

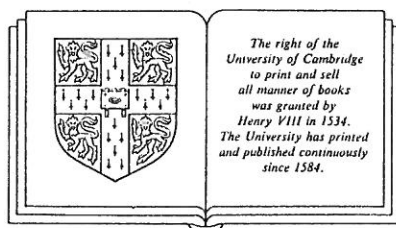
Boats

THE MINIATURE WALL PAINTINGS OF THERA

A STUDY IN AEGEAN CULTURE
AND ICONOGRAPHY

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indigenous iconography of the island and partly from the eclecticism of the Theraan people. Thus, while looking at the architecture in the paintings, we may see elements comparable to those in Minoan depictions (the 'Town Mosaic', the Zakros sealings, the Archanes house model) or in Mycenaean depictions (the Siege Rhyton). Such mixed impressions have led scholars to opposite conclusions: Immerwahr comments on the Minoan character of the Arrival Town, with its horns of consecration, and concludes 'surely this ought to be Crete';²⁴ on the other hand Negbi considers that the occupants of the town look Minoan, the architecture Mycenaean.²⁵ One of the closest parallels to the town is, however, in the site of Akrotiri itself (see Ch. 4). Similarly, The Meeting on the Hill represents an event hitherto considered to be exclusively Minoan: a ceremonial gathering at a peak sanctuary. There is, however, no necessity to conclude that the scene is set on Crete. The gathering shows none of the accoutrements familiar from excavated peak sanctuaries on Crete, and it is more pertinent to consider whether the scene represents a Minoan-inspired ritual which has been transported and possibly transformed by the Theraans. (For further discussion of this view, see Ch. 12.)

Despite the divergence of opinions regarding the Minoan or Mycenaean identity of particular details in the paintings, a general consensus prevails that both Cretans and mainlanders were associated with the Theraans and are probably present among the people represented in the miniatures. Negbi's conclusion is based on the questionable assumption that the Akrotiri settlement predates the richest of the Shaft Grave burials. She suggests that high officials like the ship's admiral sailed from Thera to the mainland taking their precious vessels and weapons with them; this, she considers, 'may shed some light on the origin of the people who were buried in the Shaft Graves at Mycenae'.²⁶ Less extreme views are posited by Immerwahr and Warren. Immerwahr considers that both Minoans and Mycenaean in friendly rather than hostile communication. In terms of the ships she comments: 'Minoans and Mycenaean are here working together on whatever colonizing venture or expedition is depicted.' With this view, the supremacy of the Cretan navy and the concept of Minoan thalassocracy at this period are called into question.²⁷ Warren is not convinced by the idea of a friendly collaboration between Minoans and Mycenaean and sees, instead, a distinction between Mycenaean attackers and Minoan defenders of Cretan and. Regarding the fleet, he comments that the

passenger-warriors could be Mycenaean because of the helmets, but as the fleet is returning to its home port on Thera (the Arrival Town) the fleet is more likely to be Theraan than Mycenaean. He therefore concludes that the warriors with the fleet may be Mycenaean but the fleet itself is Theraan; in this way the Mycenaean warriors may either be using a Theraan fleet as mercenaries or the two peoples may be allies.²⁸ A slight discrepancy arises in that the Arrival Town, although set on Thera, is shown to have a Minoan element, and yet the Mycenaean-Theraan fleet is said to be returning after raids on Crete. Warren attempts to counter the discrepancy by commenting that 'origins in one Cretan community certainly need not have precluded raids on other Cretan communities'.

All these views are based on distinctions between 'Mycenaean' warrior-passengers and 'Minoan' or 'Theraan' sailors. Two points of detail, however, make such a distinction nebulous. In the first instance, the helmets hanging above the heads of the passengers are not Mycenaean boar's-tusk helmets, but are zoned helmets, each with individual characteristics. They may as well have belonged to Minoans, Mycenaean or Theraans. Secondly, the helmets are not hung above all the passengers' heads but only over some; therefore not all the men are defined as warriors. Furthermore, none of the passengers is actually dressed for warfare and the robes which they wear are also worn by men in The Meeting on the Hill, the Pastoral Settlement, and the Departure and Arrival Towns. A comparative lack of iconographic parallels on Crete and the mainland suggests that this is a local, Theraan garment. It is hardly likely that these men were carrying out raids on their own people.

There are a number of iconographic details which indicate connections with the people of Crete and the Mycenaean Shaft Graves. These are summarized in the Conclusion, Ch. 13, in a consideration of the wider implications of Thera's role within the Aegean. In terms of the people represented in the paintings, however, very little can be specifically defined as applicable to one and only one nationality. The only characteristically Mycenaean features are those of the marching warriors on the North Wall, though even these are not exclusively confined to the mainland. Amongst the other people, features characteristic of both Minoans and Mycenaean may be detected, though inconclusively. These people may be Theraans who have felt the influence of both Crete and the mainland, or they may contain a mixture of people from the three lands. In either case the implication is one of international verisimilitude.

THE SEA

9

SHIPS AND BOATS

Prior to the discovery of the Theraan miniatures, knowledge of Aegean ships of the Bronze Age was based purely on the schematic depictions of glyptic surfaces and on simple models. Here, in The Ship Procession, is a flotilla of ships in motion manned by a full crew. The depiction is unprecedented; it provides valuable information on Aegean ship technology as well as an insight into a remarkable occasion in the sea-faring life of the time.¹

The vessels in The Procession comprise: six large ships and a cargo ship under sail (here numbered 1-7, left to right, starting with the top row), Pls. 9-12; Fig. 67 and Col. pl. C. In the harbours are three medium-sized boats: one under five-man oarage passing the Departure Town, Pls. 8, 159; two moored in the Arrival Harbour, Pl. 13. Also in the Arrival Harbour are four small fishing boats (one manned, the others moored). The vessels in the Shipwreck scene on the North Wall opposite are of the same type (though on a smaller scale), only lacking the additions of the ships in The Procession, Pl. 3. The fragile bow-port is without individual motifs; the stern figure-head, projection and cabin, and the central awning (details which will be considered in turn) are all missing and instead there is a small lookout-post on the bow and a simple structure at the stern. The differences are evidence for the contrasting nature of the scenes: the shipwrecked vessels show the essential structure, while the ships in The Procession have been attired specifically for the occasion.

All the vessels have a continuously curved hull with sheer-line high above the water. The type is more characteristic of the curved sweep of ships on Minoan sealstones (albeit less exaggerated) than of the lower, angular line common to Early Cycladic and Early to Late Helladic ships.²

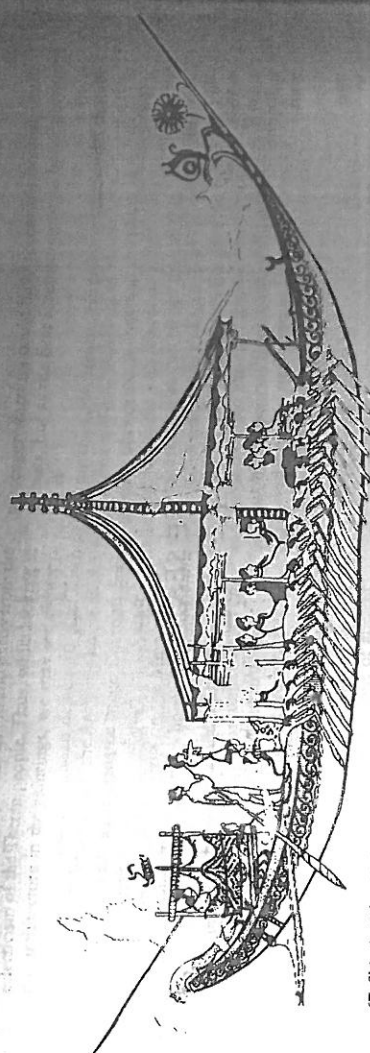
A striking characteristic of the ships in The Procession is the variety of methods of propulsion and the suggestion

of function and hierarchy implied in the differentiation. Thus the only ship under sail (Ship 6; Pl. 11; Fig. 70) is also distinguished by the central hold on the deck in which the mariners sit. It would appear that the ship is fitted out for cargo. An analogy with the asymmetrical shape of the hold is provided in the 6th dynasty Egyptian model of a cargo ship illustrated in Pl. 162.³ That the tradition was of long standing in the Aegean is shown by the seal from Platanos in Pl. 163, probably dating to MM I.

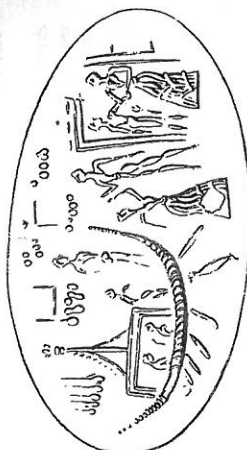
A ship approaching harbour would not normally be under sail. Indeed, the mariners appear to be in the process of lowering (or raising) the sail. Even so, it is surprising to find only one ship under sail amongst so many: if the wind were favourable for sailing, one would expect all the ships to take advantage of this. Two, perhaps related, reasons may account for this anomaly. (1) The ship under sail is shown by the presence of the hold to be carrying cargo and is thus less likely to be manageable by man-power (merchantsmen generally travelled under sail). (2) If, as I postulate (Ch. 10), the ships are in a procession as part of a navigation ceremony, then one might expect to see a display of the various methods of propulsion used by the navy.

It is partly the methods of propulsion that suggest that this is no ordinary naval venture but a procession. For these ships, as their details reveal, could not be travelling a great distance. They make their way over a short stretch of sea between the two towns. Thus the usual sail and rig may be stowed away, the masts lowered, the oars abandoned and the ships propelled solely by paddle-power and coastline currents.

Of the other six ships, only two have their masts raised. Here they are utilized as a mark of distinction, for the two ships are the most important in the fleet.⁴ Ship 1 (Pl. 9; Fig. 67) is further distinguished by the presence of the



67. Ship 1. (After K. Iliakis.)



68. Gold ring from Tiryns.

man with the votive gesture discussed above (Pl. 126; pp. 117–18). While Ship 2, the flagship (Pl. 10), is distinguished by dress-ship lines and an elaborate decoration attached to the top of the raised mast.

The mast

The mast is likely to have been of composite structure: horizontal lines set at close intervals suggest woodings binding short pieces of wood.⁵ Such bindings are indicated on Egyptian representations of masts (they can be seen on the lowered mast in Fig. 94 and the raised one on the Syrian ship in Fig. 75) and they were also used later in Greece.⁶ A composite mast is stiffer than one made of a single piece of wood, and the woodings would have been useful, too, as a form of ladder for climbing aloft. The wood could have been fir; this was used for ships

mentioned in the Homeric epics, both for the mast and for the oars.⁷

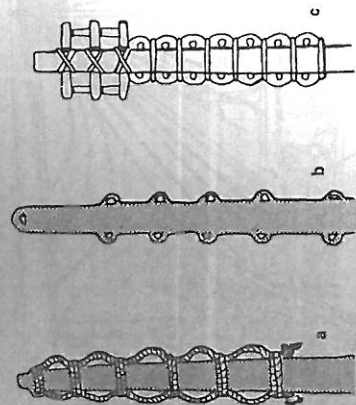
At the top of the mast on Ship 1 (Fig. 67) are five pairs of rings through which the rigging passed. (The top of the sailing ship's mast is not preserved. The top of the flag-ship (2) is obscured by bunting.) Obviously the rings would have run from port to starboard rather than fore and aft as the artist has depicted them. The rings have a rounded form comparable to those used in the Middle Kingdom in Egypt (Fig. 69 a–b) and do not incorporate the square block which was fashionable during the New Kingdom (Figs. 69c and 93). Such rings or 'eyes' in Egypt were generally made of copper, though, as Fig. 69a indicates, the rounded form of the Middle Kingdom was sometimes of rope.⁸ Bronze has been suggested for later Greek models⁹ and could have been the material used for the mast rings of earlier Aegean ships.

