The Homeric Steering Oar and Aspects of Ancient Seafaring

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Abstract: *This extended paper seeks to clarify much about the ancient steering oar that tends to be taken for granted. The techniques used in deploying and decommissioning these rudders will be explored as will the methods employed in operating them both on the open seas and closer in to land. The use of the steering oar as a metaphor will be examined as will an array of themes relating to everyday life and literature some of which are only tangentially connected with the steering oar but which demonstrate the reach of its influence over our historical imagination. We are used to speaking of rudders in seafaring contexts but the steering oar takes steering to a new level*

Keywords*: steering oar; ancient ships; sea; literature; helmsman; prow; stern;*

Introduction

The ancient steering oar is in many ways part of a different world. This is what lends it its fascination. Its uses extended far beyond the simple act of steering a ship. The exponents of the art of ancient steering, the helmsmen of their day, played a vital role in maintaing and enriching the fabric of daily life. Their prominence in literature, from Tiphys to Palinurus, also proves the degree to which they inhabited the imaginations not only of a Homer or a Virgil but also of the everyday reader whom they transported across the ancient world.

1. Methodology

This extended article takes its inspiration from a preposition contained in a sentence in the Naumachiai, a compendium of accounts of sea battles from the tenth century CE. It informs us that, on both sides of their stern, Byzantine ships had protrusions 'in which' the steering-oars 'were positioned' or 'on which they lay' ('ἐν οἷς ἐπικειναται'). These protrusions were variously named (a) epotides ('ear-like projections'), (b) petasoi ('broad-brimmed felt hats') and (c) schista ('cloven objects such as the hooves of goats or sheep) . Whilst we are content to assume these images evoke the contemporary appearance of the protrusions in which Byzantine steering-oars were lodged, we are also optimistic that they may help us to recapture the conformation of the equipment used to steer even Bronze Age ships. The names used for these protrusions evoke a shape that (i) imitates the conformation of an ear (ii) has an undulating outline (iii) has an indentation (presumably to receive the oar loom).

2. Objectives

Our primary objective in this article is to establish how the Homeric steering-oar was operated. Our principal sources of information will consist in a small fragment of an Athenian Black Figure Vase (Morrison Plate 11c) and the ship scene on the François Vase[2]. Meanwhile Homer will provide literary evidence to supplement the deficiencies in the visual record. It is only after we have presented our main arguments that we will return to the

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[2] Morrison & Williams. 1968. *Greek Oared Ships.* For the François Vase ship scene see 'http://n.nathalie. martin.free.fr/ pages/Cours4.html'.

Naumachiai to see whether the descriptive terms it uses can shed any retrospective light on the issue.

3. Epotides, Epholkaia, Holkeia

There are a few terms which first need to be explored and clarified in the context of an article about the ancient steering oar. Firstly the word ‘epotides’ (‘ear-like projections’) is used of the lateral extensions to the outrigger on Greek triremes (LSJ). It also referred to ‘catheads’ from which anchors were suspended at the bows (Euripides *Iphigineia in Tauris* 1350). The word ‘ears’ reminds us that the bows of Greek ships were painted to represent faces. The ‘ears’of the ‘epidotes’ will have added the final touch to this tableau. As distinct from the views of Morrison (p.198) we do not think that the word ‘epidotes’ eventually came to mean ‘epholkaia’. This latter term etymologises as ‘towing-bars’ suggesting their original and still primary use was to accommodate the stern cables of Greek ships during a mooring[3]. Morrison’s weakness is to assume that the mooring of an ancient ship involved the stern becoming lodged on dry land (p. 49). In fact a mooring, during which, in ancient times, the ship remained wholly afloat, is distinct from a beaching in which up to half the ship is grounded. This misapprehension leads Morrison to believe that the ‘epholkaion’ by which Odysseus claims to have lowered himself into the *water* must be at the *bows* not, as we have claimed, on the *stern*[4]. Odysseus’ fictional story depends on the verisimilitude of its details. He would not have descended into water if a ‘dry’ option had been available. But in a mooring both ends of the ship are afloat. Furthermore Greek ships almost invariably moored stern-first. Had the ‘epholkaion’ been on the bows a mooring would have been impractical as the Thresprotian pirates would have had no fittings to which to secure the stern cables. Moreover they will have wished to keep an eye on their valuable cargo. They will not therefore have tied Odysseus up on a distant part of the ship. In sum, Morrison’s conclusion that the ‘epotides’ are one and the same as the ‘epholkaion’ is reached on the erroneous basis that Odysseus’ action in lowering himself from the ship corresponds to the Phoenician messenger’s descent from ‘near the anchor’[5].

Figures 1 & 2 suggest the ancient warship had ear-like protrusions at the bows (‘epotides’).

Figure 1: Ship model seen from above

[3] That is ‘on the bows’.
[4] Od.14.350: ‘ξεστὸν ἐφόλκαιον’
[5] Loan Ant.103.11. Lewis Collection, reproduced by courtesy of the Master and Fellows of Corpus Christi College, Cambridge. Photo/s © The Fitzwilliam Museum, Cambridge.

Figure 2: Ship model, bird's-eye view

In conflating the 'epotides' with the 'epholkaion' (p.198) Morrison must also be influenced by the archaeological record which suggests there may be only one protrusion on each side of the bows. This is indeed the case with Morrison Plate Clas. 21 (p.179)[6]. Meanwhile the Erectheum 'ship' lamp (Morrison plate 27b) has its protrusions at the stern. Despite this, the restricted meaning of 'epotides' as 'catheads' or 'outrigger extensions' holds good. If the Phoenician messenger in Euripides' Helen had shinned down the 'epotides' at the bows, he will have been merely improvising his escape, as well he might. On the other hand this does not exclude the possibility that the object he relied on for support, in being 'next to the anchor', was the 'holkeion' used by the divine Triton in the Argonautica.

