

THE KYNOS SEA-FIGHTERS: EXCEPTION OR RULE?

Thucydides (I, 13) tells us the first sea battle of Corinthians against Corcyraeans, was fought around 664 BC. This fits poorly with vase paintings of ship-to-ship combat on some Late Mycenaean kraters of c. 1200 BC from Kynos Livanaton on the mainland shore of the Northern Euripos, which by their excavator Fanouria Dakoronia have been presented in "*Tropis II, Tropis IV, Tropis V*" (Fig. 1-2)¹. The bias might render useful a lapidary review of what is known about the beginnings of combat at sea. I shall leave aside its general setting (in wars or piracy between communities such as "states" or tribes, or in piratical actions by private "entrepreneurs") but for cases where the sources allow for specification. A clear-cut separation of what to us is piracy from war is most likely to be anachronistic. I agree with Elizabeth Schofield's definition of piracy as "informal war".

The Kynos paintings date from the last sub-period of the Late Bronze Age in Greece (LH III C1). This time seems to be the setting of an episode in the *Odyssey* (16, 355 sq., 471sq.): Penelope's suitors set about to intercept young Telemachos' ship returning from Pylos, in the strait off Ithaka. Only Athena's advice saves the young prince from encountering the suitors' ship which is called "bristling with arms" — i.e. fit for attacking the other ship at sea. This is a first hint that ship-to-ship combat may have been an everyday event in Late Mycenaean Greece. The palace archive of Pylos seems to furnish more, namely recruiting, and sailing orders for rowers, which in the general atmosphere of military measures in an emergency pervading most of the archive entries, seem to refer to the manning of warships². These sources, however, leave open if fighting at sea was special of Mycenaean Greece or common all over the Eastern Mediterranean.

In an attempt to find an answer, let us start by reviewing Bronze Age sources from the Aegean. The earliest representation of warriors in a ship was found in MH III strata of the Kolonna site on Aegina, dating from c. 1600 BC (Fig. 3)³: a painted sherd shows warriors with long spears in a longship (i.e. a low-sided sleek vessel propelled by a considerable number of oarsmen, leaving little space for cargo), while two such vessels, the right one apparently carrying a midship cabin (see below), with summarily rendered unarmed crews decorate a large pithos from Kolonna (Fig. 5)⁴. More longships (in the former case two bows only are preserved) are shown on MH III sherds from Iolkos in Thessaly (Fig. 4)⁵, and in graffiti from Hyria/Dramesi on the Euripos, of MH III or LH I date where all-purpose squat

roundships are to be seen as well: Bronze Age Greece knew both types, which suggests that here ships had been used for some kind of warfare earlier than elsewhere⁶. Among the longships there seem to be two sub-types defined by either more or less symmetric outlines of their bows and sterns (Kolonna: sickle-shaped hulls, Hyria: vertical stem- and sternposts) or differing ones (Iolkos, where the keels at the bows protrude in a shape which has been likened to the rams of much later Greek warships; the stern bent upward in a marked curve is conjecture. But even if it should have been angular there hardly would have been a “pseudo-ram”; see below).

We should not neglect that sleek longships already are known from Early Bronze Age drawings and models from the Cyclades, a millennium prior to the Kynos finds⁷. The fact that Cycladic settlements at that time used to be fortified, suggests these little 3rd millennium towns needed protection from attacks by what may have been raiders in such longships as the Cycladic sources show.

There, however, is no need to think that employing ships for some kind of warfare was unique among the antagonists of the Aegean. In 3rd millennium Egypt's Old Kingdom there existed terms for warlike matters as “arraying boats for battle”⁸, and groups of reed boats fighting on the Nile are shown by some reliefs⁹. This goes beyond what is shown at Kynos where not flotillas but only individual ships enlocked in long-range combat prior to boarding are preserved, but rather suggests formal styles of naval warfare. There might be an Early Bronze Age group of longships, comparable with the Kolonna and Iolkos vase paintings, engraved into a sword blade from Dorak in NW Turkey¹⁰, but it should be treated with due reserve as long as the authenticity of the “find” cannot be substantiated.

