Helladic art, or of a clearly similar tradition found farther afield, date for the most part to the Late Helladic IIIC Period (1200–1050 BC), after the demise of the Mycenaeans. They are thus more or less con-

temporary with the Medinet Habu relief. These craft form an important link between the Aegean ships of the third and second millennia and the Geometric war galleys of the 9th century and later. They show certain characteristics of the former classes while introducing new elements that will flower in the later age.

Theocharas (1958: 18) identified some painted sherds from a transitional Middle–Late Helladic pot found at Iolkos as bearing a series of oared craft. While this reconstruction has been accepted uncritically by some (Vermeule, 1964: 259, fig. 43a; Morrison & Williams, 1968: 7, 9, pl. 1a), the ships are reconstructed on insufficient evidence, as Casson (1971: 42, n. 4) has shown. Bass (1972: 20) has noted that the decoration has been compared convincingly with fish painted on a contemporary vase now in the Archaeological Museum at Nauplion.

A Middle Helladic sherd from the island of Aegina is decorated with a matt painted drawing. In it a figure wearing a horned helmet stands in the bow of a ship with a bird-head stem ornament (Fig. 14B). *If they are integral to the ship*, two parallel vertical lines behind the figure apparently indicate a very thick single mast rather than a bipod one. The horizontal lines above the figure may indicate a yard, but this is questionable since no boom appears nor do the crosshatched triangles lend themselves to interpretation as an element of the ship's rigging.

Two ships appear on a Late Helladic IIIB krater from Enkomi (Fig. 14A; Gjerstad *et al.*, 1934: 484, no. 262, pl. LXXVII—top row centre; Sjöqvist, 1940: fig. 20:3; Furumark, 1941: 335 and 333, fig. 56:40:1; Casson, 1971: fig. 59). They are represented as having rounded hulls. This detail has led some scholars to conclude that they are merchantmen (Vermeule, 1964: 258; Morrison & Williams, 1968: 11, no. BA8; Casson, 1971: 36). The area of the stempost is missing in the ship on the right but the stempost of the left ship is curved and surmounted by a bird-shaped decoration. The sternpost is a curved line with three sets of volutes. The ships are at least partially decked and have a structure in the prow. The mast rises amidships and is drawn in a bumpy line, probably to indicate that it was composite and

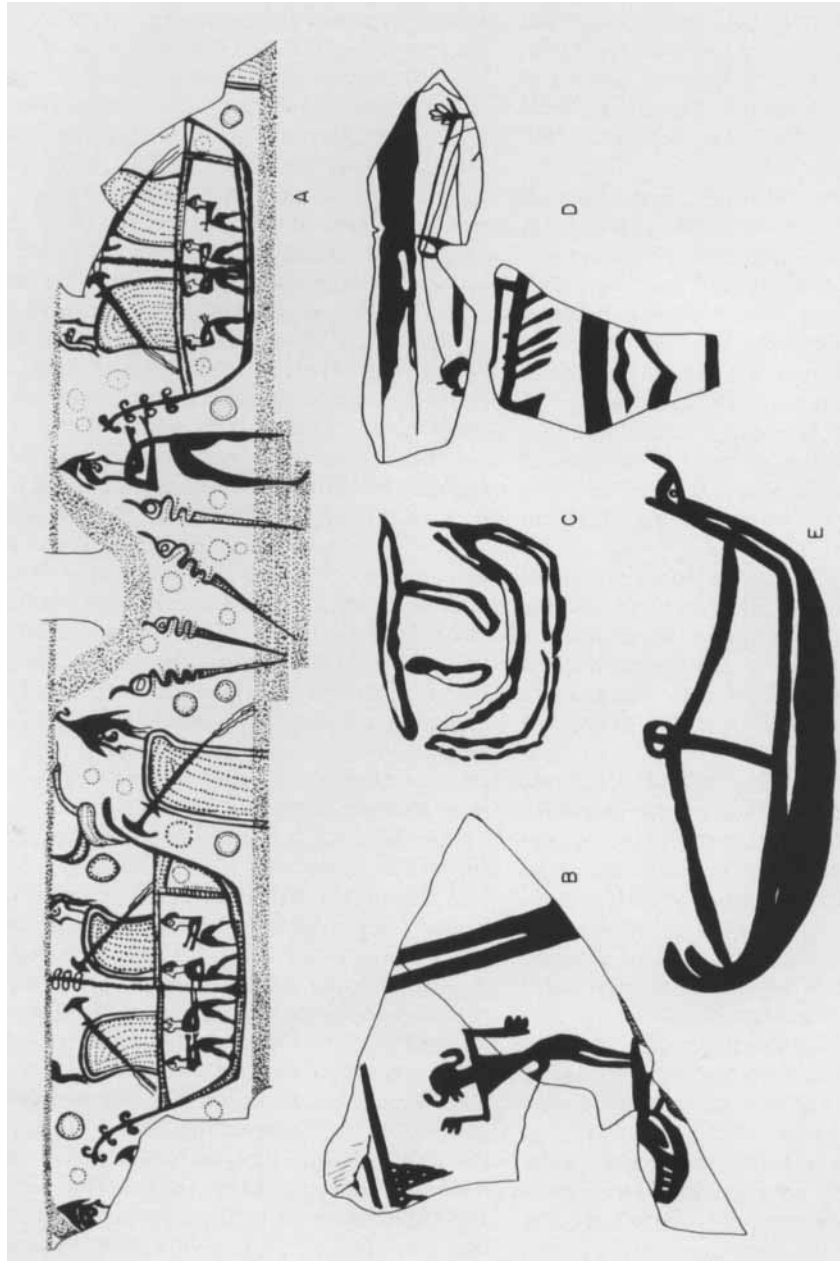


Figure 14. Ships portrayed on: (A) a LH IIB krater from Enkomi; (B) MH sherds from Aegina; (C) an LC III stone seal from T.6, Enkomi; (D) LH IIIC sherds from Phylakopi; (E) a LH IIIC stirrup jar from Skyros. (A) After Sjöqvist (1940: fig. 20:3); (B) Buchholz & Karageorghis (1973: 301, fig. 869); (C) Schaeffer (1952: 71, fig. 22); (D) Marinatos (1933: pl. XIII:16); (E) Vermeule (1964: 259, fig. 43f).

held together with woodlings (Casson, 1971: 69, 231, 1975: 5). The masthead carries three pairs of rings indicating that these ships were still using the old type of sail with a boom along its foot. The rings held the multiple lifts that supported the boom and the halyards. [Compare them with those topping the mast of a ship in the Miniature Frieze at Thera (Marinatos, 1974: colour pl. 9 top centre and line drawing).]

Four men appear below the deck. They all stand in the same manner but face each other in pairs. Standing above them on the deck are two warriors wearing helmets and mantles. They carry swords in scabbards which end in wavy lines. In all these elements, down to the fringes on the scabbards they are like the warriors in the Thera frescoes (Marinatos, 1974: colour pl. 7). These figures also face each other. On either side of the ship on the left is a warrior dressed in the same manner. The helmeted head and sword pommel of the warrior on the left are all that remains of that figure.

The ship on the right is identical in all aspects except that its hull is narrower and the sternpost has an additional pair of volutes; it is less well preserved and the figure to the left is dressed like the men below deck but wears a helmet, indicating that all these figures also had a military function.

The preponderance of fighting personnel, lack of any cargo in the hull, and the similarity of certain elements of these ships (such as the bird insignia and stern decoration) with those appearing on representations of LH IIIC galleys discussed here strongly suggest to me that the craft represented are to be identified as oared galleys, the hulls of which have been significantly altered by the artist.

Since the men standing in, on, and next to the ships all face each other in conventionalized heraldic patterns, it is clear that the men below deck are facing each other due to artistic considerations and not necessarily because the action in which they are involved requires them to be arranged in that position. Thus the artist may very well be representing a row of men facing in one direction. If so, one may ask in what work could a row of men, facing in one direction and positioned below deck level, be involved?

The posture of the men is conventionalized

(Furumark, 1941: 237–42, fig. 25) and therefore does not elucidate this point.

While several of the ships under discussion here are shown carrying oars [Figs 14D, 20C(?) and F], representations of rowers working their oars are rare. The only representation of a ship in which rowers are definitely portrayed appear on a sherd found during the Italian excavations at the Serraglio in Cos (Fig. 15A; Morricone, 1975: 360–1, fig. 358; Sandars, 1978: 135, fig. 92). The scene is unfortunately very fragmentary. Two rowers and parts of a third (mainly the oar, lower arms and part of the left leg) are shown pulling on their oars while facing left. Thus the galley must be facing right. The entire hull is drawn as a single broad horizontal band. The two bands beneath it, according to Morricone, encircle the wider part of the jar and are, therefore, not related to the ship. To the left of the rowers are remains of an angular structure with a vertical line rising from it. To the right of this vertical is a line in the form of a compound curve. These elements are best understood, in my opinion, as the galley's aftercastle and sternpost topped with a stylized bird's head facing the prow. The aftercastle, if it is indeed such, is clearly shown as an open frame. It should be compared with the castles appearing on a ship of like date from Pylos (Fig. 20A) and, to a lesser degree, with the closed castles on the ships of the Sea Peoples from Medinet Habu.

Another sherd from the same excavation (Fig. 15B; Morricone, 1975: 358–9, fig. 356), and also of LH IIIC date, carries remains of a second ship. All that remains of this craft today is part of the sail with a wavy line running diagonally from the mast top towards a figure who faces it and a semicircular element with a reserved dot at its centre. The sail seems to be billowing towards the left suggesting that the ship faced that direction. The wavy diagonal line, obviously representing a (slack?) rope of the ship's rigging, finds an exact parallel in a later ship drawing from Cyprus (Fig. 26A). The semicircular element may represent part of the head and eye of a bird-head ornament decorating the craft's stem(?)post.