In Apollonius, the demi-god Triton grasps the Argo's 'holkeion' at the bows. Morrison would identify this with the 'epholkaion' on the basis that Triton is using the apparatus as a towing bar. He could have pointed out however that there are precedents for a word acquiring a polarised meaning from the addition of the prefix 'epi'. Thus in a maritime context 'protonoi' are the ship's forestays but 'epitonoi' are the backstays. We think that the same 'negativising' process has obtained in the case of 'holkeia' ('towing bars in the bows') and epholkaia' ('towing bars in the stern'). Interestingly the Triton hauls the ship along by hand, a feat he could hardly achieve unless the 'holkeia' were doughnut-shaped, bagel-shaped, or at very least had a handle that could be firmly gripped. In the relevant passage ('ὣς ὅγ' ἐπισχόμενος γλαφυρῆς ὁλκήιον Ἀργοῦς / ἦγ' ἅλαδε προτέρωσε': Argonautica 4.1609-1610), we take issue with Apollonius' text in respect of 'προτέρωσε' for which we would read 'προτέρωθε' (not 'forwards' but 'from the front'). This places Triton beside a towing bar at the bows. He is also next to the 'epotides' which have been deployed to secure the anchors. The corruption involving 'προτέρωσε' 'will have been motivated by a scribe's erroneous assumption that the 'holkaion' was at the stern of the ship and that the meaning and referent of 'holkaion' were identical to those of 'epholkaion'. In general Morrison is too ready to impose his version of mooring on the text and to assume for instance that sailors regularly leapt aboard a ship. In fact we think that sailors moved in very formal ways when 'in service'. Morrison meanwhile also overloads technical items with an excess of functions. This will be the case with the 'threnus'

[6] See Figures 1 and 2 above.

***Figure 3** The Francois Vase.*
Note the hitherto unexplained 'fin' half-way along the oar shaft.

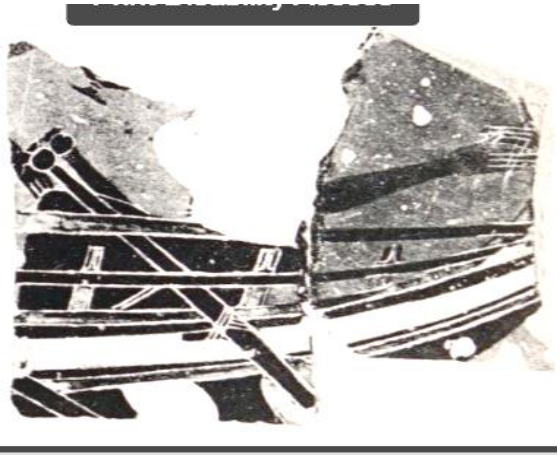

***Figure 4** Morrison Plate 11c.*
The shard shows the two uprights that are Central to the operation of the steering oar

5. The views of Morrison & Williams on the *threnus*

Morrison and Williams [henceforth 'Morrison'] summarise their view of the *threnus* as follows: 'This seven-foot *threnus* is likely to have been the stout beam which we can observe in later ships projecting on each side of the hull below and forward of the helmsman's seat'[7]. Here Morrison seems to assume the adjective '7-foot' refers to the length of the *threnus*, which enables it to 'project' through the wales of the ship perhaps, we think, by as much as a foot and on both sides. Morrison considers these *threnus* projections at the stern served as towing bars (p.198) and were the counterparts of what the author suggests were called *epholkaia* at the prow[8].

In general Morrison must be right in assuming that Homer would not have appended the adjective '7-foot' to the *threnus* unless its exceptional dimensions served an important function. There is a lateral projection visible near a ship's stern on a bronze lamp from the Erectheum in Athens which may represent one of the protrusions of such a *threnus*[9]. Morrison considers this 'rectangular' protrusion to be the fulcrum for the steering-oar and thinks that the interior of this crossbench may have provided a seat for the helmsman. But he rejects the conclusion that it forms part of the *threnus* on the grounds that a 7-foot crossbeam would have been too wide at this point of a 'rapidly tapering stern'[10]. At the same time, in stating that the stern of this ship has a 'strong thwart, in the position of the *threnus*, forward' he seems to be suggesting that this 'strong' thwart would qualify as the *threnus* if only protrusions were in evidence[11]. In general he is concerned to attribute protrusions to the *threnus*, to locate it forward of the helmsman, and to ensure it is 'strong' enough to hold an Ajax. We take issue only with the second of these three statements.

Meanwhile Morrison's faith in the *threnus* as the helmsman's protruding footrest constrains him from equating the forwards crossbench he sees on later ships with 'the *threnus*'. He also hinders the *threnus* from finding a place nearer the bows by assigning it the 'epholkaian' role of assisting the rowers to hop aboard ship. Morrison considers the ship's

[7] Morrison.1968. *op. cit.*, p. 48.
[8] See below on epholkaia. It is more likely that the holkeion mentioned by Apollonius Rhodius (4.1609-1610) and Sophocles were the attachment points for cables at the prow. The epholkaia will have been the equivalent of these at the stern. See Morrison p. 198 and notes for references to the holkeia.
[9] Morrison and Williams Plate 27b.
[10] Of course, in Morrison's mind the 'threnus', in being in the stern, cannot be one and the same as the 'epholkaion'.
[11] Morrison p.179 on Plate 27b.

draught around the *threnus* to be only three feet, a figure that encourages him in the view that the *threnus* was an aid to boarding[12].

As we have seen, Morrison assumes that ancient ships, in the act of mooring, beached gently with their sterns on the shore[13]. This procedure, along with a convenient protrusion on the ship's side, would have made re-embarkation straightforward for agile sailors. However Morrison encounters difficulties in positioning the *threnus* projections both close enough to the stern to act as boarding steps and simultaneously far enough away from the stern to lie forward of the helmsman[14]. Thus by insisting on the multi-functionality of the *threnus* and their projections Morrison renders their location somewhat fluid[15].

6. The *threnus* and some conclusions

Pace Morrison, we contend that *the* projections situated just below the slot for the leather lashings are the *threnus* protrusions which we would maintain constituted the fulcrum for the steering oar. These protrusions secured the steering-oar to the ship's side, as shown on the shard in Morrison's Plate 11c[16]. This shard, whilst it reveals the slot, has broken off, as we think, before the protrusion appears. Alternatively the protrusion has been omitted for artistic reasons. In our view then the *threnus* will not constitute the helmsman's foot-rest but rather the seat on which he sat. This is the view of LSJ, as Morrison notes (p.49). Yet, on this reading, the meaning and function of the '*threnus*' as a 'footstool' will be clearly lost to view.

7. Threnus: a solution to its Identity

One way around the difficulty is to allow the *threnus* to receive the feet of the guest passengers higher up on the *ikrion*. In other words the *threnus* will do service as both the helmsman's seat and the passengers' foot-rest. A corollary of this will be that the helmsman will no longer sit on the same bench as the passengers. There is much to be gained from this disposal. Just as Cassandra and Agamemnon had shared the stern *ikrion* on their return from Troy, so every pair of passengers will have sat across from each other above the helmsman[17].