Ships on sealstones and rings are insufficiently detailed to show the structural components. Therefore until the discovery of the Thera painting neither the rigging nor the mast which held it were in evidence. It seemed that no other examples of ships in wall paintings had survived. Yet the clear depiction of the mast on Ship 1 enables an identification to be made for an otherwise obscure fragment from Pylos, illustrated here in Pl. 166. It was originally catalogued as a 'vertebral maypole'¹⁰ but can now be recognized as a mast-top with rings, whose lines run down to the yard (shown in the lower fragment on the left). The fragments came from the north-east slope outside the Palace and are, therefore, without context but of relatively early date since they were no longer on the walls at the time of the destruction.

Since the mast was retractable, it is likely to have had a device to hold it in place when erect and something on which to support it when lowered. Apparently lacking fore- and backstays, these ships in particular would have needed a strong base-support for the mast. The common device for such is a tabernacle or mast-foot. The structure can be seen in the 9th- or 8th-century Cypriot model in Pl. 164. A gap in the floor planking just above the keel is surmounted on three sides by a built-up wooden support; the mast would be raised into this, and along the fourth side (shown aft in the model) a wooden thwart would be wedged into position to hold it firm.¹¹

It is usual for shipwrights to construct the mast-foot with the strongest support – i.e. the permanent part of the structure as opposed to the removable thwart – towards the fore. In this position it provided maximum support against the force of a following wind blowing against the mast from astern. The mast-foot on the Cypriot model in Pl. 164 adheres to this principle. With the removable thwart at the back, the mast would of necessity be lowered aft. Strong forestays are needed for such a manoeuvre (below, n. 30); but since neither fore- nor backstays are indicated in the painting the method of raising and lowering the mast is unstated. Nonetheless, the presence of the stern cabin and the arrangement of the helmsman and seated men adjacent to the cabin would have made lowering the mast aft a clumsy business. On Egyptian New Kingdom vessels part of this problem was solved by having a projecting wooden pin to support the mast on the port side of the rudder stanchion.¹² But the Thera rudder has no such device and it may be that, at least on occasions when the stern cabin was in place, the mast was lowered to the fore. Under these circumstances the mast when erect would presumably have been held in place by tackle at the foot rather than by the construction of a tabernacle; but it would not, in this case, have been stable for long sea-going journeys.

A crutch at the fore of Ships 1 and 7 (seen best in Fig. 67) may be a stanchion for the support of the mast when lowered, as Marinatos suggests.¹³ Such a device could presumably have been placed fore or aft depending on the presence or absence of the stern cabin and on the duration of the journey and corresponding stability required for the construction supporting the mast when erect. A mast lowered onto (two) such fore stanchions can be seen on the ship represented in a Middle Kingdom tomb at El Bersheh in Fig. 94. Marinatos further suggests that at least one mast is to be seen resting on the stanchions of the awning¹⁴ (on Ship 4), interpreting the lines on some (though not all) of the awnings as woodings. These lines, however, are curved rather than straight and could indicate ropes holding the awning in place.



69. Mast-tops from Egyptian boats, (a) and (b) from Middle Kingdom models, (c) from an 18th dynasty relief of Hatshepsut's expedition, Temple of Deir el Bahari.

Sail and rigging

The painter of The Ship Procession was apparently familiar with nautical details, for the rigging of the sailing ship is comprehensible and clear. Fig. 71 is a reconstruction of the rigging, with the lines as identified below. To avoid the (not uncommon) danger of argument based on details visible only in the modern reconstruction,¹⁷ a drawing of the sailing ship without restoration is provided in Fig. 70.

All sailing ships of the Bronze Age carried a square-rigged sail which would have lain athwartships basically catching the wind astern.¹⁸ The conventions of ancient art necessitate that the sail should face the spectator (since the side view would have obliterated the structure beyond recognition), and it is therefore drawn on a fore-and-aft line.¹⁹

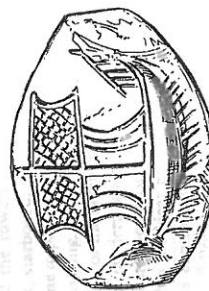
The sail is white (like the sea at this point) and the yards are blue (like the mast). A strip of yellow above the upper and below the lower yard may be intended to show the edges of the sail brought round over the yards. There is no indication of the lashings which must have existed to secure sail to yards. During the Classical period sails were of linen or occasionally papyrus fibre or rush,²⁰ Marinatos assumed that Bronze Age sails would also have been of linen.²¹ The sail would undoubtedly have been made up of joined strips of cloth as no loom is likely to have accommodated the total width. Such joined cloths can be exceptionally strong. The cables might have been of hide or papyrus,²² though the numerous aquatic grasses growing along the shore of the Departure Town suggest a more easily accessible material for rope.²³

Both an upper and a lower yard (the boom) are shown supporting the sail. The use of a boom in the Aegean has been suggested on the basis of ships on Minoan seal-stones²⁴ and the painting now confirms this observation. It can be seen on the MM seal from Platanos in Pl. 163, and the LM I seals in Figs. 72 and 73. It was also in use in Egypt, and can be seen in sails in the 18th dynasty representations in Figs. 74 and 75 (Syrian ships). Fig. 95 shows that when furling the sail the practice was to bring the upper yard down to the lower, which was stationary. The use of the boom appears to have been restricted to the Bronze Age and its disappearance is marked by the ships on the Medinet Habu Reliefs, in which the ships of both the Egyptians and the Peoples of the Sea have their sails furled up and the lower yard discarded (Fig. 84). Egyptian sails were generally wider than they were high, which necessitated that the spars were lashed together at the centre (visible in Fig. 74), a convention which applied also to the Greek and Roman world.²⁵ The Thera sail also appears to have been wider than it was high and probably required the same technique.

Sail and rigging

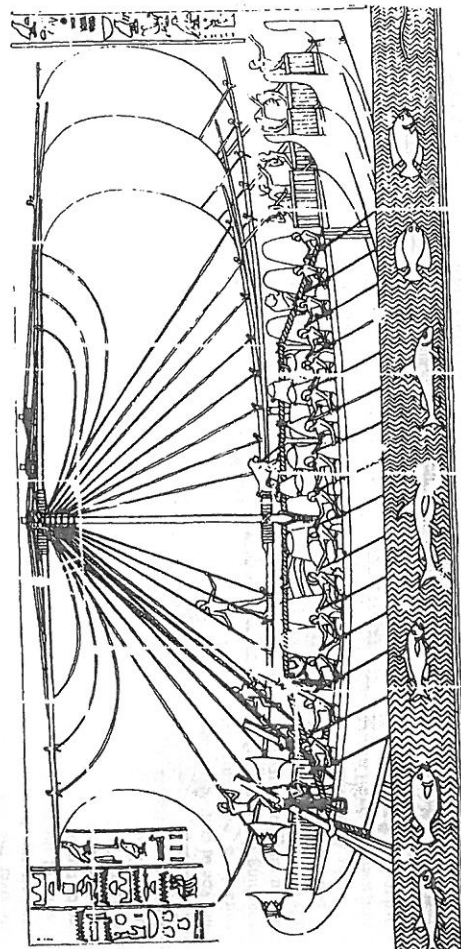
order to furl or raise the sail (Fig. 70). The other lifts were presumably being handled in the same way by a sailor on the left in the area which has not been preserved.²⁷ In reality, the sailors would have been to port and starboard of the mast rather than fore and aft; the placing belongs to the same convention as that of turning the sail to face the spectator. Running from the upper yards are the braces, and from the lower the sheets (or lower braces, the function is uncertain). Marinatos assumed that both these ropes are held in place by the helmsmen who, having their hands occupied with the steering oars, hold the ropes beneath their feet.²⁸ However, on New Kingdom vessels, halyards were secured to a horizontal bollard fixed to the deck in front of the steersman;²⁹ and it may be that a simi-

lar structure was used for the attachment of sheets and braces on the Thera ship. The artist appears to have abbreviated the number of lines hanging down beside the mast. Since, on either side, there are two lifts for the upper yard and two for the lower, there should be four ropes altogether running down each side of the mast. For without handling ends it would not be possible to lower the upper yard without removing the topping lifts. Ship 1, with mast erect and ropes loose, shows the same type of rig when the sail and yards have been lowered; there are

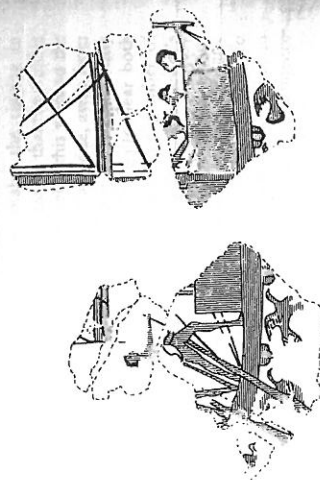


72. Amygdaloid bead-seal from Knossos, LM I (?).

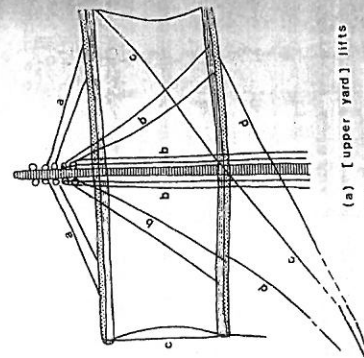
73. Cornelian lentoid seal-stone, LM Ib.



74. Ships from Hatshepsut's expedition to Punt, detail of 18th dynasty relief at Deir el Bahari, early 15th c.



70. The sailing ship without restoration.



(a) [upper yard] lifts
(b) [boom] lifts
(c) brace
(d) sheet

71. The rigging of the sailing ship.

clearly four ropes on the left side, though only three have been drawn on the right (Fig. 67).

A notable point about the sailing ship is that it has no standing rigging, in other words no forestays or backstays to stabilize the mast.³⁰ The mast is unlikely to have been permanently fixed to the keel in this one case, and a lack of stability provided by stays indicates that protection against strong winds during long sea journeys was unnecessary. The conclusion must be that the voyage represented was merely of short duration.

Steering

All but the small boats are steered by an over-sized quarter rudder on the starboard side; the ship under sail, however, has two rather than the usual one. The helmsman (contrary to Egyptian practice) stands in front of the stern cabin rather than behind it. The placing of the stern cabin would have restricted both the posture and vision of the helmsman had he stood behind in this case. Presumably he looked along the side of the ship, for the awning blocks his view down the middle.