The figures on these sherds, as well as those on several others from Cos (Fig. 16), wear crudely represented helmets which have been likened quite convincingly by Sandars (1978:

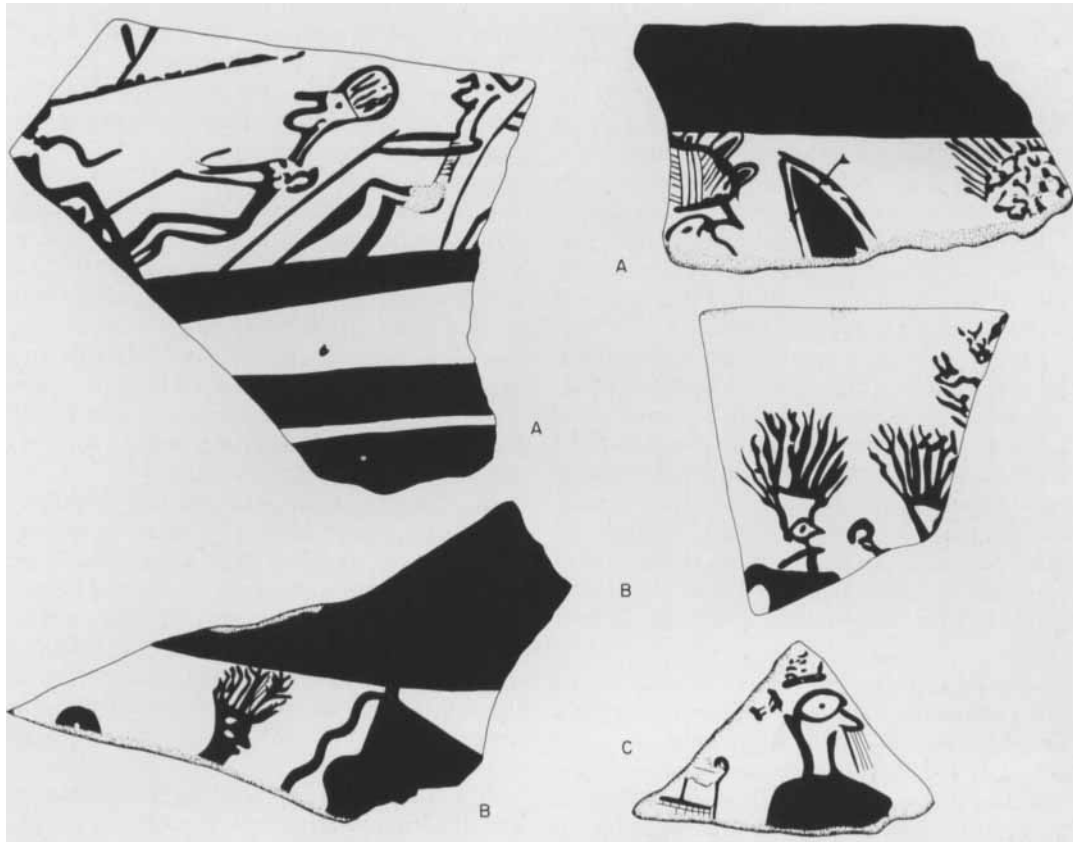


Figure 15. Fragments of ships on LH IIC sherds from the Seraglio, Cos. Note the (feather?) helmets worn by the figures. After Morricone (1975: 360, fig. 358, 359, fig. 356).

Figure 16. Figures wearing (feather?) helmets reminiscent of those worn by contingents of the Sea Peoples in the Medinet Habu reliefs. After Morricone (1975: 360, fig. 357a-c).

135, fig. 92, 137) to the feather helmets worn by elements of the Sea Peoples portrayed at Medinet Habu. The implications of this will be discussed below.

A representation of a ship from Skyros (Fig. 14E; Sandars, 1978: 130, fig. 85) which is painted on a LH IIC stirrup jar displays a long narrow hull with an elongated, almost vertical stempost ending in a zoomorphic figurehead usually identified as a bird's-head (Vermeule, 1964: 258; Bass, 1972: 22). This stempost with bird-head ornament is practically identical with the stem- and sternposts of the invaders' galleys at Medinet Habu. Its origin may be in the angular, high prows of third millennium Aegean 'long ships' (Casson, 1971: fig. 22). A narrow unpainted line horizontally bisects the craft and continues up the stem- and sternposts. This

element may represent an open rowers' gallery.

The ship carries a mast with a double collar through which the twin halyards were worked. This indicates that it is carrying the newly introduced loose footed brailed sail similar to that seen on the ships of both sides at Medinet Habu. This double collar fitting continued in use along with the new rig for over a millenium. Standing rigging represented on the Skyros ship include a single forestay and backstay.

Parts of two other ships, also of LH IIC date, appear on several sherds from Phylakopi on the island of Melos (Fig. 14D). The upper ship faces left. It consists now only of a zoomorphic (bird's-head) figurehead in which the stempost culminates, the palmette-like stern decoration, and the upper tip of the mast with its rigging. The rigging shown includes a single

forestay and three lines running from the tip of the mast to the sternpost. These are probably to be identified as a single backstay, as on the Skyros ship and two halyards tied to cleats astern and thus acting as additional backstays. Again, as on the Skyros ship, the rigging here seems to be of the new, braided type.

Of the lower galley there remains only part of the hull with five oars and a single steering oar. Above the hull is a vertical line which is probably meant to represent a mast.

A ship is engraved on a stone seal found in T.6 at Enkomi (Fig. 14C). Schaeffer (1952: 71) defined it as 'un sujet difficile à interpréter (bateau)'. The object represented appears to be an extremely schematic attempt to portray an equal ended ship under sail. The hull is narrow and curved. The seal is of Late Cypriote III date. Schaeffer (1952: 87–8, 412) has already pointed out that this ship finds its closest parallel in the Sea Peoples' galleys at Medinet Habu.

Parallel to the appearance of these ships one finds representations of oared ships dating from the 13th century and later, alike in many details to the 'class' just studied—but with one significant difference; they all have a horizontal projection or cutwater at the junction of stempost and keel.

The earliest appearance of a ship with such a horizontal projection is on a Late Minoan IIIB *larnax* excavated at Gazi, on the island of Crete, and now in the Archaeological Museum of Iraklion (Figs 17–18; Alexiou, 1970: 253–4, 1972: 90–8, 1973; Sakellarakis, 1979: 110). This also happens to be the largest known representation of a Late Bronze Age craft from the Aegean area extant today. The ship is painted on the long side of the *larnax*. It is facing left. The hull structure is composed of three horizontal lines. The lowest of these is thicker than the other two and appears to represent the ship's hull up to the gunwales. At the prow it is elongated into an upcurving spur forward of the stempost. Above it, vertical lines combine with the other horizontal lines to form two superimposed 'horizontal ladder designs'. One central vertical line continues upward forming the mast. The probable interpretation of these designs will be discussed below.

The artist of the Gazi ship seems to have

been partial to vertical lines for some reason. Those connecting the lowest pair of diagonals with the uppermost horizontal of the ship cannot be explained in terms of contemporary ship architecture or rigging. This latter vertical element is at present unique to the Gazi ship and one receives the impression that it is purely decorative in nature.

The stempost rises at an angle from the keel and is surmounted by a stylized bird-head with a number of vertical lines rising from it. This figurehead is prolonged over the horizontal bow projection precluding its functioning as a ram. The sternpost rises in a curve and blends into the painted frame. A single steering oar stretches out horizontally behind the craft.

At the top of the mast are two additional straight horizontal lines with three wavy lines beneath them on either side of the mast. These elements represent the yard, boom and (furled or billowing) sail, respectively. In other words, this ship, like the Enkomi ships (Fig. 14A) of similar date, still carries the old boom bottomed rig. Below the sail are three sets of diagonal lines which connect the mast to the stem- and sternpost.

This manner of representing the rigging on the ship from Gazi is very reminiscent of that used to show the rigging on ships appearing on Minoan seals of Late Minoan date (Fig. 19). Here also one finds a very broad sail between a yard and a boom placed high up on the mast with two or three diagonals descending from the mast or the boom to the ships' extremities. The identity and purpose of these diagonal lines is enigmatic.

Another, better known representation of this subclass is a ship painted on a LH IIIC1 pyxis from Pylos (Fig. 20A; Furumark 1941: 335, 333, fig. 56:40:2). A continuous thick line forms the hull from the sternpost to the horizontal spur at the prow. Above this appears a narrower horizontal line with short vertical lines at fixed intervals connecting the two horizontals. The prow consists of two vertical lines rising above the spur and joined by a zigzag line. Behind it a forecastle nestles in the bows and is surmounted by an emblem, now partially missing, which has usually been identified as a fish (Svoronos, 1914: 97; Evans, 1928: 242–6, fig. 142; Kirk, 1949: 118; Vermeule, 1964: fig. 43; Morrison & Williams, 1968: 9, BA2;

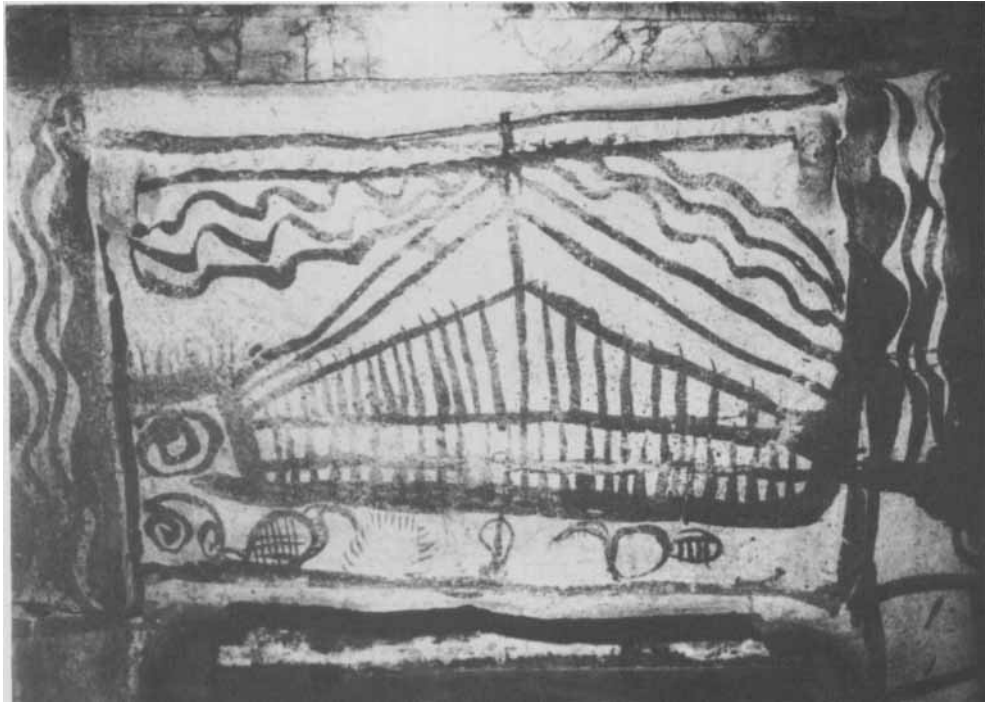


Figure 17. Ship painted on the side of a LM IIIB *larnax* from Gazi.