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[12] Morrison notes that on later Roman ships there are 2 knobs on the side of the ship near the stern. For more than one protrusion of planks at the stern see Casson fig.142, 147 and especially fig.149. Yet in two of these instances the projections lie in a vertical plane and may be artistic allusions to a former design - such as we are trying to track down here - in which the protrusions were in the horizontal plane. Compare the soffit of Peterhouse Master's Lodge in Cambridge, UK, which sports metal rings intended to remind one of the days when thatched roofs could be hauled off burning houses using poles.

[13] Morrison, *op. cit.*, p. 62. We take the view that moored ships were fully afloat in order that their equilibrium (and the integrity of the mooring) be preserved

[14] Morrison's thought processes may be affected by a concern that sailors should remain dry whilst embarking and disembarking. We consider sailors were used to wading through water even up to their chests

[15] See Morrison & Williams (1968) pp. 48-49, 198 (see also p.85 s.v. Arch. 34). See Casson (1995) p. 46 note 4.20. For the threnus and the width of a ship's beam as 13 feet, see Casson op. cit. p.55 with note 72

[16] For our reasoning see below

[17] Aeschylus *Agamemnon* 1442-1443. Cassandra is labelled the 'just-as-much a presser of the sailors' benches'. This suggests she spent an equal amount of time sleeping with the rank-and-file rowers as she did with Agamemnon on the *ikria*. We must assume that the passenger seats above the helmsman were the VIP seats. In Euripides' Cyclops, Silenus is said to steer the ship after having mounted onto 'the thick end of the ship's highest/furthest point' or 'the inmost part of the stern' ('ἐν πρύμνῃ δ'ἄκρᾳ'). The apparent double meaning arises from the fact that 'πρύμνῃ' and 'ἄκρᾳ' could play the roles of adjective and substantive interchangeably ('ἐν πρύμνῃ δ'ἄκρᾳ αὐτὸς βεβὼς ηὔθυνον ἀμφῆρες δόρυ': 14-15). Yet ultimately both configurations of the words also produce the same meaning. Thus with 'ἄκρᾳ' considered the adjective, the phrase 'ἐν πρύμνῃ δ'ἄκρᾳ' may be thought to refer to the 'inmost end of the stern' (i.e.'furthest towards the prow') where the helmsman sat on his *threnus* just forward of the *ikria*. In this context we should note the meaning of 'δόρυ πρύμνον' at Iliad 7.618 where according to LJS, the nexus articulates 'the lowest part of a spear-head (where it joins the shaft)'. This delineation of a spear is easy to align with the features of a ship. The thick bottom edge of a 'spearhead' will evoke the end of the ikria and the start of the main galley. This is where we locate the *threnus*. From here Silenus is able 'single-handedly' ('αὐτὸς') to steer the 'ship'. Now this ship is doubly-fitted [with banks of oars]' ('ἀμφῆρες δόρυ)'. The rustic god sits on the *threnus*, from where he can manoeuvre the two tillers. But the phrase 'ἀμφῆρες δόρυ' could also allude to the 'double-strength steering oar' [i.e. the two steering-oars] which Silenus 'steers' just as much as he [simultaneously] 'steers' the ship.

The three individuals will have formed an inverted isosceles triangle with the passengers' feet resting beside the helmsman's thighs. Thus, at Odyssey 2.417 Athene sits 'on the end of the ship'. She has Telemachus 'near' her for company. The two of them must be sitting on the two passenger seats which we have already defined as being above the *threnus* on the *ikria*. They are 'near' each other not beside each other. Between their pairs of lower legs (or perhaps 'pairs of thighs') lie the cleats which received the helmsman's brailing lines. Athene and Telemachus leave the helmsman's seat unoccupied as a mark of respect to each other and as a practical way of coordinating their duties at the helm, as we shall see.

Leaving other considerations aside, it is unlikely that a busy helmsman would allow himself to be cramped by passengers sitting shoulder to shoulder with him. In the first place, the sheets ('cords'), by which the helmsman finessed the lea part of the sail, must have been secured close to hand. The only suitable place we can find is to the right and left of the helmsman[18]. Furthermore, as we shall see, the tiller bars by which the helmsman operated the steering-oars could be pulled backwards to a point beside the bottom of the helmsman's ribcage[19]. In this position the helmsman will be holding the tillers with both arms akimbo at his side. This will help to bring the ship to a halt with the blades of the steering-oars perpendicular to the ship's side[20]. However if there are passengers seated on either side of him, they will be as inconvenienced by him as he is by them. As we shall also see, a flurry of elbow movement was also required to manoeuvre the 8 brailing lines that splayed outwards and upwards to the sailyard from the helmsman's position. These brailing lines were the helmsman's reins. One would not expect a charioteer not to use his elbows[21].

We should examine in more detail the disadvantages of having the helmsman seated alongside his passengers on the *ikria*. First of all, the passengers, if they are to avoid the helmsman's elbows, will have nowhere to sit. The best they can do will be to lie behind the helmsman. Meanwhile Apollonius Rhodius informs us that the 8 brailing lines were attached separately by cleats ('pins' 'brooches') to the *ikria*[22]. If the helmsman were sitting on the *ikria* these lines would have to be secured along the same bench. In that case they would have to be arranged in two rows perpendicular to his thighs. This would occupy the same space as the passengers' posteriors[23]. Confusingly, the sheets would have to be in the same place.

There is mirror-imaging afoot here both in the actions of Silenus and the crew and in the 'twin-track' meanderings of the text. On this same tack we should note the capacity of 'βεβὼς' to mean 'having stood'. This encourages us to reconfigure 'ἐν πρύμνῃ δ᾽ἄκρῳ' as 'standing … on the back edge of the highest point' Silenus may be understood to have located himself here at the base of the 'aphlaston' at the far end of which the stern rose to its highest point. From here, on his feet, he will have said copious prayers for a successful outcome to a difficult voyage. The stern was regularly termed 'holy'. Here the helmsman made sacrifice and here was kept the altar for his observances. We know dedicatory garlands were hung around the *aphlaston* when a ship successfully reached journey's end (Virgil *Georgics* 1.303-304). Thus on this reading, Silenus will have begun to steer the ship only after propitiating the gods. Lastly the binocularity of interpretative vision demanded of the reader by the author in this proemic passage may be considered an antidote to the monocular poetics that a play entitled 'Cyclops' should reasonably express. For, in common with all Cyclopes, Polyphemus famously had only one eye. In general, see Morrison p.196. In Euripides' *Ion* meanwhile, the proposal that the chorus should flee by mounting onto the 'sterns' of ships [as passengers] seems to refer to the beginning of their voyage into captivity (1238-1243). This reminds us of the high status human spoils of war as in the case of Aeschylus' Cassandra.