About 1500 BC, a flotilla of Aegean longships was painted onto a wall of the West House at Akrotiri on Thera, one group of fragments showing what seems to be a landing operation facing opposition from defenders on shore (Fig. 6)¹¹. There are preserved the ends of three longship hulls, gently turning up like the bows and sterns of the vessels forming the famous Fleet procession¹², one of them showing a man holding a long lance standing in a kind of bow castle, while naked dead bodies and shields are floating in the sea between the ship and the shore. I take them to be those of defenders killed by long-range weapons of the sea-borne attackers, toppled into the sea. This is not the only source for landing battles¹³: they seem to have been common. Even the Iliad (II, 701 sq.) mentions the Achaean Protesilaos being killed when attempting to enforce a landing at the outset of the Trojan War,

which is likely to fit into a Late Bronze Age setting¹⁴.

The Thera frescoes, of Cretan style, call for attention for more than one reason. On the one hand they might be taken to substantiate Thucydides' report (I, 4) that the mythical Cretan king Minos established a thalassocracy in the Aegean by suppressing Carian pirates who then inhabited the Cyclades and scavenged on Cretan shipping, which seems to imply sea combat to have been practised in the Aegean by the mid-2nd millennium. Minos is said to have forced the former pirates to serve in his fleet (Thuc. I, 8). "Minoan thalassocracy" has been the subject of a symposium at the Swedish Institute at Athens in 1982¹⁵, when the majority of the participants thought a Minoan thalassocracy to be no more than a myth. This, however, seems to be a matter of definition since there cannot be any doubt that by c. 1500 BC in the Aegean conditions existed when Cretan "influence", unless domination or even the presence of Cretan settlers at a number of sites both on the islands and the west coast of Asia Minor, is ascertained by archaeological finds¹⁶. Maybe Thucydides himself spoiled the case by applying the term Thalassocracy, up to date and well-defined at his time, to a remote past. We are ignorant of his sources.

For meeting our second argument, all Thera boats display a feature which earlier had characterised the Kolonna vase paintings already, namely stems and sterns curving up more or less symmetrically in gentle curves. This feature separates them from Early Bronze Age representations in the Aegean which had been characterised by markedly different outlines of bow and stern, one at least being angular¹⁷.

Symmetric sickle-shaped outlines, going back to a particular way of hull construction, had been common in Egypt from earliest times on¹⁸. I think their being shown at Kolonna, Thera, and in other Late Bronze Age pictorial sources from Greece¹⁹ denotes some knowledge of Egyptian ships, superior to earlier local types. At the time of the Thera frescoes this not only pertains to the general layout of the hulls but also to such details as the richly ornamented "captain's seats" (*ikria*)²⁰, cabins²¹, and masts laid down²². I share Morgan's view (1988, 131 sq.) that the evidence of influence from Egypt is compelling. One even might wonder if the high rounded stern of the *loikos* boat in Theocharis' reconstruction shown in fig. 4 (if correct: it is not preserved on the extant vase fragments), might not go back to the example of Egyptian wooden ships imitating papyrus boats²³.

There is no reason for considering Egyptian influence unlikely. The Nile

country had been in contact with Crete, and maybe the Aegean, from the 3rd millennium on²⁴, and by the mid-2nd millennium Crete (Keftiu, Kaphtor) formed a member of the civilised world of the Eastern Mediterranean known as far east as at Mari on the Euphrates. At Ugarit, in Lebanon, the artist god “Kothar-and-Khasis” was believed to be a Kaphtorite²⁵, and tomb paintings at Thebes, from Thutmoses’ III reign (1490-1436 BC), show envoys from Keftiu as delivering tribute to their overlord the Pharaoh²⁶.

This very situation in the earlier part of the Aegean Late Bronze Age implies general political and naval conditions in Crete, and perhaps all over the Aegean to have been similar to those in Egypt’s sphere of political interest in the Levant. Here the great pharaoh Thutmoses III had extensively employed Egypt’s “navy” for supporting his many campaigns in Palestine, Lebanon, and Syria to an extent not known earlier²⁷. It is generally thought that these “warships”, as they are called, only served for logistic purposes²⁸.