Figure 18. Line drawing of the Gazi ship.

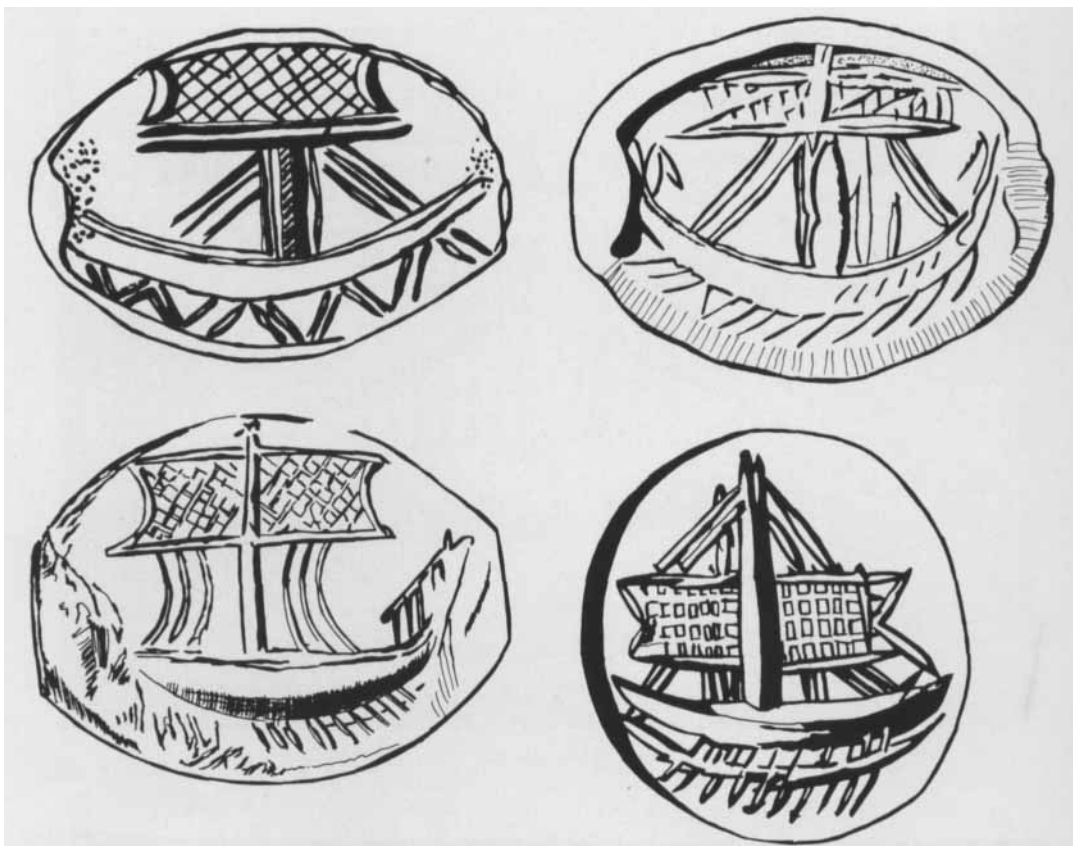


Figure 19. Ships on Late Minoan seals carrying rigs similar to that on the Gazi ship. After Casson (1971: figs 37–40).

Bass, 1972: 22). Sakellarakis (1971: 210) has shown, however, that it actually portrays a bird—agreeing thus with the bird ornament on the prow of the Enkomi ship. The sternpost rises from the keel in a curve as on the Gazi ship, but is terminated in an acorn-shaped decoration. The stern compartment has a balistrade below which juts a single steering oar. As Morrison and Williams have noted, the rudder's tiller bar is held in place by a curved lynch pin connected to the loom. The ability to remove the tiller from the loom was no doubt desirable for facilitating the steering oar's storage when not in use.

The sail is stylized into a flattened oval. Other rigging includes a single forestay and three lines aft as on the ship from Phylakopi (Fig. 14D). The rig portrayed on the Pylos ship seems to also be of the new brailed type.

A ship with certain similarities to the Pylos vessel is portrayed on a stirrup jar from Asine

of LH IIIC date (Fig. 20C). There is a lack of agreement among scholars as to which side of the ship is its prow and which the stern. Kirk (1949: 117) and Williams (Morrison & Williams, 1968: 10, BA3) consider the long thick projection to the left to be a ram with the ship subsequently facing left. Casson (1971: 32) and Bass (1972: 22) believe the ship to be facing right. In support of the latter view the following considerations may be noted:

(1) in primitive representations of ships the steering oars are occasionally strung out directly behind the ship in the manner seen here (Fig. 18; Palmer, 1871: pl. opposite 29; Jaussen *et al.*, 1905: pl. VI–VII; Rahmani, 1980: 117, fig. 2);

(2) if the thick vertical line in the centre of the hull is the mast, as Williams has logically concluded, then the sail is bellying toward the right;

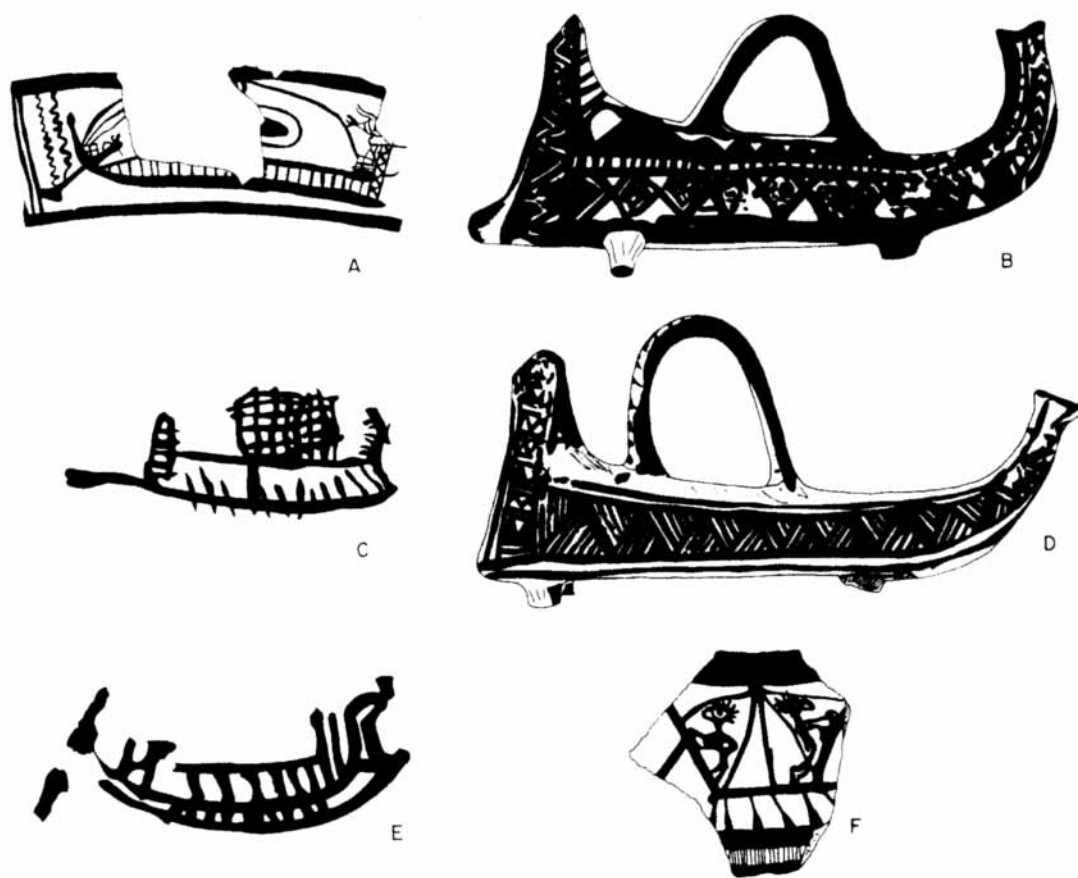


Figure 20. Ships with a horizontal stem projection or cutwater. (A) Ship on a LH IIIC pyxis from Pylos; (B) LC III terracotta ship model from Cyprus, provenance unknown; (C) ship on an LH IIIC vase from Asine; (D) LC III terracotta ship model from Lapithos; (E) Ship painted on a funerary urn found at Hama c. 1200–1075 BC; (F) ship on an LM IIIC sherd from Phaistos. (A) and (C) After Casson (1971: figs 28–9); (B) and (D) Buchholz & Karageorghis (1973: 470, figs 1720–1); (E) Ingholt (1940: pl. XXII:2); (F) Laviosa (1972: 9, fig. 1b).

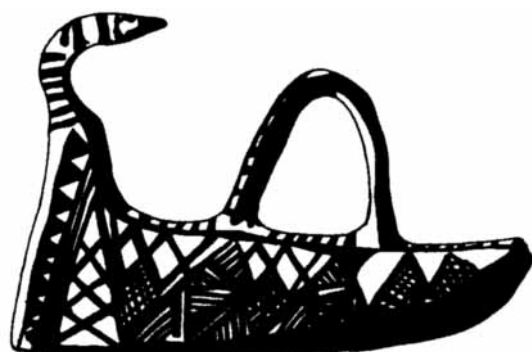


Figure 21. *Askos* in the form of a ship. Note the bird-head ornament that tops the stempost and faces inward toward the stern. From Lapithos, LC III. After Göttlicher (1978: Taf. 9: 149).

(3) the horizontal projections on the inboard side of the ship's stempost (if facing right) correspond to those painted on the stempost of a contemporary ship model (Fig. 20B).

A projection, apparently a cutwater, juts from the keel at keel level. Eleven short vertical strokes that begin around the centre of the hull and bisect the keel line are probably meant to signify oars.

At Hama in Syria a funerary urn bearing a drawing of a ship was found by the Danish excavators [Fig. 20E; Riis, 1948: 48, fig. 25, 97, fig. 130B:112, 105–6, pl. 12C—no. G VIII, 551 (5B902)]. It belongs to Period I of the

cremation cemeteries there (=Hama F, early phase) which was dated by Riis (1948: 202) to c. 1200–1075 BC. The long narrow hull ends in a spur. Above this the stempost is surmounted by a bird-head identical, down to the raised beak, with the bird-heads on the Sea Peoples and Skyros ships. Above the hull is a horizontal line connected to it by short vertical lines which form a horizontal ladder design, probably indicative of an open rowers' gallery. Below this the hull is crossed by 10 vertical lines which do not seem to represent oars as none of them cross the lower horizontal line of the keel. The area of the stern is not entirely clear but it appears to be taken up by a balustrade. The sternpost rises straight in the rear, as on the Asine ship. A vertical line beneath it may represent a steering oar.