[18] The sailyard braces ('hyperai') were probably secured to the ship's side. See the Siren Painter's eponymous vase (Morrison Plate 21e) where however the artist has taken the licence to have the braces tied one forward, one aft. Meanwhile the backstay ('epitonos') which helped to stabilise the mast should have been secured to a central point in front of the helmsman's legs.

[19] See below. There was correspondingly very little room to manoeuvre the tiller bars forwards. Amongst other things the helmsman's reach must have been much more limited forwards than aft.

[20] See below.

[21] For the helmsman as charioteer see Ovid *Tristia* 1.4.16.

[22] A. R. 1.566-567.

[23] This is an argument for locating the rows of cleats in parallel with the passengers' thighs or calves. If parallel to their thighs, the rows of cleats will be on the upper surface or seating area of the *threnus*. If parallel to the passengers' calves, the rows of cleats will stretch vertically along the front face of the *threnus.*

Thus we must assume that on either side of the helmsman's bench the available space was unencumbered by other passengers.

The only answer is to have the helmsman sitting on a separate bench a foot or more lower than - and forward of - the *ikria*. This will allow the converging brailing lines to be tethered to cleats on the *ikria* behind the helmsman's back, precisely where the passengers on the *ikria* would *not* be sitting. This arrangement will cause the brailing lines to mimic the reins of a charioteer very closely. They will be touching the helmsman's ribs at stomach level as, four on each side, they angle inwards and downwards towards their individual cleats at his back[24]. The eight cleats may take up a foot and a half of room. Each cleat is therefore allowed two inches, assuming they are positioned side-by-side across the *ikria* and parallel to the ship itself.

The brailing lines can be no more than thin - but tensile - cords that press against the helmsman's ribs[25]. The angle at which they descend allows him to seize them and reef sail immediately when an unexpected wind occurs. In all probability the helmsman will first grasp the two cords that control the outermost sections of the sail furthest from the mast. Counting from the right wrist of the helmsman on the Siren Painter's eponymous vase, these will be the 1st and 8th red lines[26]. The helmsman will now pass the right-hand cord to his left hand so that both cords are grasped by the same fist. Then he will use both hands to reel in what will be effectively one combined rope. The pairs of reefing lines will be gathered in symmetrically in the order 1/8, 2/7, 3/6, 4/5. Once these cords have been secured to their respective cleats the sail will be deployed to catch the wind. If conversely the helmsman were to reef one cord at a time or if he were to reef lines 4/5 first instead of last, the resulting asymmetry of the sail would be likely to destabilise the ship and/or divert it off course[27].
Once the first two cords (1/8) have been reeled in, the partially reefed sail will be considerably narrower. The wind will have begun to lose its handle on the canvas. The helmsman will have looped these first cords 3 or 4 times around the cleats which are behind him on either side of his vertebral column[28]. Although the manoeuvre is awkward, practice will have made perfect[29]. Of course if the passengers are competent and trustworthy they can take the first and eighth cords from the helmsman and secure them themselves while he repeats the above procedure with the next two cords (the 2nd and 7th red lines on the Siren painter's vase). And so on, as required, until the sail is wholly reefed high up around the sailyard. Once that stage has been reached the halyards can be lowered bringing the sailyard and concertinaed sail down to deck level. Here the two halyards will be detached from the sailyard which, being articulated at the middle, will be folded like a pair of compasses and

[24] See the Siren Painter's Eponymous vase (Morrison Plate 21e).
[25] Perhaps made of papyrus.
[26] See the Siren Painter's Eponymous vase 'https://latin4everyone.wordpress.com/2013/03/' and (in black and white) http://www.plicklider.com/ pix _f03.html' (BM E440 stamnos 480BC). The brailing lines are unrealistically secured below the helmsman's feet. The sail is fully reefed which means either the wind is impossible to handle or the ship is entering harbour or there is no wind (the latter being the correct reason here on the vase; see Homer Odyssey 12.168-172). Should he wish to loosen this sail, the helmsman will begin with lines 4 and 5; that is, his procedure will mirror-image the procedure he followed in reefing the sail. This will allow the freshening wind to engage with the sail gently. Of course a partially reefed (or unreefed) sail may be what is required. There is no obligation to reef or unreef fully. See Morrison pp.312-313 for partial reefing when tacking.
[27] If the helmsman is turning the ship in a manageable wind he will be skilful enough to reef asymmetrically. Our reconstruction here relates to the arrival of an unmanageable wind (Odyssey 12.405).
[28] Throughout the wind-assisted parts of the voyage the ends of the brailing lines will remain secured to the cleats just at the point where the helmsman will not require any further line to let out the sail. The lines must remain instantly available to the helmsman. They will not be needed to micromanage the steering however. That task falls to the sheets. When reefing the sail, the helmsman will re-secure the brailing lines much further along their length viz-a-viz their position when the sail is not reefed. When he releases the lines again to unfurl the sail the helmsman will gradually let out the lines until once again he is almost at the point where the ends of the lines are looped around the cleats.
[29] Compare the tying of apron strings behind one's back.

detached from the mast. The mast can then be lowered. Alternatively the sail remains attached to the sailyard aloft, ready to be redeployed by the helmsman.

8. The Epholkaion

Our detailing of the brailing procedure is intended to show the benefits accruing from positioning the helmsman forward of the *ikria*. This complements our comments on the inadvisability of having anyone seated next to the helmsman. However, although the helmsman has been deprived of the *threnus* as his 'footstool' nothing prevents us positing the existence of a further bench below the helmsman to provide *him* with a footrest. The existence of such a further crossbench might also help to rescue Morrison from his difficulty over the apparently contradictory functions of the *threnus.* In other words there may after all have been a crossbench (and with its own protrusions) forward of the helmsman. As we shall see however, this was neither the *threnus*, nor the source of the fulcrums for the steering-oar, but a species of thwart we have already encountered[30], namely the 'epholkaion'.