It should not be neglected, however, that fighting on the Nile had occurred when the founder of Egypt’s New Kingdom, Ahmose, conquered the capital of the preceding Hyksos dynasty of foreign invaders, Awaris, in the eastern Nile Delta²⁹, and in Nubia. By the way, I wonder if the many “ships’ soldiers” mentioned in New Kingdom texts³⁰ did not use to fight it out at sea when encountering hostile vessels. It would be funny enough to imagine the opponents making for the shore to stage the battle on land. Such a model becomes even more ironic by the fact that shores fit for landing are rare on the coasts of Palestine and Lebanon. Perhaps skirmishes at sea were everyday events at that time already, not worth being recorded in the Egyptian archives for just this very reason. It should be noticed there are mentions of Thutmoses’ “warships” taking foreign freighters at sea³¹, so to speak acts of piracy which imply shipboard fighting.

Elisha Linder (1973; 1981) evaluated the host of written documents from the El-Amarna period (the 14th century BC) in Egypt. He demonstrated that the naval activities of Thutmoses III on the Levant coast not only tightened the pharaoh’s control of the local vassal kingdoms, in the first line Ugarit and Gebal (Byblos), but also fostered the growth of sea trade. The Uluburun wreck, of the end of this period, gives a vivid impression of how precious ships’ cargoes could be during this Golden Age of intense international contacts and trade within the civilised world of the Eastern Mediterranean³². A wreck of Cypriote or Levantine origin from Cape Iria in the Argolid, of c. 1200 BC (Lolos *et al.* 1995) testifies to the range of Cypro-Levantine sea trade even during the last years of the Golden Age.

Linder no doubt is right in thinking the rich sea trade in the Eastern Mediterranean raised the appetites of less civilised tribes, “states” (?), or individuals at the western margin of the Levant-Cyprus zone, who now started to reap a profit from piratical inroads upon the shipping in the East (Linder 1981, 38 sq.). We may also follow his thinking that these Westerners employed warships of longship type, as had been common in the Aegean for centuries (see above) but as yet was unknown in the east.

The Eastern states reacted by creating navies of their own for protecting their shipping from the pirates (Linder 1981, 39). They perhaps followed Western models for their warships. Pictorial sources dating to the last years of the Golden Age, namely a seal from Ugarit (fig. 7) and a graffito from Enkomi in Cyprus (fig. 8)³³ show vessels with straight keels and angular stems and sternposts, and sails without a boom like those of the Peoples of the Sea (fig. 9; see below). At that time Ugarit disposed of a navy of 150 vessels (Linder, *loc. cit.*), which made it a first-rank sea power. Other kingdoms of the Levant had smaller navies.

It is hard to believe they were exclusively employed for fighting pirates from Lycia, and the Aegean. Here, dominance had passed from Crete to Mainland Greece with its foremost royal seat of Mycenae. The Odyssey leaves no doubt about piracy having been an “honest” profession; just think of Odysseus’ fancy tale of having lost his ships when raiding Egypt³⁴. At any rate the Eastern Mediterranean navies became professional in fighting at sea, be it against pirates or each other.

This is the background for the upheavals which, from the late 13th century BC on, put an end to the Golden Age of peaceful trade among the civilised Late Bronze Age states in the Eastern Mediterranean. Their outset is marked by the decline of Egypt’s navy, Ugarit becoming a vassal of the Hittite empire instead of Egypt’s and, as a consequence of that, the rise of the Hittite empire to the rank of a sea power which by c. 1200 BC was able to conquer Cyprus³⁵.

The latter event immediately precedes, or is connected with, the first forebodings of the intrusion of hostile foreign seafarers, in Egyptian sources called Peoples of the Sea and vaguely derived from “the islands of the Great Green [Sea]”, which seems to mean the Aegean [36]. They attacked Cyprus, and c. 1200 BC were thrice beaten by the Hittite fleet which in the first place was formed by contingents from Ugarit (Linder 1981, 40). The Hittite king

Shuppiluliumash II boasts of "having burned the enemy fleet in the midst of the sea"³⁶. This cannot but mean that the Hittite navy then was expert in fighting at sea, applying tactics not paralleled until late Hellenistic times. Instead of Thucydides' event in 664 BC, Shuppiluliumash's victories in Cypriote waters deserve being called the first sea battles recorded in history.

They failed to put an end to the incursions of the Sea Peoples, who even intensified their activities. A group of migrant tribes was instrumental in the collapse of the Hittite empire, then laid waste the Levantine kingdoms, and finally approached the Nile Delta on land, while another sea-borne group entered the Delta with a fleet. The pharaoh Ramses III c. 1186 BC crushed both invading forces in land and sea battles, both shown in his temple at Medinet Habu (Fig. 9).