A LM IIIC oared ship appears on a sherd from Phaistos (Fig. 20F) which was published by Laviosa (1972: 9–10). The craft's hull is a single thick horizontal line from which rise a curving stempost and an angular sternpost. The line of the hull continues past the junction with the stempost apparently indicating a horizontal spur. A diagonal descending from the sternpost is best understood as a steering oar. At the junction of the sternpost and the hull is a small pointed projection. Unfortunately, all the extremities of the vessel are missing. Beneath the hull are five or possibly six lines, which widen at their lower ends, representing oars. A mast is stepped in the centre of the hull with four lines leading from it. They are best understood, in my opinion, as a yard with extremities curving downward and a single forestay and backstay (compare Fig. 26A and B).

We are fortunate in having terracotta models of this ship type. Though these models were found in Cyprus they clearly represent ships that were common in the Aegean at this time. As Catling (1964: 52) has noted although 'apparently a very high proportion of it is of Cypriote manufacture, the shapes and ornaments are so clearly related to Greek originals that the closest association between the two must be supposed'. *Askos* forms, to which these ship models belong, are popular in Proto-White Painted Ware although they usually portray birds or other zoomorphic shapes (Yon, 1971: 51–2). The first model is of unknown prove-

nance (Fig. 20B). There can be little doubt that this is a three-dimensional representation of the same ship type seen on the Pylos pyxis (Fig. 20A). Note particularly:

- (1) the latticed prow which reaches down to the spur;
- (2) the horizontal ladder design which stretches the length of the model and up the sternpost;
- (3) the prow which ends in a projecting spur;
- (4) the unpainted rear side of the stempost is crossed by six horizontal lines as on the Asine ship (Fig. 20C). Similar lines are found in the same place on later ships (Fig. 26C; Morrison & Williams, 1968: pl. 4b).

While these are familiar decorations on Proto-White Painted Ware, in this specific case they can plausibly be explained as representing actual ship elements. The manner in which the horizontal ladder decoration continues up the sternpost is reminiscent of the way that it is portrayed on the Skyros ship and on Greek war galleys of later times (Fig. 14E; Morrison & Williams, 1968: pls 6a–b, d–e, 11a, c–d, 26a).

A second model of this series, from Lapithos (Fig. 20D), bears a cutwater-like prow rather like that on the Asine ship. Here also the prow is covered with a slightly different lattice decoration, although all the other elements seem to be purely ornamental.

This latticed prow reappears in still another variation on a third model of this series which is also from Lapithos (Fig. 21; Göttlicher, 1978: 35, no. 149). This terracotta is of particular interest in that *the bird-head insignia which tops the stempost has been turned around and now faces the stern*. This reversal in direction of the ubiquitous bird-head decoration is a key clue to understanding the relationship between the ships of the Sea Peoples and later Greek Geometric ships, as we shall see below.

Another Cypriote ship representation is an extremely crude graffito engraved on a stele from Enkomi (Fig. 22A; Schaeffer, 1952: 102–4). It also dates to the LC III Period. *If the ship is facing right* then it can be convincingly shown to be patterned after the same type of craft as the other representations described above. It also has a narrow pointed spur at the prow. The bows are taken up by a forecastle. A horizontal line juts out forward of the castle. It is crossed by a diagonal line while

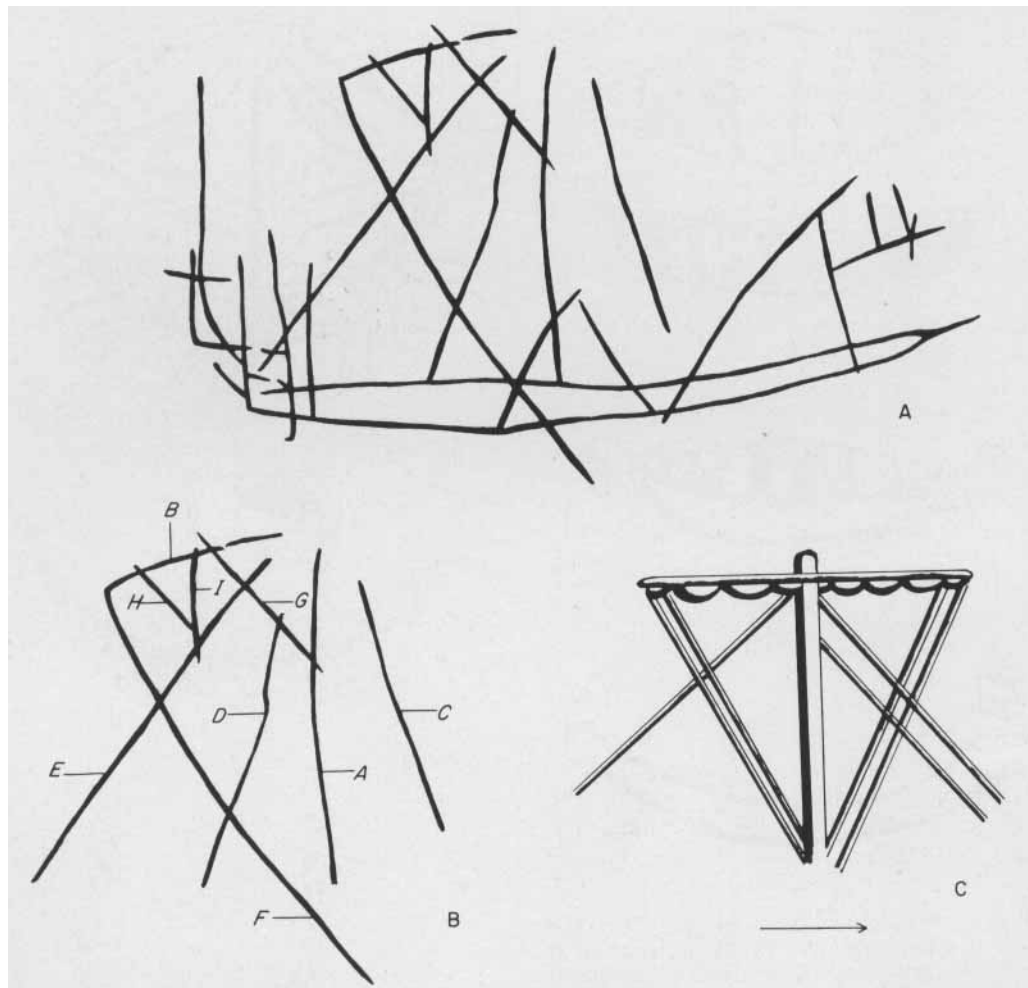


Figure 22. (A) Ship graffito on a stele from Enkomi. LC III. (B) Detail of the ship's rigging. (C) Detail of the rigging on Phoenician ships c. 700 BC. (A) After Schaeffer (1952: 102, fig. 38); (C) Casson (1971: fig. 78).

two other vertical lines rise from it. This schematic element invites comparison, because of its position on the stempost, with figure-heads in the form of a bird on the wing situated atop the stempost on an earlier ship from Enkomi (Fig. 14A) and on the Pylos ship (Fig. 20A). The mast is stepped in a massive triangular tabernacle; this element appears first on the ships from Enkomi just mentioned and later becomes a prominent element on Cypriote Iron Age ships (Fig. 26A–B). The ship's stern was first finished off with a vertical sternpost which was subsequently altered into a curving sternpost by the addition of several lines. As we have seen, both angular [Figs 5, 20C, E(?) and

F] and curving (Figs. 14A, C, E; 18; 20A, B, D) sternposts appear on contemporary representations of ships of this class. Several lines in the stern apparently indicate a castle, as on the Pylos ship.

But is the ship facing right? As Casson (1971: 31) has noted, the ship seems to be under sail—and the sail is bellying to the left. If this is correct then the ship itself also must be facing left and we are consequently left with a rather odd craft reminiscent of Aegean 'long-ships', a type of craft not otherwise recorded in the eastern Mediterranean since the end of the third millennium (Wachsmann, 1980).

To attempt a solution to this problem let us

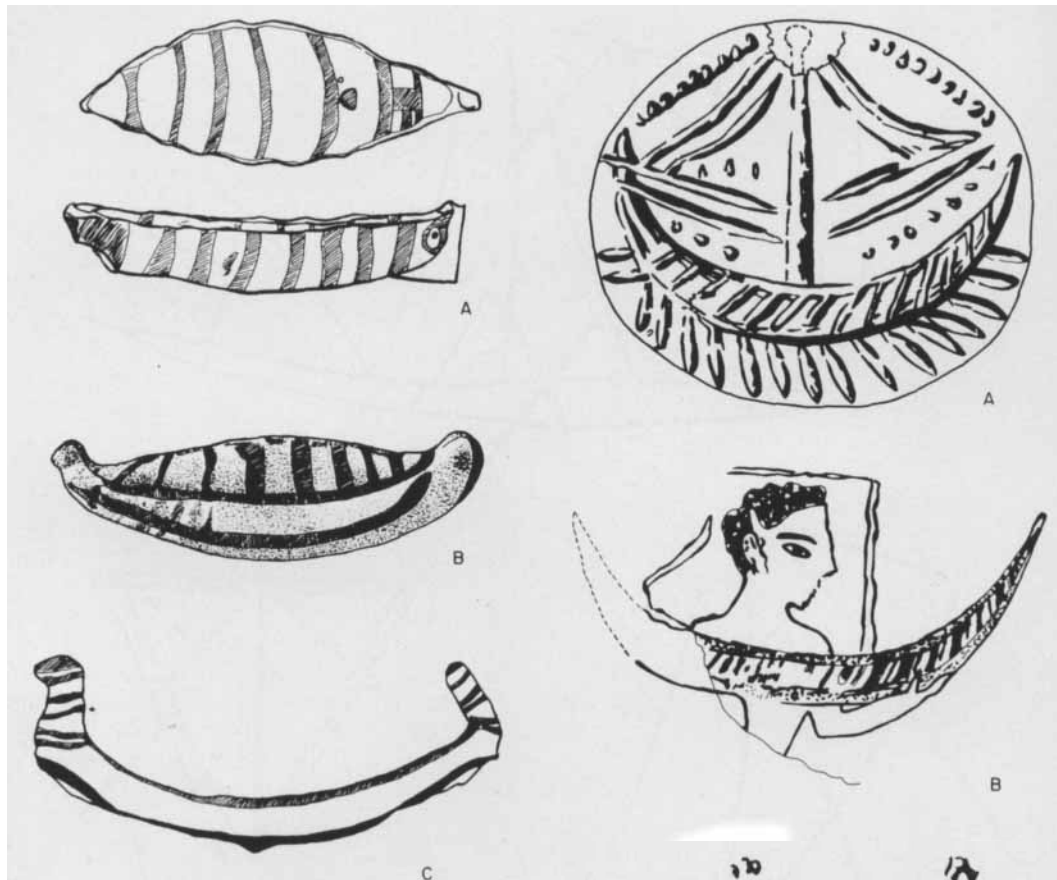


Figure 23. Terracotta ship models. (A) From Phylakopi, LH. (B) From Asine, LH III. (C) Model from Cyprus, now in the Maritime Museum, Haifa. LC III(?). (A) After Marinatos (1933: pl. XV:26); (B) Göttlicher (1978: Taf. 25: 332); (C) Stieglitz (1972-75: 44, fig. 1).

re-examine the ship's rigging in detail. First note that several lines seem to be incomplete or entirely lacking to the right of the mast. Also, we must keep in mind that since this ship is dated to the 12th century it must be carrying the newly introduced, loose footed, brailed sail. With this in mind I suggest that the ship is indeed facing right and is shown carrying a brailed rig with the sail furlled. Thus line *A* (Fig. 22B) would be the mast; *B* the yard; *C* a single forestay; *D* and *E* afterstays; *F* and *G* brails and the triangle formed by lines *B*, *H* and *I* would be part of the furlled sail.