9. Literature, Ajax, and the *threnus*

Before investigating the 'ephalkaion' further, we first examine the manifold literary advantages that arise from our fresh configuration of the *threnus* and *ikria*. These advantages will, it is hoped, make an even more convincing case for locating the helmsman below the *ikria*. First of all with the *threnus* separate from, and just below, the *ikria*, Ajax's tactical retreat in the Iliad comes into focus. For some time a battle had been raging around the front row of Greek ships following the penetration of the Greek wall. The Greeks had climbed onto the stern decks of these ships in order to repel Trojan chariots by using the long pikes that were stowed in the ships' sterns (15.384-389). As part of this engagement Hector and Ajax confront each other in the struggle 'for possession of one particular ship' (15.416: 'τὼ δὲ **μιῆς περὶ νηὸς** ἔχον πόνον'). One is eager to set fire to it, the other to defend it. This creates a stalemate. Shortly afterwards the same two men renew hostilities over Protesilaus' ship, following which Ajax is forced to retreat to the *threnus* (Iliad 15.716-717; 726-729).

We should fill in the gaps in the narrative. In advance of the second confrontation, Ajax had completed his patrol of the ships' sterns by taking a stand on what we now presume to be Protesilaus' ship (15.727-729, 730-731). Thanks to this latest initiative of his, the Greeks had rallied, after having initially retreated to the huts on the beach (15.653-658). With the object of 'gaining possession of' ('περὶ') Protesilaus' 'ship' the Greeks and Trojans now begin to fight hand-to-hand (15.707-712: 'τοῦ περ δὴ **περὶ νηὸς** Ἀχαιοί τε Τρῶές τε / δῄουν ἀλλήλους αὐτοσχεδόν'; 16.1: 'ὣς οἳ μὲν **περὶ νηὸς** ἐϋσέλμοιο μάχοντο'). Protesilaus' ship (positioned prow-to-sea) is at one end of the front line of Greek ships. We suppose its starboard side to be close to the Rhoetium promontory, such that the rock provides a backdrop to the action taking place to the Trojan left. In other words when Homer uses the expression '**περὶ νηὸς'** at 15.707 and 16.1 he means 'to gain possession of' not 'on both sides of'. There is a melee around the stern's port side but the entire starboard side of the ship - stationed stern-to-shore - is too close to the rock to allow access. Conversely there will be surplus space between Protesilaus' ship and the next ship to the Greek right since the Greeks must have allowed for access points ('gateless gates') for troops and chariots to be moved up to the plain. One imagines a similar configuration on the other side of the line such that a ship will have been propped close to the Scamander river to ensure chariots do not career into the water as they hurtle back to safety behind the lines.

[30] See Casson Plates 142, 147, 149 for indicators of more than one protrusion at the stern.

It follows from this that we consider the front line of Greek ships to be on the Trojan Plain itself. Indeed Ajax's own speech reveals that he sees himself as being 'on the plain' (15.739-740). The front line of ships cannot have afforded any realistic protection to the Greeks on the beach unless these ships filled a form of bottleneck (or 'isthmus') enclosed (a) by the river Scamander on the Greek right and (b) by the Rhoetium promontory on the Greek left. Moreover these two points also define the two ends of the (by now overrun) Greek wall which, we think, formed a hemisphere, the points of its arc rising from the banks of the Scamander and Sigeium respectively and meeting at a point or acme some way into the Trojan Plain itself[31].

To return to the narrative of Book 15, the 'aphlaston' or 'stern ornament' of Protesilaus' ship is grasped by Hector with both hands as he leaps up from the plain. Simultaneously he swings his feet onto two of the piles of stones that support the sides of the ship. The two in question will be on either side of the stern. Such piles are mentioned at 14.410 when, once again Ajax confronts Hector. He fells him with a loose stone from a column that has been accidentally toppled by the intense fighting. Given the position of Protesilaus' ship, the props on the starboard side will provide an effective barrier to anyone trying to infiltrate the Greek lines by slipping between the very narrow gap left between the hull and the rock.

Hector is leaning backwards in the pose of a wind-surfer as he shouts down and across to his men. Mostly hidden behind the stern, he is certainly invisible to Ajax on the *ikria.* Nor can Ajax, under fire from Trojan javelins, wield a 22-cubit spear to any effect (15.678). This all suggests that Ajax's retreat to the *threnus* was to benefit from the way the *threnus* is configured. If he plants his left leg over the gunwales and onto the inner part of the crossplank he can put his right foot on the *threnus* protrusion on the starboard side of the ship. This position affords him some protection for his lower legs. It also allows him to fend off any attacks on the ship by using a form of enfilading fire on the enemy. By retreating, he increases the effectiveness of his long-range spear which will also force Hector to cower further behind the stern. With his free left arm Ajax can even steady himself by gripping the gunwales as he leans forwards and outwards, to thrust with the spear. He has turned defence into attack. Meanwhile the Rhoetium promontory protects him to the Trojan right and to the rear.

However it is Ajax's relationship as helmsman to his 'passengers' that injects profundity into the text. In taking his stance along the *threnus,* Ajax will be absorbing the character and status of a helmsman who, we hold, sat on the *threnus.* However the hero, in standing on the 'footstool', will simultaneously evoke his charges since it is the passengers' feet that are received by the *threnus*. On this reading of Iliad 15, Ajax *promachos* will be adopting (literally and metaphorically) a more prudent position, one which will safeguard both his own life (15.728) and, as a consequence, that of his men's. We know from Sophocles and Aeschylus that the helmsman was considered the 'guardian' and 'shepherd' of the ship[32]. The helmsman's role was a protective one. Just as a helmsman's duty was to keep his ship safe, so Ajax protects the ships from Trojan fire (15.731). The *threnus* then is symbolic of a new Ajax. He is as 'watchful' and patient as a helmsman whose eyes and ears were thought

[31] The existence of the Rhoetium promontory explains the words at 13.682-683 where the wall is said to be 'very low' or 'at its lowest'. Hector has descended to the beach where the fleets of Ajax and (the deceased) Protesilaus are stationed. 'Above' - that is, 'on the plain' - the edge of the Greek wall can be seen abutting against the promontory. However the poet does not mean that the top of the wall there is any lower than anywhere else. He means that the rising, rocky ground of the headland provides a natural barrier which will provide much of the height required to keep the top of the wall at the same height here as everywhere else. One need only compare the two ends of Thornton Viaduct in West Yorkshire, UK. As the viaduct reaches rising ground, its columns become smaller and, as it were, 'lower'. Yet the height of the viaduct does not change. It is noteworthy that Homer does not suggest that the same phenomenon obtains on the other side of the wall. This, we suggest, is indirect evidence for the fact that there the river Scamander, not the Sigeian promontory, provided nature's barrier there.

[32] Morrison, *op. cit.,* p.195 and note 15 on p. 297.

day and night to monitor the waves, wind, and heavens[33]. His role is to safeguard his 'passengers'. And, as we shall see, the foot that Ajax plants on the *threnus* protrusion will emblematise his control of a very particular spear which no other soldier can manipulate.