The sea battle in particular (if the surprise attack by Egyptian warships full of archers, supported by archers on land, on the invaders' fleet in one of the Nile branches in the Delta may be called thus), has been the subject of many studies³⁷, among which one (Wachsmann 1995) deserves special attention for pointing out close similarities between the Sea Peoples' ships and those shown on the Late Mycenaean kraters from Kynos³⁸. An origin of some of the Sea Peoples in Southeastern Europe had earlier been claimed on antiquarian and archaeological grounds, in the first place of the Philistines whose pottery goes back to Late Mycenaean prototypes³⁹. This closely connects the Medinet Habu reliefs of Egyptian warships attacking the Sea Peoples' fleet, with the Kynos vase paintings of ships engaged in combat at sea.

For summing up, there can be no doubt either about the Late Mycenaean Greeks having been familiar with shipboard combat, or of their predilection for piracy which in the Aegean can be traced back to the Middle if not to the Early Bronze Age. It is likely enough that longships specialised for sea-borne war, formal or informal, first became known in the Egypt-Levant-Cyprus zone of the Eastern Mediterranean where close ties had emerged by peaceful cooperation both commercial and political, by inroads from the West. There is direct testimony of this in a letter of Ugarit's last king Hammurapi to the Hittite viceroy of Cyprus (?), in which Hammurapi complains about being attacked at home while his army is in the Hittite heartland in Asia Minor and his fleet in Lycia, in the far West⁴⁰. We may suppose the Hittite king had ordered it there for intercepting the Westerners in their home waters. The letter being among the last entries of Ugarit's royal archive, immediately preceding Ugarit's final destruction by the Sea

Peoples, clearly enough demonstrates the Hittite operation in Lycia was abortive.

What I wanted to point out is twofold. On the one hand only Aegean tribes had known longships for warlike purposes in the Early and Middle Bronze Ages. On the other, at the time of the Kynos paintings shipboard combat had become common all over the Eastern Mediterranean. The Kynos sea-fighters, far from being unique, were just up to the international standard of their age.*

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NOTES

1. My fig. 1-2, technically modified, go back to Dakoronia 1987 (1990), 122 fig. 1. 3; 1989 (1995), 147 fig. 1-2. Cf. also: Dakoronia, forthcoming (more finds in recent years). Wachsmann 1995, 26 sq. + fig.; 28 fig.
2. Ventris & Chadwick 1956, 185sq. Linder 1973, 321; 1981, 41sq. Gray 1974, G 54. Wachsmann 1995, 23 sq.
3. Hiller 1984, 28 fig. 1.
4. *Ibid.* 29 fig. 2.
5. Theocharis 1958. Gray 1974, G 16 no. B 22; G 43 fig. 8 c. Laffineur 1984, 138 fig. 8. Höckmann 1985, 42 fig. 17. Immerwahr 1985, 86 sq., fig. 1. Basch 1987, 92 fig. 191.
6. Blegen 1949, pl. 7.6. Casson 1971, 40 fig. 25. 32. Gray 1974, G 17 no. C 6; pl. G I, b. Höckmann 1985, 42 fig. 16. Basch 1987, 92 sq., fig. 191; 144 sq. fig. 300-302. Morgan 1988, pl. 165.
7. Renfrew 1967, 5; 18 nos. 12-14; pl. 1,12; 3. Casson 1971, fig. 22. Gray 1974, G 35 fig. 3; pl. G I, a. Höckmann 1985, 38 sq. fig. 4. 6-7. Basch 1987, 78 sq. fig. 152 sq.- Morgan 1988, 135 fig. 86. Wachsmann 1995, 12 sq. + fig.
8. Jones 1988, 261 no. 14. "To sink enemy's boats": *loc. cit.* 223 no. 81.
9. Landström 97 fig. 304.
10. Gray 1974, G 29 no. AA 5; 39 fig. 5. Höckmann 1985, 38 fig. 5. Basch 1987, 90 sq. fig. 189-190.
11. S. Marinatos 1974, pl. G XV.- Warren 1979, 124; colour pl. Aa.- Höckmann 1985, 41 fig. 15. Morgan 1988, 159 sq.; pl. 2. 3. 42. 139. 144. 189. Wachsmann 1995, 20 + fig. Marinatos and Morgan think the scene show the aftermath of ship-to-ship combat. Marinatos even calls a floating (!) object a grapnel, the earliest unambiguous representation of which is to be seen at Medinet Habu (note 37), and bases his interpretation on a group of marching warriors, but these Aegean warriors on land rather make Warren (1979, 125 sq.), Wachsmann, and me think of a landing battle being shown.
12. S. Marinatos 1974. Casson 1975. Tilley & Johnstone 1976. Brown 1978. Warren 1979. Wachsmann 1980. Laffineur 1984, 134 sq. (pointing out Mycenaean elements in ships' decoration, mostly interpreted as a Minoan-based Aegean '*koine*' unless rejected [L. Morgan] in the discussion [p. 138 sq.]). Höckmann 1985, 41 fig. 12. Toby 1986. Basch 1987, 119 sq. fig. 232 sq. Morgan 1988, 121 sq., fig. 67; 143 sq.; pl. 8 sq.; 103; 159 sq.; 168 sq. Gillmer 1989 (1995).- Raban 1989.- Wachsmann 1995, 15 sq. + fig.