The resultant rigging is practically identical

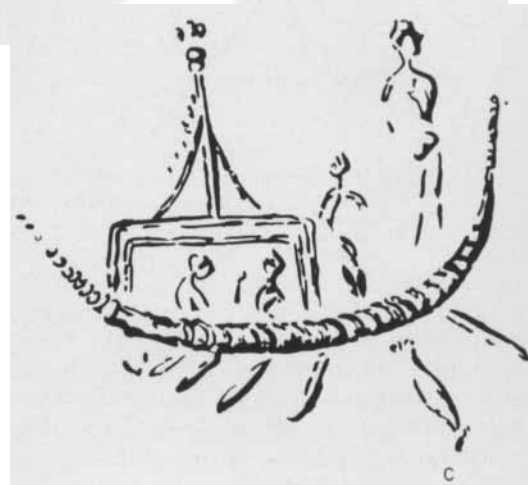


Figure 24. Minoan ships bearing vertical stripes on their hulls. (A) On a steatite lentoid seal. LM IIIB. (B) Votive ship carried by a mourner on the limestone sarcophagus from Hagia Triada. LM II. (C) On a gold ring from Tiryns, c. 1300 BC. (A) and (C) After Casson (1971: figs 47 and 50); (B) Marinatos (1933: pl. XIII:18).

to that appearing on ships of later date shown with their sails brailed up (Figs 22C and 26B). Notice particularly how the stays and brails intersect forming large crosses as does the rigging on the ship under discussion.

A small Mycenaean ship model of terracotta from Phylakopi has a vertical cutwater at its prow (Fig. 23A). The stempost is missing. *Oculi* appear on either side of the bow and should be considered the forerunners of the bowpatches mentioned by Homer which appear on Geometric ships (Fig. 11A; Morrison & Williams, 1968: 37; Casson, 1971: 49). Vertical bands are painted on the inside *and* the outside of the hull. The former may represent ribs or benches (Morrison & Williams, 1968: 11, BA 7). The latter apparently indicate some form of vertical stripes decorating the hull.

The use of vertical stripes, apparently of a decorative nature, seems to have been adopted from a Minoan tradition. While none of the craft of the Thera frescoes bear these markings they do appear on a ship engraved on a steatite lentoid seal which, like the Gazi ship, dates to the LM IIIB Period [Fig. 24A; on the date of the seal see Boardman (1970: 106, pl. 196)]. It appears also on the hull of a votive model ship seen in the hands of a mourner on the famous limestone sarcophagus from Hagia Triada (Fig. 24B) as well as on a Minoan ship etched on a gold ornament from Tiryns (Fig. 24C).

Another small terracotta ship found during the Swedish excavations at Asine and now in the Archaeological Museum of Nauplion (Fig. 23B; Gottlicher, 1978: 63, no. 332) also illustrates the ship's inner construction. The stempost is surmounted by a zoomorphic (bird?)-head. A horizontal line runs the length of the hull on its outer side, as on the ship from Skyros (Fig. 14E).

A very similar terracotta ship model, apparently of Cypriote origin but of unknown provenance is now in the possession of the National Maritime Museum in Haifa (Fig. 23C; Stieglitz, 1972–75). In profile this model is strikingly similar to the Hama ship (Fig. 20E) but lacks the horizontal bow projection. The model has a narrow, gently curved hull with a vertical stempost ending in a zoomorphic (bird?)-head. There is no evidence for mast or rigging. Stieglitz has tentatively dated the terra-

cotta to the mid-11th century on the basis of the ware and decoration of the model.

These last two models are so alike that it seems the artists intended to portray the same class of ship in both cases. The model from Phylakopi is also very similar in profile yet much beamier.

Do these last three models represent oared fighting ships? In profile they are very similar to the ships from Hama, Skyros and Phylakopi (Figs 20E and 14D–E), as well as the ships of the Sea Peoples from Medinet Habu. However, on the other hand, they lack any evidence for a deck, open rowers' gallery, oars or oarports. Therefore, for the present this question must be left open.

Little can be deduced from the decoration on a sherd from Mycenae which has been purported to represent a ship (Marinatos, 1933: 172, n. 15; Casson, 1971: fig. 49).

In summary, although there is a tendency to interchange the various elements of these ships, when taken all together they form an extremely cohesive class of craft. As they appear in the 13th–11th centuries these galleys are in a stage of experimentation which will eventually stabilize into Greek Geometric war galleys.

Discussion

The Sea Peoples' ships: the Aegean connection

The striking similarity in construction techniques exhibited on the galleys of the Sea Peoples and those of the later Geometric Greeks has been noted above. Now the horizontal ladder design which is common on many of the Late Bronze Age ships discussed above may be interpreted in a number of ways (Hale, 1980: 122–3). The most likely interpretations, in my opinion, are that they are either vertical hull decorations, as is probably the case with the terracotta from Phylakopi (Fig. 23A), or open rowers' galleries below deck level intersected by vertical stanchions to support the screen, as on the Sea Peoples' galleys and later Geometric oared ships. However, in cases where two superimposed horizontal ladder designs appear on a ship, as on the Gazi and Hama ships *it would seem that we are seeing both of these elements one above the other*. Thus on the basis of the Gazi ship one may suggest that the ship structure which existed on the Sea Peoples' galleys

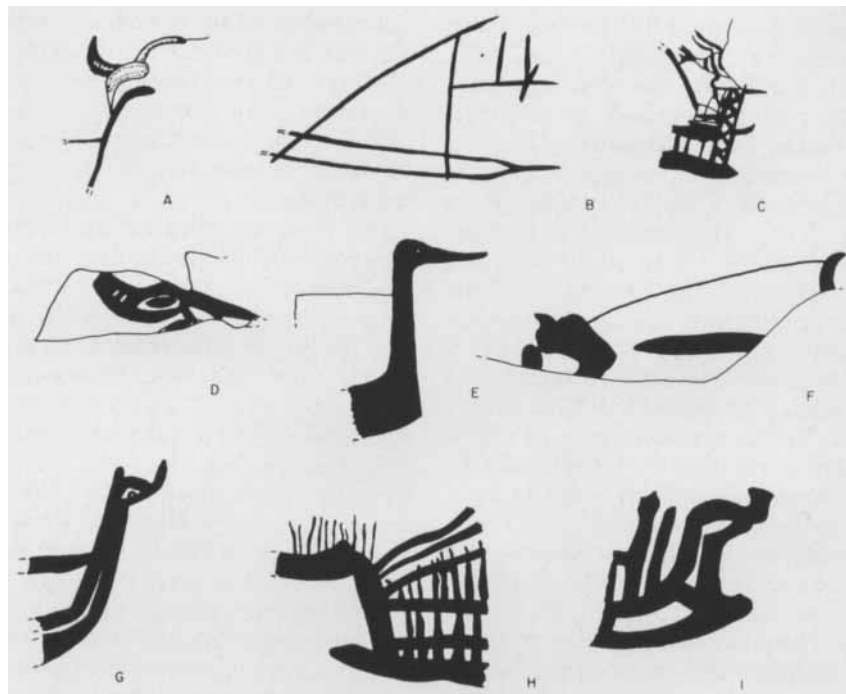


Figure 25. Bird/bird-head stempost decorations on Late Bronze Age ships of Aegean tradition. (A) From Enkomi. LH IIIB. (B) Enkomi. LH III. (C) Pylos. LH IIIC. (D) Aegina. MH. (E) Medinet Habu. c. 1186 BC. (F) Phylakopi. LH IIIC. (G) Skyros. LH IIIC. (H) Gazi. LM IIIB. (I) Hama. c. 1200–1075 BC.

already was to be found on Aegean ships by the 13th century and that it appears to be an Aegean innovation. The Enkomi ships (Fig. 14A) which, like the Gazi ship, are of 13th century date, may show this same architectural detail in an artistically different manner—if they are indeed galleys, as I believe probable.

Another indication of the close relationship of the Sea Peoples' galleys to the Aegean tradition of ship-building is the bird-head devices atop their stem- and sternposts. Bird ornaments on seagoing ships up to the end of the Late Bronze Age are typical of Aegean ships—or of ships related to the Aegean tradition (Fig. 25). They appear as devices shaped as actual birds poised on the stempost facing forward (Enkomi and Pylos) or the stempost ends in a bird-head, generally with a slightly upturned bill, facing forward (Aegina, Gazi, Skyros, Phylakopi and Hama), (Note 2).

It is important to emphasize here that these bird/bird-head devices are totally foreign to seagoing ships of the other nations for which

we have data during the second millennium. They are entirely lacking on representations of indigenous Minoan, Cypriote, Syrian and Egyptian seagoing craft.

To comprehend how truly close is the relationship between the ships of the Sea Peoples and the Aegean tradition it is necessary to understand the role these bird devices had in the creation of ship decorations surmounting the stem- and sternposts of later ships. A comprehensive study of this fascinating subject is beyond the scope of this paper (Note 3); however, even a cursory examination is sufficient to spread considerable light on the problem at hand.