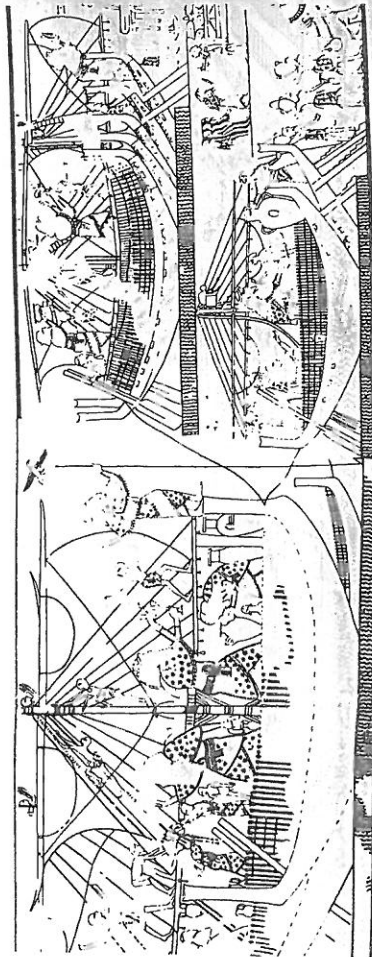
The massiveness and oar-like shape of the rudder is characteristic of the period and contrasts with the shorter blunt blade of Late Bronze III (as in Fig. 88).³¹ The helmsman on each ship holds the steering oar with both hands at two heights along the boom; his stance is carefully balanced with feet spread apart on the poop deck. The artist has accurately observed the necessary balance for steering with a long oar which has no tiller.³² Although the oar appears to be free-standing it is unlikely that it

was completely unattached to the hull; a loop or thole pin would still allow the oar to be lifted when the windward side changed.

It is uncertain when the use of two steering oars, one on each quarter, was first adopted in the Aegean.³³ Representations of ships with rudders from the latest period of the Bronze Age show only one projecting aft (Fig. 88 and cf. n. 31); and a single rudder is clearly indicated on an EC sherd from Phylakopi.³⁴ On Aegean seals it is hard to distinguish the rudder from the oars, though Fig. 68 appears to have only one, whereas Fig. 79 clearly has two (depicted no larger than the ordinary oars but differentiated by the angle). This observation confirms the situation in the painting: that both the single quarter rudder and the double were in use at the same time.

The two steering oars on the ship under sail may not in reality have been both on the starboard side. The convention of showing the square-rigged sail in a fore-and-aft line has created a nautical anomaly: the rigging in relation to the sail creates the impression that the wind is blowing from the starboard side, yet if this were so the rudder would be needed on the leeward side, away from the wind, not on the starboard side as shown. Evidently the artist wished the spectator to be quite clear both about the form of rigging and about the number of rudders and therefore placed everything on the viewer's side.

Clowes, in discussing a ship on an Aric black-figure cup comments: 'In a sailing ship of this type, two steering-oars remained very much more necessary than in a galley, for as the vessel heeled over under the influence



75. Syrian merchant ships at an Egyptian harbour, from a painting from the Tomb of Kenamun, 15th-14th c. (reign of Amenophis III ?).

of the wind, the windward oar must have lifted so far out of the water as to retain little steering power... it was, therefore, on the leeward oar that the steersman had to rely.³⁵ The principle is instructive and might explain why only the sailing ship (and not those propelled by oar and paddle) is equipped with two steering oars.

Propulsion by oar and paddle

Amongst the many vessels in the paintings the only one propelled by oars is the boat by the Departure Town (Pl. 159). The rowers face the stern, one behind the other, with an arm's length between each. The crew of five may, as Casson suggests,³⁶ be an abbreviation for ten – i.e. two abreast – but there is no indication of overlapping figures, a technique with which the Thera artists were well acquainted.³⁷ If (as seems more likely) the line of five represents the entire crew, then the boat must be relatively narrow and the rowers must be either working alternately, port, starboard, port, or with each man holding two oars, one to port and one to starboard, in the method known as sculling. They sit, presumably on thwarts, with backs arched for the beginning of the stroke. The method is familiar to modern seamen and appears from representations to have been used by rowers both in Classical Greece and in the Near East during the Assyrian period, though it is contrary to that used in Egypt during the Bronze Age.³⁸ Presumably the oars were fastened to the gunwale though no thole-pins are evident.³⁹

The shipwrecked vessels on the North Wall appear to have been rowed at an earlier stage in the drama: five oars dangle over the side of the upper ship (Pl. 3), three directed aft, two fore, abandoned in the turmoil.⁴⁰

In spite of the fact that rowing is efficiently demonstrated by the men in the boat, the crew of the large ships make hard work of their journey by paddling their vessels (Fig. 77). They are cramped together leaning in an attitude of discomfort over the gunwale in their effort to reach the water with oars which are too short for the freeboard of the hull.

The type of craft for which these short paddles would be suitable is the small boat, paddled by two men, approaching the Arrival Harbour (Pl. 160). These men paddle in the conventional manner, leaning forward slightly and with ease, arms outstretched in front. It is the same position as that held by the figure in the small vessel on the Aya Triada sealing in Fig. 76, and was the method used by sailors in Egypt and the Near East during the 3rd millennium.⁴¹

Paddling would, however, have been an old-fashioned method of propulsion at the time of the Thera painting. Furthermore, while one might expect to see a small canoe using the technique within a harbour, one would not

expect to see it used for massive sea-going ships. Marinatos considered that paddling these ships was a necessity owing to their being in shallow waters.⁴² But Casson's criticism of this – that the smaller boat is having no trouble rowing in the same waters – is pertinent.⁴³ Even for harbour manoeuvres the style of paddling adopted here is unnatural. With inappropriately short paddles, the men are forced into an idiosyncratic posture. They are surely not kneeling; for in order to get sufficient thrust into the water they would have had to have raised the paddles and themselves high before the downward movement. This is just what we see in a unique depiction of progressive motion from the 5th dynasty Wesekef Temple at Saqqara illustrated in Fig. 78. In the centre of the line of men it can be seen that the downward thrust entails a plunge over the gunwale; the resulting position is the same as that held by the Thera sailors. The technical reason is the same in the two cases: the ship was otherwise too large to be paddled.⁴⁴

The enormous effort involved in paddling these huge vessels indicates an important factor, already observed in relation to the lack of standing rigging on the sailing ship: these vessels are not prepared for a long sea-going voyage. They travel between the Departure and the Arrival Towns and considering the discomfort and expended energy of the paddling crew, we must assume that the distance between the two points was not very great.

In considering the reason for propelling these ships in so impractical a manner, it is worth noting that at the time of the Thera painting the occasional use of paddling ships in Egypt was restricted solely to those in processions belonging to specific annual festivals (below, Ch. 10, n. 17). The out-moded technique thereby recalled ancient traditions. It seems likely (as Casson also concludes)⁴⁵ that in The Ship Procession a similar deference to tradition is being displayed, for, as the details of the ships reveal, this is a naval occasion of more than ordinary significance.

The hull Construction

(i) Scale

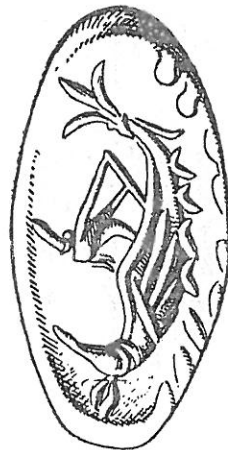
In estimating the size of ancient ships the usual method is to define the overall length of the hull by its ratio to the number of oarsmen, 1.50 m (or 0.90 m) being judged for each interscalmia (the space between two rowers).⁴⁶ Thus Marinatos estimated 21 m total length for the 15-oared Middle Minoan ships on seals (14 spaces at 0.90 m each plus 4 m from the end of the oars to each extremity), and a maximum of 30 m for the larger Late Minoan vessels. However, the number of oars on Minoan seals is variable

and such estimates can only be approximate.⁴⁸ The large number of working crew on the Thera ships is explicable in terms of paddling as opposed to rowing: more paddlers being able to fit into a given space than rowers.⁴⁹ The rowed boat is approximately half the length of the hull of the ships (not counting the prow attachments) yet has only a quarter of the number of crew.

Marinatos used the above-mentioned principle in estimating the overall length of the Thera ships. His calculation is based on 20 interscalmia at approximately 0.75 m each, less than the usual 0.90 m because the men are paddling rather than rowing and therefore more closely spaced. For the rowing area the number reached was 15 m, and on Ship 1 (the best preserved) the oarless part of the bow was judged at around half the rowing area (7.5 m) and the stern at around three-quarters of the rowing area (11.25 m), bringing the final estimate of the total length to 33.75 m.⁵⁰

This estimate is based on one factor: the number of paddles on the only well-preserved ship, Ship 1 (Fig. 67). Thus Marinatos counted 21 on the visible side (42 paddlers altogether). But a close look at the painting reveals that numerical exactitude was not a characteristic of the artist. Certainly there are 21 paddles, but only 20 pairs of arms reach for them and only about 17 heads are attached to these arms (accurately observed by Iliakis in his drawing reproduced in Fig. 67). Furthermore, while the number of paddles on the remaining ships is uncertain, Ship 7 evidently has more than 21 and Ship 3 has less. The artist has provided an impression of a large number of oars rather than a precise designation or a formulaic mode.

The question of scale is further complicated by the fact that the rowed boat (Pls. 8, 159) is of the same type as the two moored boats in the Arrival Harbour (Pl. 13) – with skeletal midships awning and amorphous structure aft in which the captain sits – yet they are depicted in different



76. Sealing from Ayia Triada.

scale. Such inconsistency is applied also to people (see especially p. 109) and means that comparative methods of judging scale are unreliable. Neither can the scale of the shipwrecked vessels be determined; they appear to be smaller than those in the procession, but their true length even within the painting is unknown as the fragments of fore and aft do not join.

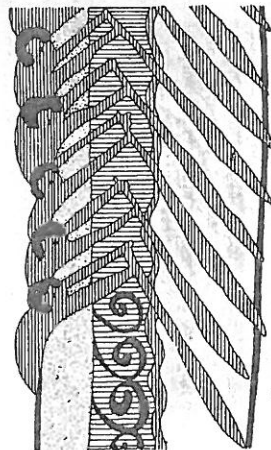
The beam of the ships cannot be reliably estimated but may have been in the region of one-third of the basic hull length.⁵¹ Neither can the ratio of depth to length be established with any certainty.⁵² Clearly the artist has depicted the entire hull, with its curved bottom, rather than the hull as it would appear above water-level. This principle applies also to dolphins, steering oars and paddles and, in the Shipwreck scene, to drowning men, shields and boat-hook.⁵³ Objects are depicted as though resting on the water, rather than partially submerged within it.

(ii) Structure

The structural form of the hull cannot be determined from the paintings alone. The most that can be established is the information available from ancient wrecks and from literary sources – both of which, pertaining to a later period, may only be used cautiously as demonstrating the Mediterranean traditions of shipbuilding – and comparative iconography where there is a sharper focus on detail.