13. Gray 1974, G 17 no. C 5; G 128 sq. Warren 1979, 121 sq.; 125 sq.; fig. 5. Höckmann 1980, E 280 sq.; fig. 66. Morgan 1988, 150 sq.; 153; pl. 191-4. References to naval raids in the *Iliad*: V,640 sq.; IX,328 sq.; XIV,250 sq.; XV,24 sq.; XVIII,207 sq.; *Odyssey*: 9,39 sq.; 14,85 sq. 199 sq.; 16,427 sq.; 17,286 sq.; 21,15 sq.
14. Cf. the perfect correspondence of many of the *Iliad*'s descriptions of weaponry and tactics with what is shown in Mycenaean pictorial sources (e.g. Trümpy 1950, 51 sq. Gray 1974, G 125. Höckmann 1980, E 313 sq.; E 317 sq.).
15. Hägg & Marinatos (ed.) 1984.
16. Branigan 1981; 1984. Barber 1984. Benzi 1984. Coldstream & Huxley 1984. Davis 1984. Hood 1984. Laviosa 1984. N. Marinatos 1984. Schiering 1984. Schofield 1984.
17. Renfrew, *loc. cit.* (note 7). Gray 1974, G 14 sq. no. A 1-16; G 41 fig. 6; G 42 sq. fig. 7; 8 b. Höckmann 1985, 39 fig. 10.- Basch 1987, 83 sq. fig. 170-171, 175; 98 sq. fig. B 1 sq., C 1 sq., D 1 sq.- Melas 1988, 135 fig. 86-7; 137 fig. 90. Wachsmann 1995, 18 fig.
18. Casson 1971 fig. 5. 7-9. 16-19. 57. Gray 1974, G 32 fig. 2; G 37 fig. 4; G 49 fig. 12 a-b. Landström 1974, fig. 10. 14. 18. 22 etc.; 83 ff.; 95 ff. etc.- Basch 1987, fig. 70-71. 86. 94 sq. 110 sq. 117. 227-228. 250. 252. Morgan 1988, 125 sq. fig. 74-5; 139 sq. fig. 94-5; pl. 195. Wachsmann 1995, 11 fig.; 23 fig.
19. Gray 1974, G 35 fig. 3 j; G 41 fig. 6 h.i.k.l.n-q; G 42 sq. fig. 7; 8 e; G 45 fig. 9 a-j. Basch 1987, 95 sq. fig. A 4 sq.; 102 fig. C 15; 104 sq. fig. F 7-8, F 12 sq.; 116 fig. 224; 148 fig. 311. Morgan 1988, 122 fig. 67-8; 125 fig. 72-3; 130 sq. fig. 79-81; 136 fig. 89; 142 fig. 88-9.
20. For Thera see S. Marinatos 1974, G 148; pl. G XIII; G XVI, a-b; G XVII. Shaw 1980 (painted ikria at Mycenae?). Tzamtzis 1985 (1989).- Basch 1987, 118 fig. 229. Morgan 1988, 137 sq.; 143; pl. 175 sq. Egypt: Landström 1974, fig. 317. 320. 322-4. 326-332. 336-7. 339. 351. 354. 375. 383-4. In Egypt such ornate stands were placed in both ends of the ships whereas the Thera vessels have them in the stern only. Plain stands are shown in the Thera "landing battle" (S. Marinatos 1974, G 150; our fig. 6), and in many Egyptian representations (Landström 1974, 111; fig. 319. 334. 338. 343. 345. 348. 351. 372. 376-7. 408).