First, we must note several generalities about bird devices. There seem to be two directions in the development of these insignia. On the one hand, the bird device undergoes a process of stylization and then of almost total abstraction. On the other hand, there is a second trend to return to the naturalistic source of an actual bird or bird-head. This cycle of naturalism—

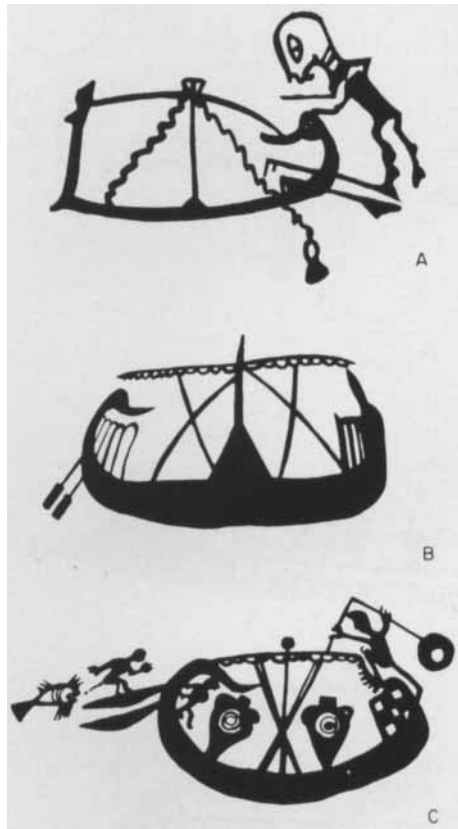


Figure 26. Ships on 7th century Cypriote jugs illustrating the progressive transformation of a naturalistic bird-head device (A) to a stylized (B), and then abstract (C) sternpost ornament in the form of a compound curve. After Karageorghis & des Gagniers (1974: 122–3, nos X: 1–3).

stylization—abstraction—naturalism was repeated again in ancient times. These devices, whether naturalistic, stylized or abstract appear on the stem- and sternposts of ships of the ancient and classical Mediterranean cultures. They may point inward, outward or even upward in practically all possible permutations. These bird devices, in their stylized and abstract forms may be shown to be the original prototypes of many stem and stern ornamental devices, including the classical *aphlaston* and volute.

The clearest example of this process taking place is on three ship representations on Cypriote jugs, all of which date to the 7th century (Fig. 26). Note the transformation of

the naturalistic bird-head finishing off the sternpost and facing the bows in A. In B the eye has disappeared and the head has become somewhat stylized. In ship C the bird-head and beak has become an abstract compound curve—



We are witnessing a like cycle in the Aegean—Sea Peoples—Geometric group; although in this case the middle stylizing stage seems to be missing. On the one hand there are the naturalistic birds and bird-head devices on the Late Bronze Age Aegean and Sea Peoples' ships, and on the other hand we see the same bird-head, now totally abstracted into a compound curve and pointed inward from the extremities of Geometric galleys (Fig. 27). These are the 'straight horns' referred to in Homer (Morrison & Williams, 1968: 38, 45, 47; Casson, 1971: 45, n. 16); it seems that the poet was not aware of their original source, which is not surprising given the degree of abstraction. The middle phase of this cycle, that of stylization, seems to be lost in the mists of the 'Dark Ages'. However, the turnabout of the bird-head device from facing outward to facing inward appears already on the Late Bronze Age terracotta model from Lapithos (Fig. 21) and perhaps on the ship from Cos (Fig. 15A). Thus we may conclude that the Geometric ships are heir to a tradition of bird-heads on both extremities of the craft—exactly like those on the Sea Peoples' ships, with the sole difference that the former face inward, while the latter face outward. And, as we have just seen, this turnabout in direction took place at about the same time as the Sea Peoples in their highly mobile galleys were savaging the eastern Mediterranean.

Apart from the above, the Sea Peoples' galleys seem to have carried two steering oars; in this manner they differ from contemporary representations of craft from the Aegean but seem to herald the use of the double steering oars which were to become common equipment on Geometric craft (Morrison & Williams, 1968: 52–3, pls 3c, 4c, e, 7d; Casson, 1971: 46).

A final element of comparison which connects the ships of the Sea Peoples to the Aegean tradition is the small stern projection which appears on ships N.4 and N.5 (Figs 6E and 7A) and on the LM IIIC galley from Phaistos (Fig. 20F).

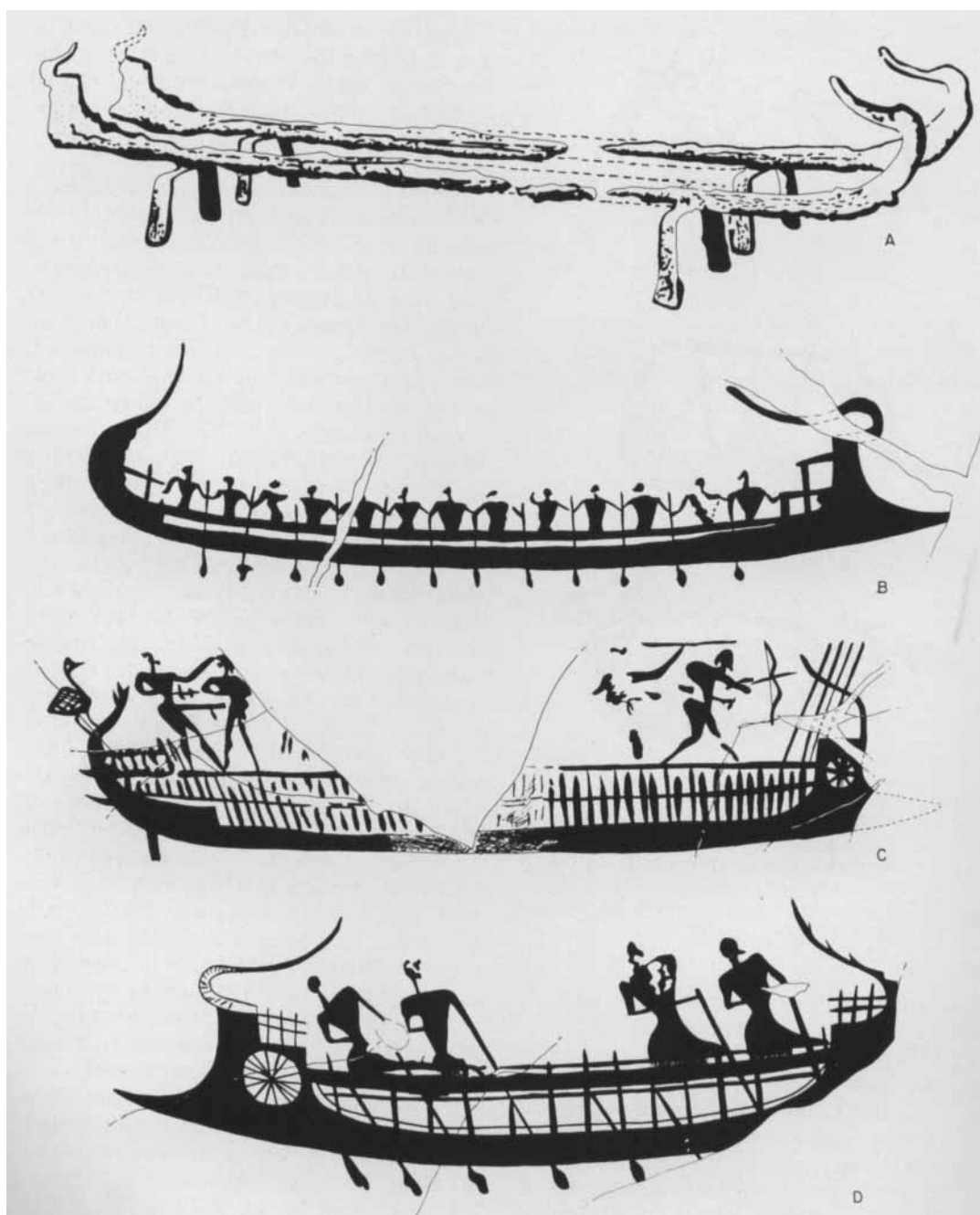


Figure 27. Abstract bird-head ornaments in the form of a compound curve topping the stem and sternposts of Geometric warships (8th century). (A) After Göttlicher (1978: Taf. 25: 338–9); (B–D) Casson (1971: figs 62, 65 and 72).

While the ships of the Sea Peoples are undoubtedly related to the mainstream of Aegean galley development, no conclusions concerning the ethnic identity of the Sea Peoples may be deduced from this. Ship types can be and were adopted and adapted by peoples having no ethnic connection with the traditional users of the craft. The later Romans, for example, were particularly notorious in adopting foreign ship designs for their own craft (Casson, 1971: 105, n. 41, 141–2).

In fact, a basic problem at this stage is to determine the ethnic identity of the other ships/galleys studied above which, for convenience sake I have termed till now as 'of Aegean tradition'. Are these to be identified as Mycenaean or Sea Peoples' ships? If Sandars is correct in identifying as feather helmets the headgear of rowers on sherds from Cos (Figs 15–16) *then the rowers and their craft may be of the Sea Peoples*. The slightly earlier 'northern bronzes' found in the Laganda tomb at Cos certainly suggest the presence there of northern adventurers (Sandars, 1978: 92, 93, fig. 54b, d, 94).

Whether the craft depicted on the sherds from Cos were Sea Peoples' ships or not, they certainly introduce sufficient doubt to necessitate a reconsideration of the ethnic identity of all the other ship representations 'of Aegean tradition'. The problem is compounded because these ships appear for the most part at a time (LH/LM IIIB–C) and in regions (Greece, Crete, the Aegean, Cyprus, the Levant) where both fleeing Mycenaeans and bands of Sea Peoples are believed to have roamed.

If we assume that the nationality of a ship's crew indicates the nationality of their ship (and even this assumption is wide open to argument) then the warriors on the Enkomi ships (Fig. 14A) would allow us to infer that the craft represented there, however distorted, must be Aegean (Mycenaean). The ships of the northern invaders portrayed at Medinet Habu, all five of which are probably patterned after a single ship captured in battle, belong, of course, to the Sea Peoples. The ships from Cos may also have belonged to the Sea Peoples and the ship from Hama (Fig. 20E) may be of similar identity.