The main questions relating to ship construction are: (a) what is the material used for the hull? (b) how are the structural elements joined? (c) how is the hull strengthened and are there keel and ribs? (d) is the ship decked?

(a) The Aegean lands were once densely wooded and are surrounded by navigable seas. The ships in the painting are unquestionably sea-going vessels and as such must have been plank-built. It is usually thought that cypress and fir were the commonly used woods in Minoan architecture,⁵⁴ and Marinatos comments that



77. The paddlers on the Thera ships. (After K. Iliakis.)

judging from the terminology in Homeric literature the same applied to naval architecture.⁵⁵

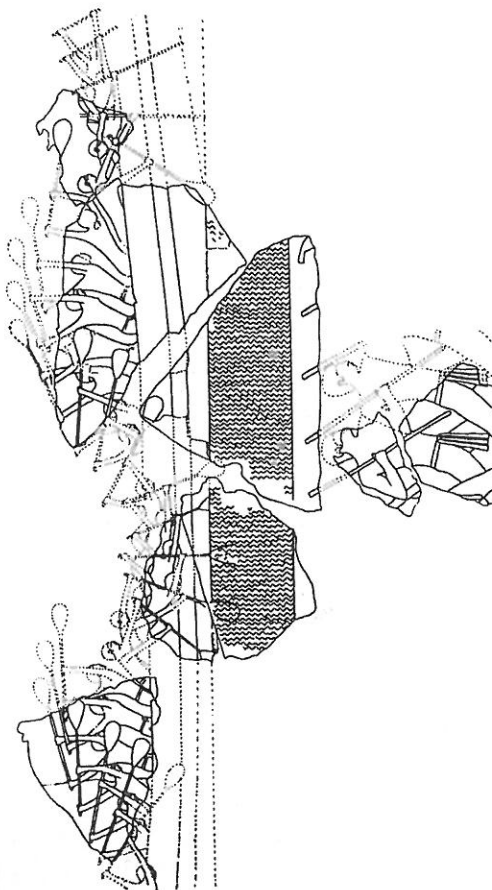
(b) There are basically two methods of joining the planks of a hull: the planks may overlap one another, in the clinker build; or they may be laid edge-to-edge, carvel fashion. The clinker build is a specifically northern European form of construction and has never been demonstrated to have been used as far south as the Aegean. On the other hand it has always been known, from representations, that Mediterranean ships of all periods were carvel built; this has been confirmed by excavations.⁵⁶ Egyptian plank-built ships were also constructed in edge-to-edge fashion, though the short planks 'laid like bricks', as Herodotus so aptly put it,⁵⁷ was a form peculiar to that region.

The Linear B texts indicate that ship construction in the Mycenaean age was a separate trade.⁵⁸ Nonetheless, it would undoubtedly have been based on the carpenter's knowledge of wood craftsmanship. It has been demonstrated that, in Minoan architecture, carpenters and masons used the techniques of mortise and tenon and dove-tail clamps,⁵⁹ and almost certainly these would have been passed on to shipwrights. Such techniques were used in Egyptian shipbuilding; and recent evidence from underwater archaeology in the Mediterranean demonstrates that the tradition of mortise and tenon

joinery was established among shipwrights at least from the end of the Bronze Age.⁶⁰

(c) A sea-going ship must be strengthened longitudinally in order to avoid the danger of a long narrow vessel breaking her back when raised on the crest of a wave with her two ends left unsupported in the air.⁶¹ The conventional method of providing the necessary rigidity internally is with keel and ribs. Externally the usual method is a wale: an additional strengthening plank (strake) running along the hull from stern to bow usually just below the gunwale. The keelless vessels in Egypt utilized an alternative method consisting of a hogging truss running along the centre of the ship and bound around the hull at either end (as in Fig. 74); but it is clear that the Thera ships had no such device.

Certainly the Thera ships would have had a central plank but it is a matter of conjecture whether or not this could be classified as a keel. Some ships on Minoan seals appear to have an additional structure at the base of the hull which might be an indication of a keel plank (Fig. 73). Mycenaean representations show a projection fore (a projection too small to be a separate, attached ram) in a line running straight from the base of the hull and therefore presumably indicating an extension of the keel (Fig. 88; cf. n. 31). The keel is referred to several times in the Homeric epics.⁶²



78. Detail of paddlers from a 5th dynasty relief, Wescak Temple, Saqqara.

It is likely that the Thera ships were fitted with at least some internal frames or ribs, though of course they are not visible in the painting. The lines on the hull on the Cretan seal in Fig. 79 have sometimes been interpreted as ribs, though Fig. 80 offers a more convincing example. Lines are also shown on the boat on the East Cretan seal in Fig. 99; on the incised ship from Boettia in Pl. 165; and on a Mycenaean ship model from Phylakopi.⁶³

Ribs may be attached to the keel before the addition of the hull strakes, thus determining the overall shape of the hull – the skeleton technique – or they may be inserted after the construction of the hull – the shell technique. Intermediate methods are also known in which some frames are pre-erected and some are inserted. Recent studies indicate that, contrary to previous belief, the skeleton technique is a relatively late development in the history of shipbuilding, and the likelihood is that ancient ships were built on the shell principle of inserted frames.⁶⁴

It may be that the ships in the Thera painting were strengthened externally as well. In Egypt during the Old Kingdom a ruse girdle extended horizontally around the hull, and it has been suggested that a memory of this structural feature was preserved in later ships in the decorated strake below the gunwale.⁶⁵ On the Thera ships the same area is picked out by a different colour and on two ships spiral decoration is added. At the stern the ropes running obliquely up the hull (which attach the stern projection) reach only to the top of this decorated strip, making clear a division between it and the gunwale. Thus the strip may be a functional wale as well as an area of decoration. Such longitudinal strengthening of the hull was necessary even on ships with keel and ribs; Greek Classical warships had several timber wales binding the hull and preventing bow and stern from sagging; and similar wales were applied to ships in the Middle Ages.⁶⁶

(d) It is clear that the Thera ships were at least partly

decked. The passengers beneath the central awning are shown seated with their knees visible; they could not be sitting on thwarts at the same level as the paddling crew and must, therefore, be on a decked area. A poop deck supports the stern cabin and extends into the central deck; in front of the cabin, the helmsman (whose feet on the sailing ship are so high they appear flush with the gunwale) and the seated men are clearly on the same level as the central passengers. The shipwrecked vessels were probably also decked: on one a man stands in a lookout post towards the prow, on another a small structure is mounted aft (Pl. 3). The probability is that the large ships were decked along the centre and at stern and bow but that the port and starboard sides had simple thwarts on which the rowers could sit or (in the case of the occasion shown) between which the paddlers could stand. The boats are unlikely to have been decked, with the exception of the stern area on the larger boats.

There is little comparable evidence for the use of a deck in the Aegean Bronze Age and that which exists belongs only to the later period.⁶⁷ Two LM II sealings from Knossos show decked vessels.⁶⁸ The ship on the LH IIIb krater from Enkomi in Fig. 81 indicates that passengers and crew are on two levels, as in the Thera painting, and therefore that the centre is decked.

Decoration

In carvel construction it is essential to caulk the seams between the strakes with a soft material (such as oakum, rags, moss, fibre, tow, etc.) in order to make them watertight.⁶⁹ A coating of pitch or asphalt was applied to the finished hulls of ancient ships, fixing this caulking.⁷⁰ The instructions to Noah on the building of his ark clearly state that he 'bait pitch it within and without with pitch and, when faced with an impending flood and preparing to build a boat, it is the first thing that Gilgamesh gathers around him'.⁷¹ It has been suggested that the epithet



79. Sreatite lentoid sealsone, LM I (?).



80. Serpentine three-sided prism seal, MM IIa.

The prow

'black' frequently applied to ships in the Homeric epics is most likely a reference to the use of pitch.⁷² As an alternative to pitch, in the Classical period at least, wax was melted until it could be applied with a brush, and paint was frequently added providing a coat of colour in eucastic for the hull. This eucastic was often used to paint elaborate designs along the sides of the hull, with special emphasis on the stern.⁷³ However, it is said that the earliest Greek ships kept the hull black, with colour added only to the prow.⁷⁴ Egyptian ships during the New Kingdom were richly decorated on deck-houses, bow and stern platforms and steering oars, as well as on the hulls which were given a form of plaster onto which patterns and scenes were painted (Fig. 95). Such decoration was applied in particular to ships used for ceremonial occasions.⁷⁵

We should, therefore, be cautious in considering it a flight of the artist's imagination when we find spirals, lions, dolphins and birds gliding along the surfaces of the hulls of the Thera ships. These were presumably not common decorations – the shipwrecked vessels are undomed and the small boats are clearly of plain wood – but ones which were justified by the festive occasion depicted in the Procession painting.

The motifs of lion, dolphin and bird were each considered in Ch. 3, and the stylized crocus blooms on the hull of the sailing ship and those comprising the pendants of the dress-ship lines on Ship 2 in Ch. 2. Crocuses, it was suggested, may evoke the product saffron and its importance in overseas trade. Birds (both on hull and prow) may reflect navigational powers. Dolphins (also on hull and prow) emphasize marine associations. Lions (on hull and stern) evoke the power of the conqueror and may have been thought to infuse the warrior passengers with valour.

Ship 2, the flag-ship, is picked out for special attention. The dress-ship lines and mast-top emblem are unique to this one vessel, as is the elaboration of hull decoration. A



81. Ship on a Levantine-Mycenaean IIIb krater from Enkomi.

notable accent of blue is incorporated into the design: the base of the stern cabin, the top of the stern projection, and the awning are all distinguished from the same features on the other ships by their blue colour; a blue cloth is attached to the steering oar;⁷⁶ and on the hull, just fore of midships, is an area of blue bordered by narrow vertical strips of yellow outlined in red. Within this carefully defined area of blue is a further hull emblem, quite different from any of the others but reiterating the most commonly rendered prow emblem: a yellow star (Pl. 169).

The prow

As is traditional among nautical people, particularly on festive occasions, the prow and stern have been emphasized with decorative emblems. Only the large ships in procession have been so adorned – the extremities of both the shipwrecked vessels and the small boats are relatively plain – and it must be assumed that the emblems and fixtures have been added for the occasion of the nautical procession.

The long fragile bowsprit is clearly an extension to the basic hull design rather than an integral part, and must be detachable.⁷⁷ It is impractical for a long sea voyage and would easily break in a high wind; here its function is to carry the important motifs belonging to the individual ships. A high prow is a feature of many Early Cycladic and Minoan ship representations, and while the elaboration of adornment visible in the Thera painting is not applied elsewhere, the types of prow known from comparable examples can all be identified within the bowsprit components of the Thera ships. Three basic varieties can be distinguished: (1) a plain undecorated high prow as seen on an EM II clay model from Palaikastro,⁷⁸ on a lead model from Naxos,⁷⁹ and on a boat incised on an EH pot handle from Orchomenos;⁸⁰ (2) the addition of a fish and below it a flag, seen on Early Cycladic representations incised on the so-called 'frying-pan' (Fig. 87);⁸¹ (3) a bifid division or two bent pieces either side of the bowsprit, frequently seen on ships on Minoan sealstones (Figs. 80, 82–3, 87). All these characteristics can be found in the Thera paintings: the plain undecorated high prow can be seen on the rowed boat and the small fishing boats in the harbour; the fish decorates one of the large ships; and the flat and divided bowsprit are clearly visible on the shipwrecked vessels. To these basic types are added features peculiar to the ships in procession.