Ajax's descent off the *ikria* is equally as symbolic as his arrival on the *threnus*. He descends from the position of a travelling guest and in so doing renounces any self-regarding singularity or aloofness he may have enjoyed as the forefighter in the front line. His words to his followers are revealing. He addresses them as 'friends' (15.733-734) but also as 'heroes' and 'attendants of Ares' (15.733). He has symbolically taken a step down towards them ('friends') and in doing so has brought them a step upwards towards to him ('heroes'). In fact Ajax and his men are one, just as the *threnus* is representative of both 'passengers' and 'helmsman'. His speech demonstrates his realisation that each individual has to 'step up to the mark' but as leader he sees a way of meeting them half way. Forwards, in any case will be the only direction possible for the men since the sea behind them (as Ajax points out) means they cannot take a step backwards. But 'forwards' is also a matter of morale, perspective, and common-sense. Ajax's wounding of twelve sallying Trojans demonstrates that a long game can be the equivalent of and even more effective than a short game. Twelve wounded Trojans means twelve more 'hors de combat'. Better that, one suspects, than one hero dead and stripped of his armour. The example Ajax sets shows his men that in coming forward under the aegis of the safety-conscious 'helmsman', they can be effective 'comrades' without being self-sacrificing *promachoi*. Thus his backwards step *ipso facto* promotes his men into his comrades within a reconfigured front line[34].

Morrison considers that [my italics] 'Ajax would have stepped back to this beam [the *threnus*] either inside or, more probably, *outside the hull'*. But, on our reading, Ajax is half-inside and half-outside the ship. The *threnus* projection cannot have been more than a foot long. Even a puny soldier would have found it very difficult to take an effective stand with *both* feet on such a minute platform. However 'one foot' in length will appropriately accommodate 'one human foot'. By 'watching to see' and 'waiting' (Iliad 15.730: 'ἔνθ᾽ ἄρ᾽ ὅ γ᾽ ἑστήκει δεδοκημένος'; 745 'τὸν δ᾽ Αἴας οὔτασκε δεδεγμένος'), Ajax is able to wound some and deter others among those urged by Hector to set fire to the ships (Iliad 15.730-731; 742-746). Ironically, from a position forward of the stern of the ship, Ajax engineers a one-sided, *quasi* hand-to-hand contest 'in front of the ships'. Homer highlights this anomaly by juxtaposing 'προπάροιθε νεῶν' and 'αὐτοσχεδὸν' (Iliad 15.746). Ajax himself is not 'in front of the ships' yet he wounds his victims 'at close quarters'. A 22-cubit spear has been transformed into a long-distance rapier with the result that Ajax is effectively fighting 'hand-to-hand' 'in front of the ships' (from his perspective).

10. The Stern

The phrase 'νηὶ δ᾽ ἐνὶ πρυμνῇ' ('at the back of the ship') defines the location of Athene and Telemachus at the start of Odyssey 2, namely 'at the edge of the 'ikria'. The 'back of the ship' should naturally include the half-deck (*ikria*). This is the place where goods such as amphorae can be deposited[35] and where people can stand and even sit. This brings us

[33] See Apollonius Rhodius *Argonautica* 1.106-108.

[34] See below on the status of the lower crossplank or *epholkaion* / *ζυγος* as being symbolic of the 'hoi polloi'. There is a tension between the two major crossplanks on a Greek ship. The upper one represents the position ('seat') of power (Aesch Agamenon 1618; Euripides Phoenissae 74). This we would equate with the *threnus*. Symbolically Ajax invests himself with semi-authority. He is half-in half-out and standing not sitting.

[35] The word 'σέλματα' ('planks') is used of the decking on which Agamemnon and Cassandra sit in Aeschylus' *Agamemnon* These correspond to the seats occupied by Telemachos and Athene in Odyssey 2. The cognate word 'σέλμις' means *ikria* and this suggests that 'σέλματα' constitute a series of planks laid side by side as in a stretch of *ikria* decking. The 'σέλματα' are not rowing-benches, though they may constitute other stretches of decking on, for instance, a 20-oar vessel in which we suggest the entire area from mast to stern was decked See Archilochus *Elegies* fragment 5A 6-7 (Diehl[3]) where the addressee

to the function of the 'back of the ship' as a place of ritual. At Iliad 10.570, Odysseus leaves the spoils of Dolon 'on the end of the ship' in advance of preparing a sacrifice to Athene. Such sacrifices were conducted 'at the end of the ship'. Theoclymenus comes across Telemachus sacrificing in this area (Od.15.222-223; 260). Now we consider that the phrase 'νηὶ πάρα πρυμνῇ' means that Telemachus is 'on the end of the ship' not 'beside the ship' on the grounds that he is 'in the precinct constituted by the end of the ship'. The *ikria* here is Athene's *temenos* and in such contexts the preposition 'παρα' can mean 'within [the precinct of]'. Two decrees from Nemea mention the setting up of stelai 'πάρ Ἥραι' ('in the *temenos* of Hera')[36]. Thus the phrase 'νηὶ πάρα πρυμνῇ' takes on a technical meaning ('within the consecrated end of the ship'). This gives us an important handle on the sacral geography of the stern. The *ikria* is the space where sacrificial ritual takes place. In practical terms it is the site of the (often portable) altar[37]. A scene of sacrifice on the stern *ikria* is depicted on the famous Roman Torlonia relief[38]. In the Iliad 10 passage mentioned above, whilst we learn that Odysseus eventually only pours a libation to Athene (10.579) yet libations regularly precede sacrifices[39]and the archaeological record confirms the presence of animal bones, altars, and libation paraphernalia in the sterns of wrecks[40].