The excavators connected the new culture to which the ship belongs and which appeared at Hama c. 1200 BC to the appearance in the

Near East of central European peoples, with the Aegean migrations that brought the Mycenaean world to ruin and with the contemporary threats to Egypt at the hands of the Sea Peoples (Hencken, 1968: 627). Elements of the material equipment of this newly introduced culture, in particular their urnfield burials, flange-hilted swords and fibulae, were considered to be European (Riis, 1948: 200). Therefore, all things considered, the Hama ship may also be patterned after a Sea Peoples' ship. For the remainder of the craft discussed above, however, it must be admitted that sufficient evidence is lacking at present to differentiate them into Mycenaean or Sea Peoples' ships. Our lack of knowledge as to the ethnic composition of the Sea Peoples following the decline of the Mycenaean world makes their identification particularly problematic.

On the size of oared ships and fleets

Evidence for the size of these galleys may be derived from a Linear B text from Pylos which lists the number of rowers to be provided by various towns for a military expedition to Pleuron (Ventris & Chadwick, 1959: 183–6, text 53=An 12). In all, 30 men are specified, which as Ventris and Chadwick have noted, may have been the complement of a Mycenaean galley, i.e. a triaconter. Homer mentions 20-oared ships, 50-oared penteconters and larger craft. He does not include triaconters, however, Herodotus mentions that they were used in the early colonization of Thera (Casson, 1971: 44–5, n. 10).

If the horizontal ladder design on the Pylos ship (Fig. 20A) represents an open rowers' gallery and not simply vertical stripes on the hull, which seems probable, then its 25 'windows' identify it as a penteconter (Morrison & Williams, 1968: 8). The Gazi ship has 28 such 'windows' and is also probably intended to represent a penteconter.

For the size of Mycenaean war fleets one must turn to a larger list from Pylos (An 610) which has the word 'rowers' in its badly damaged title (Ventris & Chadwick, 1959: 186–7; Chadwick, 1976: 173). Five hundred and sixty-nine men are enumerated on its preserved part but the total is more probably between 600–700 since there are lacunas in the text. Assuming c. 700 rowers we would have the complement

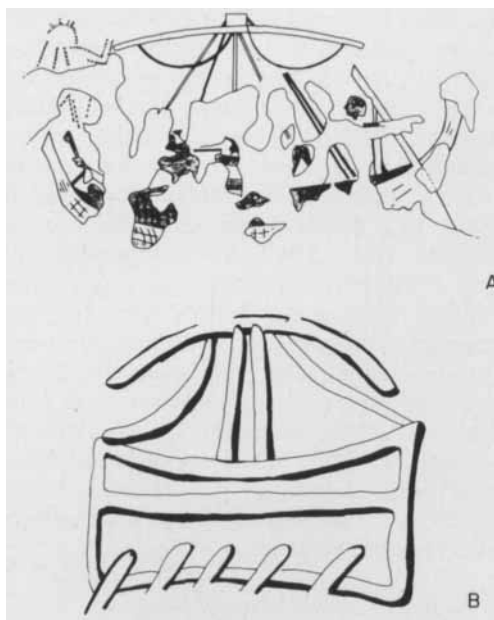


Figure 28. Syrian ships with downcurving yards: (A) from the tomb of Nebamun (T. 17). Amenhotep III; (B) on a scaraboid seal from Ugarit (13th century). (A) After Casson (1971: fig. 58); (B) Schaeffer (1962: 134, fig. 114).

of slightly over 20 triaconters (Chadwick) or 14 penteconters; as we have just seen both types of oared ships appear to have been known at Pylos. It is of interest to note that fleets of this size parallel those of the Sea Peoples recorded at Ugarit.

Assuming that the seven Sea Peoples' ships that are mentioned in RS 20.238 as having ravaged the Ugaritic coast were penteconters, triaconters, or a combination of both, then *the total fighting contingent that caused so very much damage to Ugarit consisted of no more than between 210–350 fighter/rowers plus a handful of officers.*

On the origins of the brailed rig

The source of the new rig which appears on the Egyptian and Sea Peoples' ships is somewhat problematic. Casson has noted that this rig does not seem to have developed in Egypt (1971: 37–8). Nor does it seem to have originated in the Aegean either. The Enkomi ship representations of LH IIIB date (Fig. 14A), while depicted lacking sail and yard, carries a mast tip with multiple rings for carrying the lifts of the old,

boom-bottomed rig. The Gazi ship, of similar 13th century date, clearly carries a boom-bottomed rig. Only in the 12th century is there evidence for the use of the new brailed type of rig. It appears that both Egypt and the Aegean adopted this rig from elsewhere. But from where?

On both the Egyptian and Sea Peoples' galleys, along with the brailed rig, there are two additional elements which may hint at its source.

First, the yards are downcurving, and second, the masts are surmounted by crow's nests. These elements are also foreign to both Egypt (Casson, 1971: 35, n. 15) and the Aegean *but they are characteristic of earlier Syrian Late Bronze Age craft.*

Downward curving yards appear on representations of Syrian ships from the tomb of Nebamun (Fig. 28A), on a 13th century scaraboid seal from Ugarit (Fig. 28B) and on a schematic graffito of a ship incised on the outer surface of a bowl fragment from Tel Abu Hawam, Stratum V (Fig. 29; Hamilton, 1935: 53, no. 310C, 38, no. 233), (Note 4).

Mast tops are carried by the Syrian ships portrayed in the tomb of Kenamun (Fig. 30). The mast of the Syrian ship from the tomb of Nebamun is surmounted by a rectangle which also may represent a crow's nest; however, it may alternatively be a schematic representation of a mast block (compare Landström, 1970: 138, fig. 405).

Barnett (1958: 226) has suggested that the Sea Peoples may have been influenced in their ship-building by the Syrians. Considering:

(1) the evident adoption by the Sea Peoples and Egypt of the manner of rigging which caused the yard to droop at its ends and the use of crow's nests—apparently from Syrian prototypes, and

(2) the close maritime interconnections these peoples had with Syria at this time, it would seem that Syria is the natural candidate for the region in which the brailed rig developed and from where it diffused to the surrounding maritime cultures.

The fact that Syrian ships portrayed in the tomb of Kenamun, and perhaps also in the tomb of Nebamun(?) carry boom-bottomed rigs does not necessarily negate this thesis. These

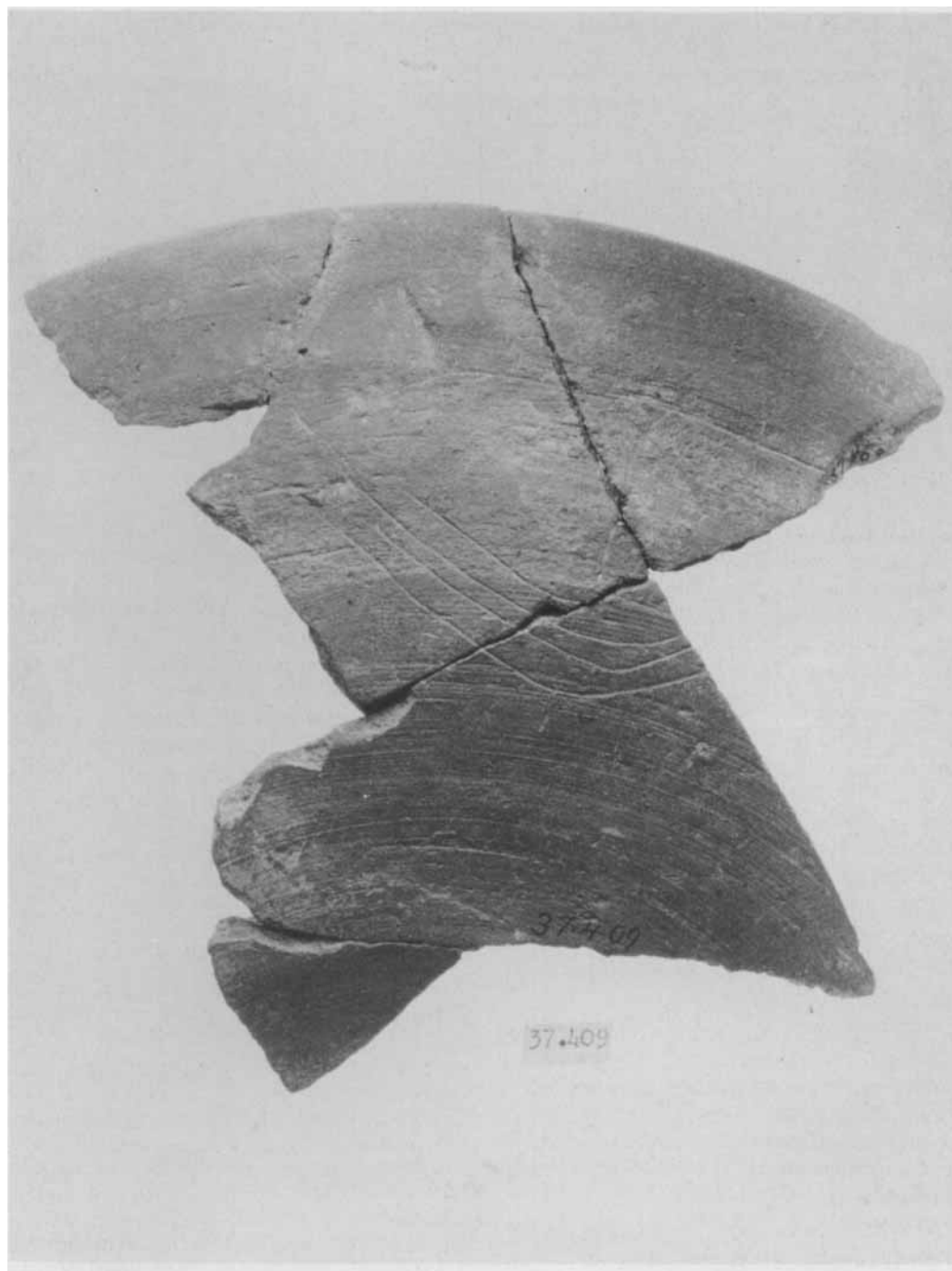


Figure 29. Graffito of a ship incised on a sherd from Tel Abu Hawam (14th–13th centuries).