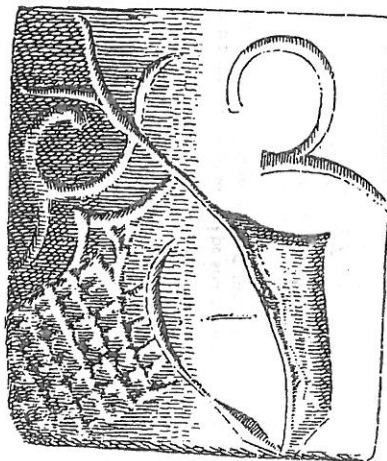
On each of the preserved bowsprits is a star (or rosette), in some cases with dots in between the outer points (Pls. 168, 172). Regardless of other emblems, this one is consistently applied; and it also decorates the hull

9 Ships and boats

on the flagship (Pl. 169). This motif is a familiar element of LM Ib Marine Style pottery, an example of which is shown in the Palaikastro thryon in Fig. 18.⁸² Equally the motif of festoon and crocus pendants which forms the dress-ship lines of Ship 2 is applied to the Marine Style amphora from Tylissos in Fig. 16. The association of these motifs with marine elements in the pottery takes on a new significance in the light of the Ship Procession painting. Apparently first applied to ships as emblems during the LM Ia period (according to present evidence), the motifs were then associated with a marine environment on the pottery of the immediately following period, as though evoking the nautical emblems of a sea-faring people. The star with dots between its outer points occurs in a fresco fragment from the 13th Magazine at Knossos.⁸³ Evans dated it to MM III, commenting that in scale it approaches the miniature class. Warren, however, points out that the associated pottery included LM IIIa sherds.⁸⁴ The fragment was interpreted by Evans as 'the lower part of the front of a Minoan shrine, beneath its central columnar opening'. It is uncertain however, whether his interpretation is based merely on comparisons with other architectural features or whether it is based more conclusively on associated fragments. The star is poorly preserved but is reconstructed on the basis of the spaces between the surviving points as having a total of sixteen points, in between each of which is a row of four dots. In the Thera painting the motifs have between fourteen and sixteen points, to judge from what is preserved, and either one or no dots between each. On the Palaikastro thryon in Fig. 18 sixteen points are again

evident and one dot lies between each. Thus the number is fairly constant. A further example of this motif exists in a fresco fragment from Pylos (Pl. 167). Like the motif on the hull of the Thera flagship, the star is here picked out in an area of contrasting colour bordered by vertical stripes. Probably fourteen to sixteen points existed and one dot stands between each. Spirals run in a horizontal strip adjacent to the star. The fragment measured 4 cm from top to bottom and although not fully preserved this may approximate to the entire horizontal strip which is represented. In the Thera painting, the hull area in which the star is painted is approximately 4 cm high, spirals, though not associated directly with this motif, are painted on the hulls of Ships 1 and 3 at either side of the flagship. The Pylos fragment has no context, for it was found outside the Palace on the north-west slope. The fragments of mast and rigging of a ship illustrated in Pl. 166 were found on the north-east slope. The vertical measurement of the four mast rings is in the region of 3.5 cm. The vertical measurement of the five mast rings on Ship 1 in the Thera painting is just a fraction more. Thus, both the relationship of the measurements of hull design to mast-tops within the individual paintings and the relative measurements between the paintings are almost identical. The star and spiral motif from Pylos, like that from Thera, may well have been applied to the hull of a ship: perhaps that to which the mast-top and rigging in Pl. 166 belonged.

Alongside the star emblem each prow is adorned with a further motif. A butterfly is attached to Ship 1 (Pl. 170), two butterflies with scalloped edges are placed on either side of the star on Ship 2 (Pl. 168)⁸⁵ and the emblem is reiterated in the mast-top decoration on the same ship



82. Flattened cylinder seal from near Knossos, MM III (?).



83. Cornelian glandular-shaped sealstone from Crete, LM II.

The prow

(Pl. 171); Ship 3 has three dolphins (Pl. 90); and Ship 4 a bird (Pl. 96). The prows of Ships 5 and 6 are not preserved and the emblem of Ship 7 is amorphous and unclear (Pl. 172).⁸⁶

The individual emblems (as opposed to the universally applied star emblem) are all animal. Dolphins epitomize the marine environment of the ships; the bird (as discussed in Ch. 3) may have evoked navigational powers. Dolphins, birds and butterflies are together images of swift movement through sea and air and thus appropriate as emblems of transport.

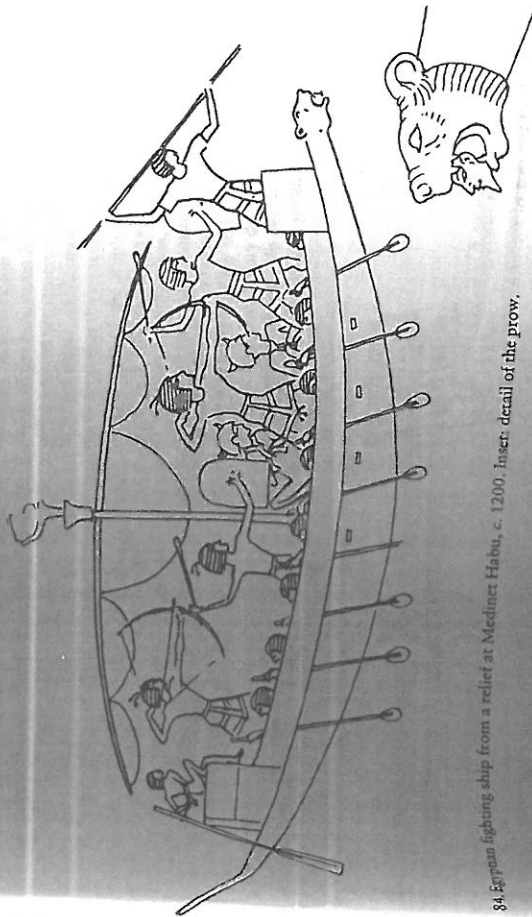
The eyed butterfly was a common motif on Crete at this time and also occurs in the art of the Shaft Graves at Mycenae.⁸⁷ Butterfly wings appear on the Zakros and Aya Triada sealings and a naturalistic butterfly in ivory was found in the Treasury of the Shrine in the Palace of Zakros.⁸⁸ The creature occurs also at Knossos, in glyptic art, in the Priest King relief (as restored), and on an axe from Phaistos.⁸⁹ From Mycenae, a butterfly is engraved on a sword from Shaft Grave I, Circle B, and on scale discs from Shaft Grave III; it is also among the motifs of the gold cut-outs from Grave III.⁹⁰ The image is extended to a few mainland seals.⁹¹

The appearance of the insect as a ship's emblem is unique to the Thera painting. It is uncertain whether here the butterfly image had religious associations (as postulated in general by Evans).⁹² As an image it

encapsulates a sense of motion and is thus applicable to the prow which leads the way.

Detachable bowsprits with emblems – frequently of vegetation or the head of an animal – were in common usage in the ancient world (as in Figs. 81, 84, 86, 88, 96) and indeed in many other cultures in which ships play an important role. New Kingdom vessels in Egypt incorporated religious imagery among the prow decoration (as in Fig. 95). The eye of Horus was painted on the bows, a motif which developed into the virtually universal image of the oculus. Streamers were hung from the bows of ceremonial ships, which also carried coloured sails with tassels hanging from the boom and a cloth over the stern.⁹³ In Classical Greece an identifying or naming emblem was used for the bow, and the stern decoration was sometimes related to it in theme.⁹⁴

It was noted that on the Thera ships each bowsprit carries a particular animal, insect or bird motif, while every ship (regardless of other emblems) carries a star emblem. The butterfly is applied only to Ships 1 and 2 (one on 1, two on the prow of 2 and two more on the mast-top). The star emblem, reiterated on every prow, is emphasized on the hull of Ship 2. Ships 1 and 2 are the most important of the fleet (pp. 121–2 and n. 4), 2 being of highest status. It thus appears that the butterfly motif was of greater esteem than the other individual motifs. It may be that the butterfly, bird and dolphin emblems were



84. Egyptian fighting ship from a relief at Medinet Habu, c. 1200. Inset: detail of the prow.

of individual significance for each ship (perhaps akin to a name device though not as specific since two ships carry the same). The star, on the other hand, is the one unifying emblem and may have acted as an insignia for the fleet; this would explain why the most important ship of the company carries the emblem on its hull as well as on its prow.

Clearly the bowsprits with their attachments were highly valued additions to these ships. The shipwrecked vessels have none of the emblems of the ships in procession. Nonetheless, they still retain the impracticably elongated bowsprit with two leaf-like features (perhaps bark or split reeds) which on the processing ships carry the emblems. These features resemble the bifurcations on the ships on Minoan seals; and streamers attached to the bowsprit echo those on Early Cycladic ships. On the lower of the shipwrecked vessels the bowsprit has bent or snapped. The image, amidst the turmoil of the wreck, calls to mind the significance of prow and stern emblems on later Greek ships 'which served, like a modern flag, to identify the ship's origin, and the loss of which was a mark of defeat or dishonour'.⁹⁵ The Clashing Rocks tore off the mascot on the stern of the Argo; and the angry voice of Zeus threatened the Argonauts with tempestuous seas from a talking beam located in the stern.⁹⁶ In the *Iliad*, Hector, standing on the shore, grasped the stern ensign as he shouted triumphantly to the Trojans (albeit erroneously) that the ships were taken.⁹⁷

The stern

Three features have been added to the sterns of the large ships in honour of the importance of their role and the occasion (they are not added to the small harbour boats or to the shipwrecked vessels). The features are: a stern figurehead, a projection just above the waterline, a stern cabin (Pls. 173-7).

The figureheads are consistently animal: on Ships 1 and 2 a lion, on Ships 3, 5 and 7 a dappled creature plausibly interpreted by Hood and Immerwahr as a griffin.⁹⁸ The stern of the sailing ship 6, is not preserved. Only fragments of the stern of Ship 4 are preserved; the figurehead is reconstructed as that of a lion, but not verifiably. Ships 1 and 2, which have been shown to be the most important of the fleet and the only ships with butterfly prows, both have lion sterns. On the flagship, 2, the prow and stern motifs are reiterated: the butterfly on the mast-top, the star on the hull, and the lion also on the hull. It appears that the lion figurehead, being applied only to the more significant ships, may have had greater esteem than that of the 'griffin'. If the figurehead of Ship 4 was also a lion, as reconstructed, then the grouping would be that of lion-sterns in the rear of the procession, 'griffin'-sterns

towards the front. Lion and butterfly motifs are applied to the same ships, the emblems are therefore specific rather than random and associations are established between prow and stern.