It will be important that both wine and entrails find their way swiftly into the sea and do not literally spill over into the helmsman's area of activity[41]. It is hard therefore to imagine the sacrifice taking place anywhere but towards the rear end of the *ikria*. Indeed that the end of the *ikria* is where sacrificands stood appears from a Hyponex fragment[42] in which a libation is apparently poured 'from the end of the stern'. In this context, the vertical sternpost (the stern proper) will house the image of the god. That is, it will constitute the temple with its *Dayton.* The sternpost is wreathed before the solemn departure of a ritual embassy ship in Plato's Phaeton[43]. This garland must have been draped over the *aphlaston* which served as the terminal of the sternpost[44]. Moreover, in Euripides' *Iphigineia In Aulis,* the tops of the sternposts of Achilles' fleet are decorated with Nereids ('χρυσέαις δ᾽ εἰκόσιν κατ᾽ ἄκρα Νη-/ ρῆδες ἔστασαν θεαί, / πρύμναις σῆμ᾽ Ἀχιλλείου στρατοῦ': 239-241)[45]. In Latin Literature

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is asked to go back & forth along the *selmata* to fetch draughts of wine from the wine jars; see also Euripides' *Cyclops* (144) where the wine is expected to be stored 'ἐν σέλμασιν νεώς 'on the decking of the ship'. The reference to 'σέλματα' at *Persians* 358 concerns Greeks leaping up onto, not rowing-benches, but the stern *ikria*. Similarly, the Chorus in Euripides' *Ion* suggest they climb aboard the sterns of ships. Greek fugitives will approach their ships at the stern since ships were regularly beached or moored stern first to shore. In the case of a moored ship particularly, it would be natural to grasp the rails before pushing oneself onto the *ikria.* with one foot on the threnus projection No fugitive is going to wade through the deepening surf to reach the rowing benches before climbing aboard. Meanwhile the 'holy *selma*' of *Agamemnon* 183 and the 'outermost *selma*' of the *Homeric Hymn to Dionysos* (47) should be the final crossplanks of the two respective *ikria* before the sternpost or stempost. At the stern's 'holy s*elma*' is where we suggest there may have been a small wooden altar beside the 'cult image' painted or carved on the rising stern. It is hard to believe there was not a focus for the ritual acts witnessed in Hipponax and at Odyssey 15.222 where Telemachos is making a burnt offering 'on the stern' to the goddess Athene. Meanwhile the last *selm*a at the prow must itself have been instinct with religiosity since here is where at Euripides' Helen (1581-1584) a bull is sacrificed.

[36] SEG 34.282; 19.317. See Ronald S. Stroud *An Argive Decree from Nemea concerning Aspendos pp.206-207* Hesperia.

[37] See the *Oxford Companion to Ancient Greece and Rome*; article on 'Altars' by Gunnel Ekroth, pp. 80-84.

[38] See Casson Plate 146.

[39] See Walter Burkert *Greek Religion* (1985) p.71 and note 42.

[40] See the Culip D wreck in Nieto Prieto 1989 et al., p. 219. See also C.E Atkins: *More than a Hull: Religious Ritual and Sacred Space on board the ancient ship:* 'Comparatively, the objects used in libations and sacrifices appear more commonly in the stern of the ship … [finds] include perirrhanteria or louteria, basins, altars, tripods, thymiateria, candelabra, figurines, lead animal horns, and marble eyes … Ritual objects for libations and sacrifices account for 28% and 25%, respectively … more religious objects were found in the stern (42%) than those scattered near the sites' edges (29%) or in the bow (29%)'.

[41] A.R. 4.1593-1602.

[42] Hipponax *fragment 65B* (Diehl) with Maas' emendation (see Morrison p.120 and note 26 p.122).

[43] Plato *Phaedo* 58a & 58c:'ἡ πρύμνα ἐστεμμένη τοῦ πλοίου ὃ εἰς Δῆλον Ἀθηναῖοι πέμπουσιν … ἐπειδὰν ὁ ἱερεὺς τοῦ Ἀπόλλωνος στέψῃ τὴν πρύμναν τοῦ πλοίου'. For the 'sacred stern', see also Pindar Pythian Odes 4.191-6.

[44] See also Virgil. *Georgics,* 303-304.

[45] In Ovid's Heroides (16.114: 'accipit et pictos puppis adunca deos'), it is the furthermost 'hooked' part of the ship that receives the 'painted gods'.

meanwhile the concept of the ‘sacred stern’ informs allusions to the Argo in Germanicus Caesar’s translation of Aratus’ Phaenomena (‘sacrae speciosa aplustria puppis’: 489; ‘venerandae nomine puppis’: 687).

Figures 5 and 6: Representations of the petasos or helmsman’s hat. The central cavity of the hat, with the helmsman’s head within, represents the threnus with oarloom inserted

This analysis takes us back to Athene and Telemachus in their passenger seats. It seems entirely appropriate that a divine being who is simultaneously an Ithacan elder (Mentor) should sit on the edge of the sacred stern area (the prow end of the ikria) whilst resting their feet on the secular *threnus*. Similarly, Telemachus’ status as a mortal with access to the divine, is suggested by the common description of him as ‘ἱερὴ ἶς Τηλεμάχοιο’ (‘the holy power of Telemachos’). The first occurrence of this phrase at Odyssey 2.409 is significant. It precedes the loading of supplies onto the ship after which Telemachus takes his symbolic seat ‘close to’ Athene. The context reinforces the appellation. From his seat Telemachus is in touching distance of Athene. He is ‘near’ the divine as well as being seated in a divine context.

11. Odyssey Book 12: How the helmsman dies

In reading the storm episode at Odyssey 12.397f it is all too easy to make two hasty assumptions (a) that the helmsman will never be found anywhere but in his seat and (b) that that seat is on the *ikria*. The logic runs as follows: a storm has blown up; the helmsman must be steering the ship; the falling mast knocks the helmsman off his seat and off the *ikria*; his seat is therefore on the *ikria*. However, on occasions when the helmsman cannot dictate the ship’s course, he may be found elsewhere on the ship because his presence at the helm will be otiose.

First of all, a helmsman may be incapable of operating the helm. On Ovid’s journey to Tomis the poet twice alludes to the helmsman’s incapacity to deal with the winds. At Tristia 1.2.31-32 the helmsman knows how to, but cannot, steer the ship. His skill is numbed by his incapacity to decide which way to go in order to negotiate the swirling gales. Meanwhile at Tristia 1.4.10f the helmsman, overwhelmed by the conditions, is compared to a charioteer of a horse that has become too mettlesome. In figuratively dropping his reins the helmsman should be interpreted as no longer trying to finesse the winds by using the brailing lines[46]. Such a helmsman simply ‘exposes his sails to the wind’ (‘aurigam video vela dedisse rati’:

[46] Vocabulary normally appropriate to the helmsman can be used figuratively of the charioteer and (in this case) vice versa. See below on Hesychius *Lexicon* s.v. ‘σειραι’ (‘thin ropes’) = ‘ήνια’ (‘reins’); Aeschylus *Seven Against Thebes* 206: ‘ἱππικῶν … πηδαλίων’ [‘equestrian rudders’] = ‘reins’.

1.4.16). That is, he releases all the brailing lines and lets the winds take the ship where they will. The prevailing north-easterly, or 'Bora', fortuitously extricates Ovid's ship from the cyclone and blows him back towards Italy.