21. Thera: S. Marinatos 1974, G 148; pl. G XIV. Egypt: Landström 1974, fig. 166-9. 205. 207. 213. 276. 383-4. 287-8. 292-3. 357-8. 361-2. 365. 369-371.
22. Thera: S. Marinatos 1974, G 149. Egypt: Landström 1974, fig. 137. 143-4. 187. 190. 193. 196. 199. 249. 252. Morgan 1988, 139 fig. 94.
23. For such sterns on real papyrus rafts, where they are formed by the ends of reed bundles bent forward: Landström 1974, fig. 30-47. 78. 80. 298. 300. 303. 305. Similar, on wooden ships: *ibid.* 23 sq.; 56 sq. + fig. 166 sq.; 90 sq. + fig. 274 sq.
24. Egyptian objects in Crete and on Asia Minor's Aegean coast: Branigan 1970, 181 sq. Renfrew 1972, 446 sq. Coldstream & Huxley 1987, 137 sq. Höckmann 1987, 61. 75. 93 sq. For Cretan trade with Egypt note Ipuwer's lament after the collapse of Egypt's Old Kingdom that "no oil comes from Keftiu any more" (Pritchard 1969, 441. Höckmann 1987, 61).
25. Gordon 1966, 23; 49 n. 10; 58 n. 24.
26. Ström 1984, 192 sq., fig. 1-3 (suggesting LM I B Crete actually had asked Thutmose III's support for overcoming Mycenaean competition in the trade with the Levantine kingdoms, then Egypt's vassals or allies).- Wachsmann 1987, *passim*.
27. Säve-Söderbergh 1946.- Linder 1973, 317.
28. Säve-Söderbergh 1946, 31 sq.; 36; 42. Landström 1974, 109.- Linder 1973, 318.- Urk. 372 sq. no. 292 f; 294 A.
29. Urk. IV, 3 sq. Säve-Söderbergh 1946, 3 sq.- Jones 1995, 63.
30. Säve-Söderberg 1946, 83 sq. Landström 1974, 109.- Jones 1988, 58 no. 40; 125 no. 9; 1995, 64. "Warships, fighting ships": 1988, no. 103, 249, 251, p. 111 no. 4, 87 no. 165, 129 sq. no. 1, 5, 13, 15, 16, 36, 79, 234 sq. no. 19-20.
31. Säve-Söderbergh 1946, 34 sq.; 42. Urk. 202 no. 3 d. Ugaritic references to ships seized and a naval campaign (?): *loc. cit.* 60 sq.