Figureheads are most likely to have been of carved wood but the way in which the artist has shown the lion on Ship 2 as resting on the stern-post but floating above the gunwale suggests a light material, namely a skin. Presumably this is not to be interpreted literally but is rather an expression of an idea. The significance of the lion and griffin both as hunters and in association with warriors and warfare has been discussed above (Ch. 3); and particular attention drawn to the metaphorical imagery, common in the ancient world, of the power of the lion over impending danger associated with seafaring (be it waves, storms or human action).

The animal figureheads recall the widespread convention of placing crania or horns on the ends of ships in order to infuse the vessels with power. Skins were occasionally draped over the rudders of New Kingdom ceremonial vessels, an example of which can be seen in Fig. 95. In the Aegean, animal figureheads are a rare feature. The paddled boat on the sealing from Ayia Triada in Fig. 76 has an animal-headed stern, as does what is probably a cult vessel on the Mochlos ring, Fig. 85. In both instances the creature faces inward rather than outward, in contrast to the Thera figureheads. Animal figureheads were otherwise common in the ancient world, often (as in the case of the Greco-Roman goose emblem sacred to Isis) associated with or representative of deities. In New Kingdom Egypt names of animals were used in describing the qualities of ships, thus extending the metaphorical context.

On the Thera ships, the significance of the figureheads lies partly in their content (lions and seemingly griffins again associated with one another and with warriors) and partly in the fact that they are applied to the sterns of ships by reason of the high status and, on



85. Gold ring from Mochlos, LM I.

The stern projection

occasion, the sanctity of this area. Thus on New Kingdom ships the 'ankh' sign indicative of 'life' was frequently painted on the stern, 'appropriately... since it was here that there stood the life of the ship, the captain and helmsman'.⁹⁹

The stern projection

Most likely, the captain and his entourage reached their positions on board by way of the conveniently placed plank projecting aft immediately behind the captain's cabin. As Marinatos and his nautical advisor T. C. Gillmer suggested, the stern projection was almost certainly for the purpose of landing and boarding.¹⁰⁰

Such a projecting structure, contrasting with the high, decorated extremity, has caused controversy since the first publication of the Early Cycladic 'trypa' boats which show these features (Fig. 86).¹⁰¹ The debated questions are: whether the projection extends fore or aft; whether it is a ram, a fixed rudder, or a projection of the keel.¹⁰² For many scholars the fact that Geometric and later Greek ships clearly depict a ram provided an anachronistic sense of continuity. The Thera ships, by delineating details which on other Aegean representations of the period are merely summarily depicted, clearly show that the high, decorated extremity is the prow and the projecting structure extends aft. As Casson remarked, the painting settles the controversy as to which end is which.¹⁰³ (with the qualification that on



86. Ship incised on an EC clay 'trypa'.



87. Seagull person seal, East Crete, MM I-II (?).

different types of vessels the same feature may have had variable functions).¹⁰⁴

The stern projection is a specifically Aegean element of shipbuilding at this time. It may be that its technical origins differed from its function on the ships in the painting. Many scholars have presented the plausible argument that the projection originated as an extension of the central plank or keel (usually, in this context, meaning the hollow log which forms the central backbone of the simple plank-built boats derived from dugouts).¹⁰⁵ The angle of the projection (like that of the hull) varies. At times the projection extends horizontally in a direct line with the base of the hull (as in Pl. 163), demonstrating the likelihood of its derivation from the central plank.¹⁰⁶ At other times the projection bifurcates from the stern at so high an angle that it appears to lack any functional purpose (Fig. 87). Evidently the feature varied both structurally and in function, a fact borne out by the apparent change in position from aft to fore on vessels at the end of the Bronze Age (Fig. 88; cf. n. 31). Thus the important factor is not so much the functional origin of the projection (most likely, as stated above, as an extension of the central plank) but the principle of an extension to the hull near the water-line. The tradition persisted in the Aegean throughout the Bronze Age; the position of the projection only changing with time.¹⁰⁷

On the Thera ships the angle of the construction (forming a bifurcation with the continuous upward sweep of the hull, as on Minoan seals), the continuation of the base of the structure along the side of the hull and the ropes attaching the upper section to the top of the hull make clear that the structure is removable rather than an integral part of the ship's design. Thera shipwrights apparently utilized the traditional principle of a projection near the water-line, adapting it from an organically related part of the construction (the continuation of the central plank) to a removable structure with a specific purpose. This is unlikely to have been an isolated innovation, though the cursory depictions on glyptic surfaces with their lack of detail do not admit comparison.

The construction is of two parts. Although impractical



88. LH IIIc sherd from a Tholos tomb at Tragana, Pylos.

ings of its hypothetical form have been published by Marinatos and Casson,¹⁰⁸ it has been well described by them: 'The lower part . . . so bifurcated that it fitted the form of the boat horizontally. It is no doubt wedge-shaped as it extends aft from the stern. Attached upright and acting as a knee-bracket on top is a painted, removable lashings,¹⁰⁹ (The idea that only the upper part comes presumably from the flagpole on this area is blue.) The upper part is, then, a support for the lower part, which is a wedge-shaped piece of timber. This is strapped to the stern by two belted lashings, and the whole structure is supported by a support attached to the hull above the water-line.

Interpretations of the purpose of this structure have been various, but that of Marinatos and Gillmer cited above – that it is a form of landing plank – is the most plausible. Alternative interpretations have provided the structure with a function at sea, but the arguments cannot be supported. In a footnote added by the editors of *Marinatos' answers* to the question of whether the structure might have had a stabilizing effect over the hull, W. zu Mondfeld suggests that the structure acted as a stabilizing fulcrum correcting a leeward characteristic of ships of this type (he assumes that it was a keel and largely follows Egyptian lines).¹¹⁰

It is clear that the structure was the function of the projection on the hull. Casson objects to the idea partly because the sailing ship, which would be most in need of a device, is without it, and partly because the structure is above the water. 'not (as Marinatos also notes) is above the water. 'not entered in it as any device to reduce leeway would have been. His alternative suggestion, however, has been criticized for precisely the same reason. He postulates the structure is a device to 'maintain proper trim' on large ships which have an 'unbalanced load' of people. Such a platform by offering resistance to the water, would prevent the concentration of weight aft from the stern.¹¹¹ Tilley and Johnstone point out that the structure is not in the water it would have the opposite effect, weighing down the stern still further. Their alternative interpretation follows that of Marinatos and Gillmer – that the structure is a landing plank – and further involves the possibility that the structure was used as a device for beaching and launching the

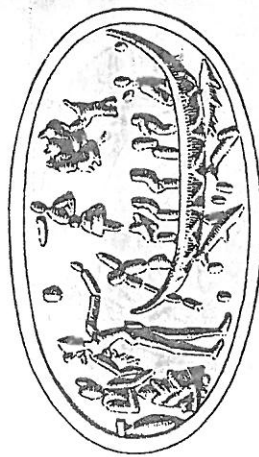
neoterial interpretations on the purpose of the construction are only partially helpful. Comparative iconography is, in this case, the only reliable source of evidence. Marinatos, having previously explained the structure on Aegean ships as part of the prow, commented with surprise that if it were not for the helmsman's stern one might take the projection for a ram.¹¹⁵ This taken this to be an exceptional structure he

looked no further for iconographic parallels which would elucidate its function. Yet his analogies with later, literary sources have nonetheless provided a reliable interpretation of the projection. Primarily it is taken to be a landing plank, a Bronze Age equivalent of the Classical ladder and related to the *ἐπὶ πρύμνῳ*, that mysterious object down which Odysseus escaped into the sea.¹¹⁶

Significantly, the stern projection occurs only on Aegean ships, a fact which reflects its function. Vessels from surrounding regions all lack this feature, even those incised on the stones from Taxien on Malta, otherwise so akin to Aegean ships.¹¹⁷ In Egypt and the Levant landing and boarding took place at the bow by means of portable ladders, as one can see from the Deir el Bahri relief of Hatshepsut's expedition to Punt,¹¹⁸ and (if one can rely on the exactitude of an Egyptian representation of Syrian ships) from the painting from the tomb of Kenamun in Fig. 75. Thus, clearly, a stern landing plank was unnecessary. In contrast, a firm tradition of beaching ships' stern first can be traced in the Aegean.

In the Homeric epics, ships are beached high on to the shore stern first. The suggestion that the projection on Aegean Bronze Age ships could have been used as a projection against the shock of beaching has been made more than once, but the conclusion that this would have involved beaching stern first is less forthcoming.¹¹⁹

In the Classical period a ladder was usually carried at the stern for boarding and is frequently seen precariously balanced across the rising stern of ships on 5th-century vase paintings.¹²⁰ In 1933, Marinatos suggested that prehistoric vessels probably had an analogous arrangement.¹²¹ His belief that this analogy is to be found in the stern structure of the Thera ships is cogent,¹²² for the tradition expressed in the Classical examples can be traced back through time to the Bronze Age. During the Geometric and Archaic periods, prior to the use of ladders, it appears that rudders were let down for use as



89. Gold ring from near Herakleion.

landing and boarding planks. A man parting from a woman is shown walking up the rudder to his ship on an 8th-century Attic bowl,¹²³ a similar scene occurs on an ivory plaque of the 7th century from Sparta.¹²⁴ On a 7th-century oinochoe from Cyprus, a man crouches precariously on one of the two massive steering oars obligingly held out by the helmsman.¹²⁵ Illustrated here in Fig. 91 is a scene from an 8th-century Attic oinochoe depicting a line of warriors walking up to the ship.¹²⁶

The tradition of stern beaching is also documented for the Bronze Age. It can be seen on the Cretan ring in Fig. 89 and on the Tiryns ship ring in Fig. 68; in both cases evidenced by the steering oar, in use on the former, dangling on the latter. (Here, too, the theme of a man and woman at the stern of a departing ship which was cited for the Geometric period is prefigured in the Bronze Age.)

Stern beaching implies stern boarding and one clear piece of evidence indicates that a structure like that on the Thera ships was used for this process. Fig. 90 shows a boat on an incised rock from Naxos, published prior to the discovery of the Thera paintings and compared by Doumas to Early Cycladic vessels.¹²⁷ Doumas then saw the ship as beached stern first and the man on the left as mounting 'la protubérance en forme d'éperon'.¹²⁸ But it is now possible to compare the specific elements of the Thera painting which are reflected in EC vessels: the high prow and the lower stern with its projection just above the water-line of the hull. Adding to this the documented evidence for the tradition of stern boarding in the Aegean, it is quite clear that the man is stepping onto a projection at the stern.

In the paintings, the only vessels equipped with the gang-plank are the large ships in procession. On board these are the occupants of the stern cabins and the élite passengers, seated under protective awnings and dressed in garments unsuited to seamen, who would well



90. EC incised rock from Naxos.

appreciate an aid to climbing over the high hull when boarding and disembarking. In this instance, the status of the passengers necessitated the luxury device.¹²⁹ The fact that the structure is engaged while the vessels are afloat confirms the previous observations that the ships are making only a short journey.¹³⁰

The stern cabin

The use of a central awning and, above all, a stern cabin on these ships indicates both the high status of their occupants and the importance of the occasion. Like the stern projection and figurehead, these features have been added specifically to the large ships in procession. They provide conspicuous shelter for the élite, and the captain's cabin emphasizes the significance of the stern area.