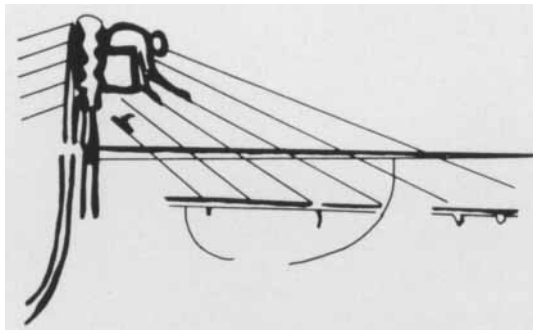


Figure 30. Crow's nest attached to the mast of a Syrian ship from the tomb of Kenamun (T. 162). Amenhotep III. After Davies & Faulkner (1947: pl. VIII).

rigs may be explained as one more in a long line of intrusive Egyptianizing elements with which the Egyptian artists infused their representations of Syrian ships [Casson, 1971: 35–6; in addition to those elements listed by Casson note that the ships at the upper right of the Kenamon scene (Davies & Faulkner, 1947: pl. VIII) have lacing along part of their gunwales; similar lines of lacing positioned at the extremities of the craft are known from Egyptian wooden models of river craft (Glanville, 1972: frontispiece, 1, n. 1, 14, fig. 13, pls Ia, IIIB)].

On the horizontal bow projection on Aegean Late Bronze Age oared ships

The existence of a horizontal projection at the junction of keel and stempost on a number of representations of Late Bronze Age ships raises several pertinent questions. Foremost among these are:

- (1) Does this projection at this time represent a nautical weapon—a true ram?
- (2) If it is not a true ram, then what was its function?
- (3) What is its relationship to the ram appearing on Geometric war galleys?

While definite conclusions are precluded until more substantial evidence comes to light it is worthwhile, I believe, to consider the tentative conclusions to be derived from existing information.

(1) The horizontal bow projection, in all likelihood, does not represent an actual ram on Bronze Age ships. This seems apparent from the following considerations:

- (a) None of the craft on which the spur

appears show any hint of the hull strengthening necessary for a ramming ship to be able to withstand the shock of impact.

(b) During the 13th–11th centuries some galleys carry the projection, others do not. Were the projection indeed a ram, one would expect its rapid adoption on all craft. As Casson (1971: 42, n. 4) has noted, the ram 'was a weapon like the naval gun—once one fleet had it, all had to have it'.

(c) The Pylos ship (Fig. 20A; Cohen, 1938: 402–3), the Enkomi ship graffito (Fig. 22A), and the Gazi ship (Figs 17–18) carry stem decorations which overhang the horizontal projection considerably. Such overhanging ornaments would be inconceivable if the projection was intended as an effective ram.

(2) Concerning the true function of the horizontal bow projection in the Late Bronze Age the following thoughts are relevant:

- (a) It is apparently not a ram.

(b) It seems to appear at this time only on ships that we may be reasonably sure are oared galleys.

(c) There is contemporary historical evidence to indicate that galleys such as these were used for war/piratical purposes by both the Mycenaeans and the Sea Peoples.

(d) It is reasonable to assume that, when attacking coastal settlements, these ships were rowed bow first straight up on to the beach in order to conserve time and thus sustain the element of surprise. Earlier, at Thera, this form of beaching is clearly illustrated in the Miniature Frieze (Marinatos, 1974: colour pl. 7) and it is subsequently described by Homer (Od. 13: 113–5).

With these considerations in mind, it is worthwhile to reconsider the following scenario for the gradual invention of the ram which was suggested by Kirk (1949: 126–7):

When the Bronze Age shipbuilder first turned from the construction of the merchant-ship type, with its curved stem and stern formed by a direct prolongation of a curving keel, to the building of narrow, shallow-draught vessels which, to reduce water-resistance, had to have a narrow upright cutwater, he must have found that a simple joint between the ends of two timbers set more or less at right angles—keel and stem—was too weak to stand the shock of a head sea or of beaching at speed.

To protect this joint from horizontal shocks, and to prevent damage to the base of the stem the keel and sometimes other longitudinal timbers were continued ahead of the stem, and slightly pointed to reduce water resistance. The underside of the ram so formed was given a pronounced upward curve . . . so that even on the steeply shelving beaches common in the Aegean there would be no jarring impact, but a gradual sliding up on to the sand, with the main longitudinal timbers taking any strain. Thus the ram, far from preventing stem-first beaching, actually aided it, according to this theory of its origin. Doubtless its use as a method of holing an enemy ship in a head-on attack . . . ensured the preservation of what was from the constructional point of view perhaps a rather clumsy device.

In Kirk's reconstruction the ram seems to have developed on ships that were already being used for functions of war; however, the origins of the projecting forefoot may have been considerably more diverse. Lionel Casson has suggested to me that the projecting forefoot may have been a standard manner for handling the prow-keel join on ships of all types and sizes. Most of the evidence for this is much later, in Classical times, when similar projections, far from being restricted to war galleys, are a prominent prow feature on craft of all sizes and purposes—from tiny rowboats to large seagoing merchant craft (Casson, 1971: 331). The pointed prows on these craft clearly lack any military function.

Evidence for the existence of horizontal bow projections on craft of a definitely non-military nature is scanty during the Bronze Age; however, the third millennium clay model from Mochlos, which is generally assumed to represent a small craft (Casson, 1971: 34–5, fig. 54; Bass, 1972: 17, 29, pl. 14; Basch, 1975: 201, fig. 1) carries horizontal projections at both stem and stern (Note 5).

(3) The bow projections on Late Bronze Age oared ships might best be termed 'proto-rams' since they were no doubt the immediate predecessors of the true ram. As this shipwrights feature was found useful *ad hoc* for the ramming of enemy ships gradual changes and additions were made in the projections and ships' architecture in order to enable the galley to sustain the shock of impact when ramming.

No doubt, at first, when the ramming ships still lacked additional strengthening it was anybody's guess which of the two ships—the one doing the ramming or the one being rammed—was more likely to sink first.

When did the transition from 'proto-ram' to full fledged ram take place? Consider:

(a) The transition must have taken place over an extended period of time, based to a large measure on trial and error.

(b) Up to the end of the Late Bronze Age, at which time there is an iconographic hiatus, there is no indication of this metamorphosis.

(c) When representations of ships begin to reappear in the mid-9th century Greek Geometric art the bows generally end in a massive projection which is usually accepted as a true ram serving the function of a naval weapon [Morrison & Williams, 1968: 37; Casson, 1971: 49, 80; Basch (1975: 202) appears, however, to prefer a date in the mid-7th century for the introduction of the ram].

The transition, therefore, would seem to have taken place during the intervening hiatus of the 'Dark Ages'. Lionel Casson has suggested (private communication) that the economic aspects of the ram's introduction may be connected with the widespread piracy of the 'Dark Ages' and that it was aided and abetted by the taking over, on the part of the *poleis*, of the expenses of outfitting ships.

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Notes

- [1] Previously read *mi-lim*. They appear in EA 101:4, 33; 105:27; 108:38; 110:48(?); 111:21(?); and 126:63.
- [2] Hencken (1968: 568–70, 625–8) has suggested that there may be a connection between the Sea Peoples and the European urnfield cultures. Apart from the evidence from Hama (see below), and the 'northern bronzes', the ships of the Sea Peoples portrayed at Medinet Habu recall the 'bird-boats' of the urnfield art (Hencken, 1968: 516, fig. 478a–b) and also an undated boat-shaped pendant of bronze from the Somes River in northern Rumania (Göttlicher, 1978: Taf. 33: 439) in that they also carry bird-head insignia at stem and stern. If the Sea Peoples included elements originating in the urnfield cultures one wonders how such inland peoples could have taken to the sea with such ease. Hencken (627–8) offers an illuminating historical parallel:
- The Vandals had long been inland migrants in Europe when they crossed over from Spain to Africa in AD 429. But a mere eight years later, in 437, Vandal pirates were scouring the Mediterranean and attacking the coasts of Sicily. In 440 Gaiseric, the Vandal king, fitted out a powerful fleet to attack not only Sicily but Sardinia, and in 455 he sailed to Italy and plundered Rome. His fleet commanded the whole Mediterranean and by 468 was attacking Greece. Native North Africans are sometimes mentioned as accompanying him, and they may well have taught seamanship to their masters. But if the Vandals could take to the sea so quickly and so effectively, there is little need to doubt that the urnfielders could have done the same.
- While the urnfield 'bird-boats' are apparently chronologically later than the Medinet Habu reliefs this is not necessarily the case with the double bird design (Hencken, 1968: 516, fig. 478f) on which they are based.
- [3] I plan to discuss this subject in depth in a future monograph.
- [4] This stratum is thought now to have originated in the 14th century as Hamilton (1935: 11) had originally suggested (Anati, 1959: 98–9, 1975: 11) and was destroyed by the Sea Peoples at the end of the 13th century. The graffito should be dated accordingly.
- [5] Another bifid fragment from Phylakopi may belong to a similar model (Marinatos, 1933: 175, pl. XV: 27). As Basch (1975: 202–3, fig. 4) has pointed out, the closest modern parallel to this craft is found in the canoes from the island of Aua in the Bismark Archipelago. These canoes, which range in size from 3.5 to 18 m, are dug-outs in which the bow and stern are prolonged into a very long, thin point. Vertical end pieces are connected to the hull (Haddon & Hornell, 1975: 177–8). In addition to these Hornell (1970: 210) reported a number of types of modern double-ended bifid craft in Mindinao, Bali, northern Celebes, the islands in Geelvink Bay, New Guinea and Java. The double-ended bifid form is characteristic of vessels of various dimensions ranging from the smaller types of outrigger canoes to coasting vessels of considerable size. In Hornell's opinion the bifid extremities were due to the inability of the early shipwrights to curve up the ends of the keel into a stem- and sternpost (1970: 202). Because of this the keel was continued in a long ram-like projection at either extremity.

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Periodical notes

The articles listed below have been brought to the Editor's attention as being of interest to readers of Nautical Archaeology. The abstracts have been prepared by Ben Booth and Jane Weeks.

- Armitage, P. and McCarthy, C., Turtle remains from a late 18th century well at Leadenhall Buildings. *London Archaeologist*, 4, 1, 1981.
- Evidence for the 18th century turtle trade with the East Indies.
- Arnold, B., Navigation sur le lac de Neuchâtel, une esquisse à travers le temps. *Helvetia Archaeologica*, 43/44, 1980.
- Cavalier, M., Ricerche preistoriche nell 'Arcipelago eoliano'. *Revista di Scienze Preistoriche*, XXXIV, 1–2, 1979.
- Cederlund, C. O., Bulverletbaten – en modell för dokumentation av bot-och fortygslämningar. *Fornvännens Tidskrift för Svensk Antikvarisk Forskning*, 75, 1980.
- Cunliffe, B. W. and Haselgrove, C. C., Excavations at Hengistbury Head, Dorset. *University of Durham Archaeological Reports*, 1980.
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