32. Bass et al. 1984. Wachsmann 1987, 129 sq. Pulak 1995.
33. Seal from Ugarit: Basch 1987, 70 fig. 131. Wachsmann 1995, 24 fig. Graffito from Enkomi, Cyprus: Casson 1971, fig. 27.- Basch 148 fig. 312.
34. *Od.* 14, 199 sq. (for other references to raids cf. note 13). Thucydides (I,5) was aware of the rôle of piracy in Greek past.
35. Otten 1963, 3 sq., 20 sq.; 1976. Güterbock 1967.- Gray 1974, G 123; G 132. Cornelius 1973, 276; XVI. Johnstone 1980, 79 sq. Linder 1973, 319; 1981, 39.- Gray 1974, G 132. Lehmann 1985, 26; 28 sq.
36. Wachsmann 1987, 93 sq.; 98 sq.; 111 sq.
37. Casson 1971, 36 sq.; 41; fig. 61. Gray 1974, G 83; pl. with p. G 88. Landström 1974, 111 sq., fig. 345-8. Höckmann 1985, 45 fig. 21. Wachsmann 1981; 1982; 1995, 28 sq. Basch 1987, 68 sq. fig. 123 sq. Morgan 1988, 133 fig. 84. Raban 1989; 1989 (1995). de Boer 1991. Jones 1995, 59 sq. Wachsmann 1995, 29 sq. + fig.
38. Years ago I had come to identical conclusions in a paper still in press (Höckmann, forthcoming).
39. Harding 1976. Lehmann 1985, 45. Briquel 1986.
40. Gray 1974, G 123. Lehmann 1985, 28 sq.
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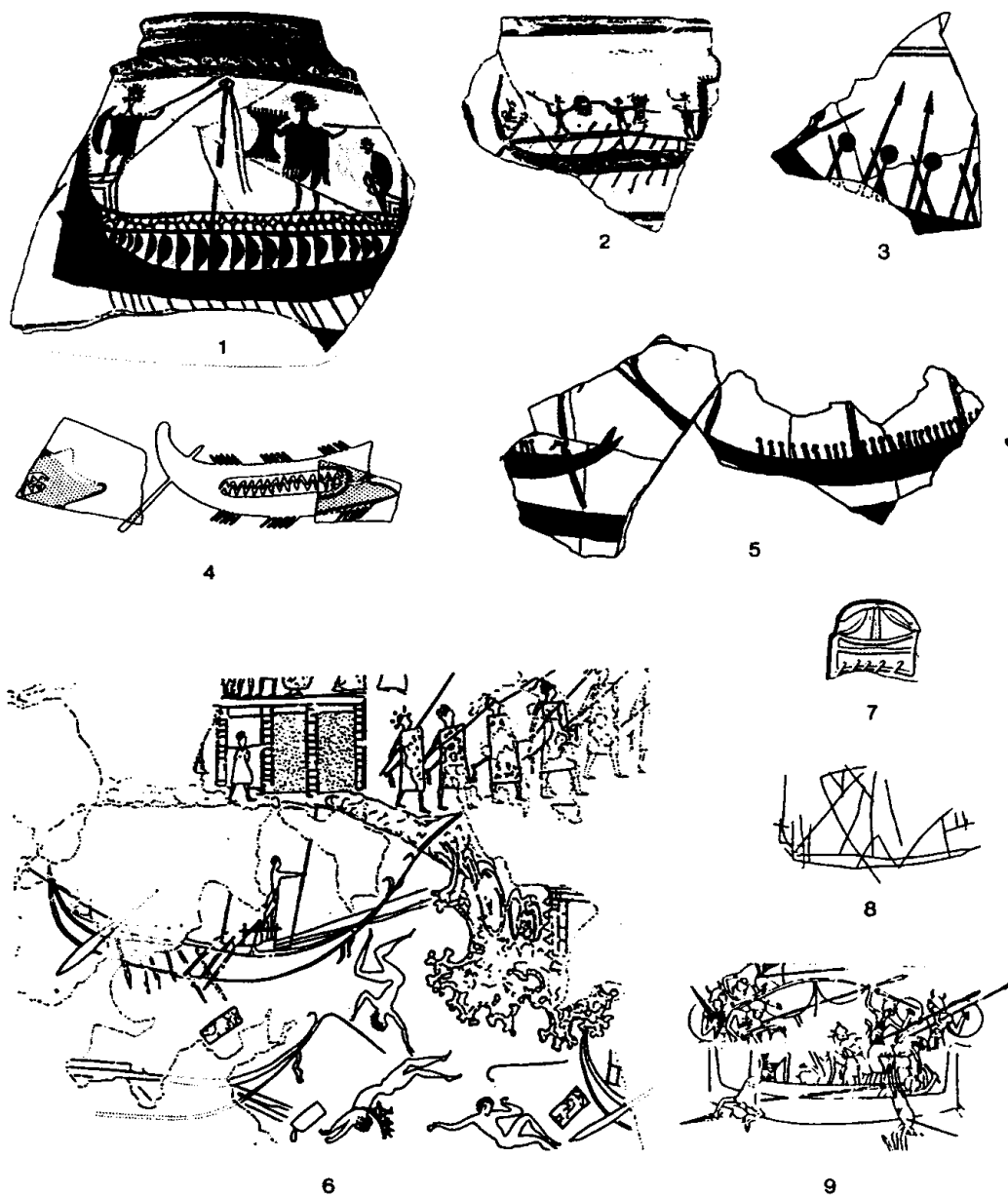
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