These are the only elements of the ships which suggest foreign influence. The very few comparable examples from the Aegean are either approximately contemporary or later than the Thera painting. The awning of the Tiryns ship ring, Fig. 68, has already been cited with reference to the mast placement; it offers the closest analogy to the Thera ships. A central awning may also be recognized on a few LM-II sealstones on which lines normally indicating the sail have been adapted to suggest the sides of an enclosed awning (as in Fig. 83).¹³¹ The crossed lines suggest matting, hung over the awning to form a light-weight cabin.¹³² Two clay sealings from Knossos depict decked areas midships; on one there is a structure which could be interpreted either as a balustrade or as an awning; on the other a structure over the heads of rowers may also have been an awning (as Evans indicated in reconstructed drawings).¹³³ On the seal in Fig. 72, a fence-like structure appears at what may be the stern (compare the structure at the stern of the fragmentary shipwrecked vessel in Pl. 3, lower right). Probably contemporary with this is the incised stone from Hyria in



91. Drawing from an 8th-century Attic cup.

Boeotia in Pl. 165, which has cursory delineations of both stern and bow cabins.¹³⁴ This tradition continued through to the end of the Bronze Age, as shown by the Ilc Traganas sherd in Fig. 88. Stern structures occur on cult vessels in association with female figures on the Mochlos ring in Fig. 85, the East Cretan seal in Fig. 99 (the significance of which is discussed below), and the seal from Thebes in Fig. 98. The structure of the last of these is remarkably like that of the Theraan cabins. It may be, as Warren points out, that there is a close parallel to the stern cabin on the stone fragment from Epidauros in Pl. 193, but unfortunately nothing more of the ship is preserved.¹³⁵

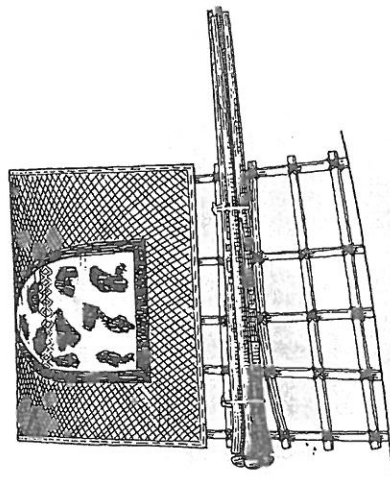
Beyond these few examples there is nothing to compare with the elaboration of the structures in The Ship Procession. Yet a central awning or cabin and structures at both bow and stern were common features of Nile craft. Deck cabins with standards (comparable in some ways to the poles extending aft of the cabins in the paintings) first occur in representations of Pre-dynastic times.¹³⁶ Old and Middle Kingdom vessels were frequently constructed with a deck-house midships or aft of midships.¹³⁷ Bow structures and a central awning made of matting are illustrated on the 12th dynasty ships from El Bersheh in Fig. 94. From the 11th dynasty Tomb of Meket-Re at Thebes came models of boats with stern cabins decorated with hide shields, an example of which is shown in Fig. 92. Here is an indication of warrior status similar to that suggested by the helmet, spear and shield-like hide cabin at the sterns of the Theraan ships (cf. p. 107). It should be noted that the Theban models represent peaceful Nile craft, with no implication of battle.¹³⁸ During the New Kingdom, in the 15th-14th centuries, luxury travelling craft were provided with an enclosed deck-house complete with doors and windows and painted walls.¹³⁹ Stern and bow structures are indicated on the Viceregal ship from the Tomb of Huy in Fig. 95. Also on this vessel is a central cabin. In the extract from a painting of a funerary procession in the Tomb of Userhet shown in Fig. 96, the cabin dominates the boat by virtue of its great size and elaboration, so great is its significance in the proceedings. From these illustrations it can be seen that the structure and decoration of the cabins vary greatly according to their function. They range from simple, wattle or plank-built lookout-posts to enclosed awnings and richly decorated cabins.

On the Theraan ships the central awnings are simple, overhead shelters supported on upright posts. The shipwrecked vessels have summary structures at the sterns and, on one, a lookout-post at the bow. The elaborate stern cabins on the large ships presumably derived from simpler versions such as these. On the rowed boat (by the Departure Town) and two of the moored boats (in the

Arrival Harbour) a hump at the stern suggests a wind-break affording protection for the captain seated inside.

The structure of the stern cabins of the ships in procession is repeated in the large-scale Stern Cabin panels painted on the walls of Room 4 (cf. Pls. 173-7 with Pls. 178-9; Fig. 97). These panels were thought to be unique, but recently M. Shaw has identified the Mycenaean fragments long known as the 'Curtain Fresco' as belonging to a similar composition of the actual cabins on which the images are modelled.¹⁴⁰ The Mycenaean paintings are fragmentary, but as far as one can tell, though the basic structure is comparable to that of the Theraan cabins, neither details of structure nor the highly patterned surface bear close resemblance.

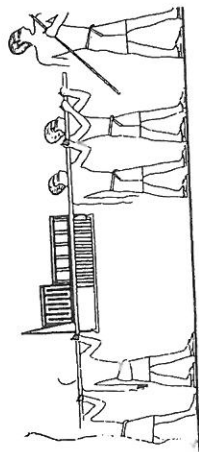
Each of the Theraan cabins comprises three vertical struts over which a hide is stretched, forming a screen shaped at its upper edge in two curves. The hide covers the front of the struts – which project above in equal ratio – and is bound over them at the edges. Two horizontal struts – at the base and midway up the hide – are added externally to strengthen the structure, a third supports the verticals near the top. On each individual cabin, the curved upper edge of the hide imitates the struts in colour and decoration. While the straight horizontals must have been of wood, this feature may have been of padded leather. On the walls of Room 4, in particular, the cabin images are quintessentially two-dimensional. Their three-dimensional form can be imagined as follows: the structure, as seen on the ships from the starboard side,



92. Stern cabin from a model of a sporting boat from the 11th dynasty Tomb of Meket-Re, Thebes.

would have been identical on the port side; the back is certain to have been enclosed, thus offering support for the seated man within, for the long pole or spear projecting aft rests on the upper edge; the fore side may have been open.¹⁴¹ The top was apparently open, for, as Marinatos points out, the head of the man inside the cabin of Ship 4 extends above the top horizontal strut (Pl. 176).¹⁴² On Ships 1, 3, 4 and 7 a helmet is perched atop one of the vertical struts. The flagship, 2, has a 'waz' lily-papyrus motif atop each of the three struts (Pl. 174). Ship 1 has bunting hanging from the uppermost horizontal strut, echoing in its fall the curve of the hide below (Pl. 173). These two cabins are the prototypes for the large Cabin motifs in Room 4, which have both these features (Pls. 178-9; Fig. 97).¹⁴³

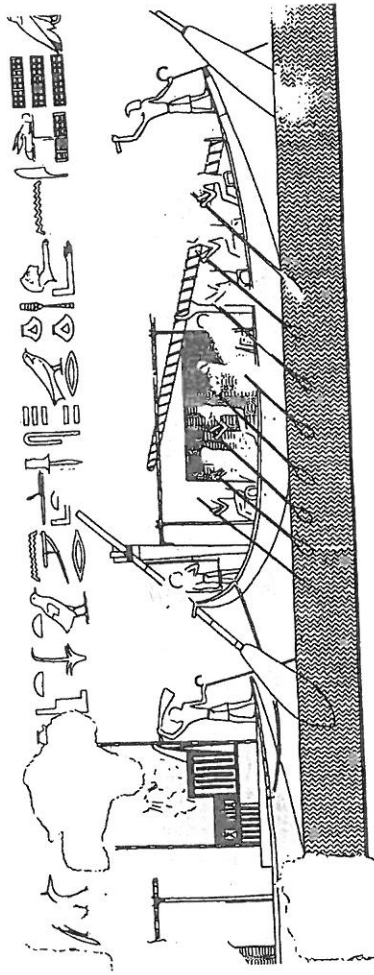
The cabin rests on an elevated platform on the poop deck of the ships in procession, and only on these. Evidently the structure is not a normal part of the ship's equipment and it must have been carried onto the ship for



93. Men carrying a sedan chair, from the Middle Kingdom Tomb of Tehuti-heret, El Bersheh.

the purpose of the occasion. Both in form and in function, with its privileged occupant seated inside, it resembles a litter. On land, such means of transport was, at least occasionally, used in Crete, as shown by the clay model of a litter from the Loom Weight Basement at Knossos and possibly by the Palanquin Fresco.¹⁴⁴ On boats in Egypt, cabins were removable structures and, in some cases at least, were carried onto the vessel in the manner of a litter. The stern cabins on the Middle Kingdom boat models from the Tomb of Meket-Re could be moved to face in the opposite direction when the wind changed.¹⁴⁵ In structure, the canopy or stern shelter frequently applied to New Kingdom ceremonial boats resembles the form of shelters used on land by Egyptian royalty (the 'seh'), which are depicted either placed on the ground or lifted on the shoulders of porters in the manner of a litter.¹⁴⁶ That the cabins on boats were also carried in this manner is shown by the illustrations from the Middle Kingdom Tomb of Tehuti-heret at El Bersheh in Figs. 93-4. The litter is first shown carried by porters on a long pole (93) and then in position on the ship (94). Conceivably, the stern cabins on the Theraan ships were similarly carried into place by means of the long poles/spears extending aft. Certainly they must have been brought on board via the stern, and one of the necessities of attaching the gang-plank just beneath the cabin thus becomes evident.

The area of the stern is decked, the landing plank leads up to it, and the most important member of the ship is seated in style in the stern cabin. Clearly, the area of the ship to which most significance was attached was the stern, and the cabin provided the focus of attention. This aspect of nautical life was to continue through into later



94. Boats from the Middle Kingdom Tomb of Tehuti-heret, El Bersheh (from the same wall as Fig. 93).

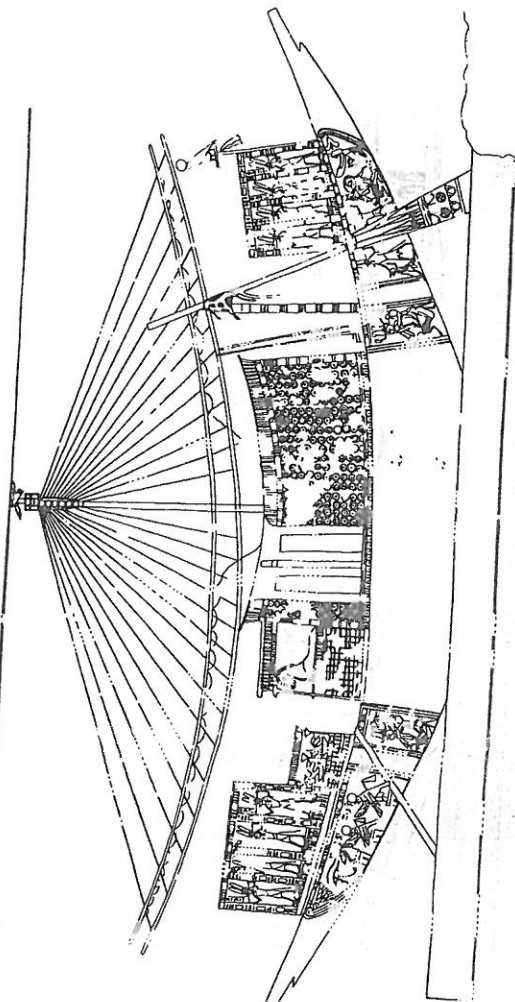
9 Ships and boats

times and, to some extent, the tradition still pertains today. Greek literature provides an insight into the particular importance of the stern area. As Morrison and Williams point out, Aeschylus uses the phrase 'in the stern' to signify 'in command' and 'officer of the poop' metaphorically refers to the ruler of the city.¹⁴⁷ The stern is also considered the appropriate place for heroic men and for deities: thus in the *Odyssey*, Telemachus takes his place there beside Athene.¹⁴⁸ A stern cabin as the place of honour (whether for nobleman, king, commander or captain) was a feature common to Egyptian, Classical and Byzantine ships.¹⁴⁹ Even today it is the aft of the ship which is reserved for the officers.

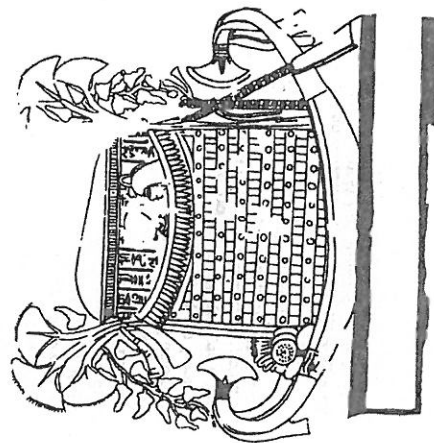
Yet even with such a tradition, the repetition of the elaborate stern cabins of the Thera ships in massive scale around the walls of the adjoining room is worthy of special note. Marinatos, in comparing the hide cabins with shields, suggested that on board ship the captain may have fought from behind the structure.¹⁵⁰ Certainly the helmet above some of the cabins, and the spear or pole behind all, identifies the captain as of warrior status. (Though the pole could also be compared with those which project above cabins on New Kingdom vessels for the display of the owner's standard (Fig. 95), or with the insignia poles projecting aft of the stern shelter on

Classical galleys.)¹⁵¹ Marinatos' concept resembles the idea expressed elsewhere that the enclosed platforms at bow and stern on Egyptian and Greek ships were forerunners of the medieval naval fighting castles.¹⁵² The use of such structures in fighting can be seen in the Medinet Habu relief depicting the battle between Egyptians and the Peoples of the Sea (Fig. 84). However, this scene, of c. 1200 B.C., is usually thought to be the first representation of an actual battle at sea (as opposed to the transport of troops by ship to the scene of a battle on land).¹⁵³ No earlier examples survive, and it was noted above that cabins decorated with shields on Middle Kingdom models of boats were applied to peaceful craft, unconcerned with warfare (p. 138 and Fig. 92). Equally, the martial aspects of the occupant of the Thera cabin may refer to his land, rather than his sea, rank. Indeed, the elaboration of the cabins and their repetition as individual motifs suggest a significance beyond the functional or the ordinary.

This type of cabin is closely paralleled on New Kingdom papyrusiform boats of a slightly later date (mostly from the late 18th and the 19th dynasties).¹⁵⁴ The example in Fig. 96 is from a wall painting from the Tomb of Userhet at Thebes. Its juxtaposition with an illustration of one of the Thera cabins in Fig. 97 draws atten-



95. Viceregal state barge, detail from a wall painting in the Tomb of Huy, Thebes, 18th dynasty (reign of Tutankhamun).



96. Boat in a funeral procession, detail from a painting in the Tomb of Userhet, Thebes, 19th dynasty.

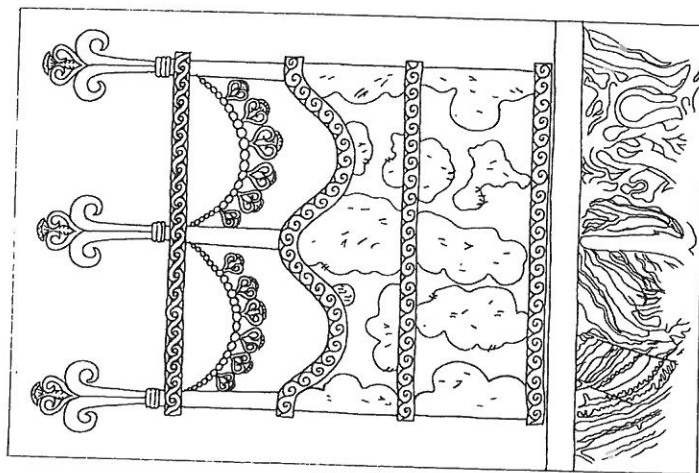
The stern cabin

tion to the similarities in proportion and design. The heads of the occupants are visible above the curved upper edge of the cabin, as aboard the Thera ships. Groups of the three papyrus plants adorn the tops of the cabin, just as on the Thera cabin three 'waz' motifs with papyrus centres adorn each vertical strut. In discussing this motif in Ch. 2, it was said that Rutkowski has drawn attention to the religious associations of these 'waz' emblems (p. 23 n. 63). His point may bear on the function of the cabin on the occasion shown. For the cabins of comparable form on Egyptian vessels were used not for ordinary nautical journeys but for boats taking part in ceremonial processions. Their decoration is extraordinary, not normal practice. Clearly the occasion and the type of ceremony for which the cabins were used were different in the two regions – the Thera ships are certainly not in a funeral procession up the Nile as is the boat from the Tomb of Userhet – but the principle of equipping the vessel in this manner for an important event is comparable. Just as the Egyptian ceremonial cabins differ in form and decoration from the simpler varieties in use in the region, so the type of cabin on the Thera ships is grander in style than anything known from the Aegean.

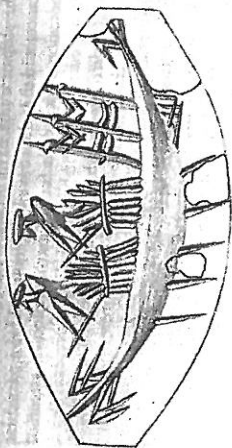
From the foregoing study of the ships' details it is possible to determine the type of event depicted in the paint-

ing. Throughout this chapter, details have revealed that the ships cannot have been travelling over a long distance, and that they have been equipped for a particular occasion which calls for the participation of esteemed non-crew members on board, the decoration of esteemed and a particular emphasis on the area of the stern.

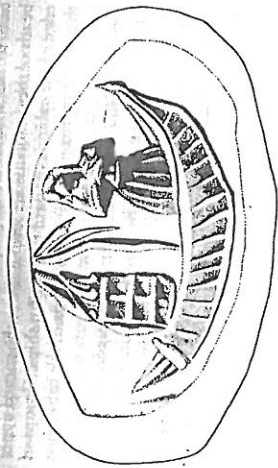
With the contemplation of the nature of The Ship Procession we move, finally, from an analysis of the individual iconographic categories contained within the paintings to the broader meanings of the individual scenes and, from them, to the overall dominant theme.



97. One of the Stern Cabin panels in Room 4. (After K. Illakis.)



98. Amygdaloid grey stone sealstone from Thebes.



99. Sealstone from Makrygiolos, East Crete.

PART II THEME

10

THE NAUTICAL PROCESSION

The Ship Procession frieze was painted on the South Wall of Room 5. At the end of this partition wall a doorway led through into Room 4 on the walls of which were painted the large Stern Cabin panels. The relationship can be seen most clearly on the plan of the room in Fig. 2. There was a total of eight Stern Cabins (Pls. 178-9; Fig. 97).¹ Figs. 5 and 6 suggest the positioning of these panels on the walls. In the Ship Procession there were seven ships with stern cabins.² Another fragment of a ship, unpublished but on exhibition (above, p. 4), is too fragmentary for us to see whether it had a stern cabin aboard but is clearly of the same type of vessel as the ships in procession, though it could hardly have belonged to the same wall (below, Ch. 12, p. 162). Thus the number of Stern Cabins in Room 4 is likely to have corresponded to the number of ships with stern cabins in Room 5.

Also in Room 4 was the panel of The Priestess (Pl. 180). It was found in the north-east corner of the room and was considered by Marinatos to have come from the North Wall. Dourmas prefers to place the panel on the jamb of the door connecting Rooms 4 and 5 (an unprecendented scheme).³ In the suggested reconstruction in Fig. 6, I have marked both positions, considering that of the North Wall to be the more plausible. It thus stood on (or near) the partition wall dividing 5 from 4, backing onto The Ship Procession, adjacent to (or within) the doorway connecting the two rooms (Fig. 2, plan). Surrounding her, and on the same relative scale, were the eight Stern Cabins. Facing towards the left, she holds a plant over a brazier with her hands poised in the Egyptian offering gesture: a relatively new position in Aegean iconography though it was soon to become a standard gesture for Procession figures.⁴ She is a spectacular figure, dressed in a long, wrap-around saffron-coloured garment inspired by the fashions of oriental priesthood, wearing a large decorated earring, blue head adorned

with a curving snake, and with lips and ear flauntingly painted red.⁵ This dazzling lady makes her offering not in isolation but in association with the Stern Cabins which surrounded her. The Stern Cabins are themselves large-scale reflections of the cabins at the sterns of the ships in The Procession.

Such reiteration of theme as is seen in the image of the Stern Cabins indicates that the paintings are not isolated from one another in idea or function even when separated by the physical divisions of walls. Indeed, the juxtaposition of wall surfaces (side-by-side, opposite or back-to-back) is utilized in juxtaposing related images. The full analysis of these relationships is presented in the study of Theme in the penultimate chapter. Here, one such relationship is relevant to an understanding of the meaning of The Ship Procession: that of utilization of the walls of the adjoining room in emphasizing particulars of the occasion celebrated in the painting. For something of the nature of that occasion is intimated in the presence of the Priestess and her association with the Stern Cabins.

Traditionally the stern has been considered the proper place for any form of preparatory ritual or thanksgiving worship connected with the welfare of the ship and the success of its voyages. Thus in the *Odyssey*, Telemachus, on embarkation, prays and sacrifices to Athene at the ship's stern.⁶ A small altar was placed on the poop deck of Greek ships for thank-offerings on safe arrival; Roman ships had shrines erected at the stern for the protective deity; and in the Christian era the tradition was continued in representations of the Virgin Mary carried at the stern.⁷

A feature of such rituals was the burning of incense. Depicted on a Roman relief is a thanksgiving ceremony on board a cargo ship entering its home port: a group of figures stand around an altar at the stern, a woman holds an incense box while a man sprinkles grains of incense