These two vignettes centre around the helplessness and redundancy of helmsmen who are free to contemplate their fear (1.4.10). They will have only one recourse, and that is to prayer. Jonas observes in the Septuagint, when a ship is in danger of foundering, sailors will pray to their god ('ἐφοβήθησαν οἱ ναυτικοὶ καὶ ἀνεβόησαν ἕκαστος πρὸς τὸ θεὸν αὐτοῦ': Jonas 1.5). In that passage, equipment is jettisoned to maximise the ship's chances of survival. Following this, the (otherwise helpless) bow officer who is almost certainly the captain of the ship[47] leaves his post and descends to the hold to tell Jonas to pray to his god[48]. Clearly, prayer (to any and all gods) is now prioritised as the ship's best chance of survival. Clearly too, officers do not necessarily remain at their posts. Thus, when resorting to prayer, the helmsman himself will not be barred from moving to a different part of the ship. Ovid's helmsman (Tristia 1.4.21-22) in 'forgetting' his skills may move away from his *threnus* and clamber onto the holy stern where there will be a fit object for his prayers.

In this context it is important to establish the postures of the ancients at prayer. In Iliad 5, Aeneas the Trojan encourages his ally Pandarus to fire his arrows to stem the progress of the rampant Greek hero Diomedes. Initially Pandarus is told to 'raise his hands to Zeus (in prayer)' (174). For prayer on board ship, we turn to Aeneid 1 where the fearful Aeneas holds up both palms parallel with the stars (1.92-93: 'extemplo Aeneae solvuntur frigore membra /ingemit, et duplicis tendens ad sidera palmas') Aeneas' palms specifically address the god of the sky namely Zeus who is the source of the thunder and lightning that so perturbs the hero in this passage.

Of great interest here is the word 'extemplo' which could be divided to produce two words ('ex templo' = 'from the holy precinct') rather than the one we are used to ('extemplo' = 'at once'). In locating the praying Aeneas in the ship's 'temple' ('ex templo'), Virgil's malleable text subtlely confirms our view that religious ritual was conducted in a sacred part of the vessel, namely the stern[49].

Meanwhile in Aeneid 5 Cloanthus stretches forth both palms to the sea and promises a bull in sacrifice to the gods if they hearken to his prayer and vouchsafe him victory in the boat race ('ni palmas ponto tendens utrasque Cloanthus / fudissetque preces, divosque in vota vocasset': 5.114-115). Now the principal god addressed here must be Poseidon. Bulls were a staple of sacrifices offered to this Greek god of the sea (Od.3.3ff). Not surprisingly then, Cloanthus' palms are held vertically and flat towards the sea in indication that the recipient of the promised sacrifice will be the god towards whose domain this appellant's 'palms' are oriented.

Whilst the location of the suppliant Cloanthus is unclear, the stern, as we have seen, was the sacred part of the ship[50]. It would not be surprising then if the helmsman of Odyssey Book 12 had deserted his post and resorted to prayer on the *ikria* 'at the back of the ship' ('πρυμνῇ ἐνὶ νηὶ') with his palms open towards the sky. We specify 'the sky' because the helmsman, with palms parallel to the heavens, must be praying for forgiveness from the Sun, whose immortal cattle the helmsman and his colleagues had just recently consumed, in

[47] The Septuagint's 'πρωρεὺς is another term for 'πρωρατης' who is the ship's captain in Sophocles' *Fragment 524* (from the play *Polyxena*). Note also that there must be etymological play between the 'πρωρεὺς' and the fear felt by the whole crew ('ἐφοβήθησαν'). This is because the verb 'πρωρεω' means 'to fear' (Hesychius). Its morphological similarity to 'πρωρεὺς' could not be more striking.

[48] Jonas is discovered by a process of drawing lots, to be the cause of the ship's malaise. Oracularity joins hands with religious scruple to dictate human responses to irresistible danger.

[49] The new translation will be 'from his position in the precinct ['ex templo'] Aeneas' limbs are loosened by the cold, he groans and stretching forth his twofold palms to the stars [he prays]…'. Compare Tristia 11.21.

[50] See above on Germanicus' references to the sacred stern.

flagrant contravention of an oath they had taken not to touch these cows. The helmsman interprets the storm as the Sun's vengeance visited upon oath-breakers. His hypocrisy in praying to the god he had wilfully disrespected is breathtaking.

At the same time however, the helmsman will also be addressing Zeus, the god of the sky, thunder, lightning, and fireballs. He will have witnessed the sudden arrival of the dark cloud overhead. During the short interval between that and the onset of the cyclonic storm, he will have decided that the only recourse was to offer prayers not only to the offended god Helios but also to Zeus, the god of electric storms. Since both were sky gods, both could be addressed by the worshipper holding the palms of their hands parallel to the sky.

It is worth delving more deeply into the reasons behind Odysseus' helmsman's failure to take one particular measure[51]which could possibly have saved the ship. One would have expected him to reef sail once there hove into view the notorious 'black bar' However this bank of dark cloud - indicative of the onset of a cyclone - normally appears first on the north-west horizon. In this case the 'bar' makes a sudden and unannounced first appearance overhead. In a simile at Iliad 4.275 a vigilant shepherd immediately seeks shelter for his flock in a cave as soon as he sees the cloud approaching. He knows the cloud portends the arrival of cyclonic winds and precipitation[52]. By contrast, the helmsman in Odyssey 12 notes that his ship 'runs before the wind for a short time'. Aristotle at *Meterorologica* 364a31 mentions the accelerated progress to be made when two winds such as the Eurus and Notos combine to speed a ship along its desired course. If Odysseus' helmsman had been familiar with Aristotle's sources he may have thought that this was the phenomenon he was witnessing. Indeed he is likely to have been praying that this was the case at the very moment the mast-restrainers snap sending the mast hurtling towards his head[53].

Meanwhile this gruesome climax to the narrative is no mere tableau dreamt up by a master story-teller. We consider it possible that the ancients were able to visualise the Earth from Outer Space. Either that or their geographers were so adept at mapping out and delineating the Earth's features that they were able to create this Outer Space perspective on the page. One of the most convincing pieces of evidence for this view comes from the caved-in image of the helmsman's skull. For if we look attentively at the right side of the island of Lemnos we note the brackish lagoons below Aliki evoke the shocked, open-mouthed profile of a man whose head has just suffered an unexpected and indeed fatal trauma. Aliki represents the man's eyeball and socket[54] while Asprolimni traces the man's hooked nose. Further down there are the lips stretching from the southern arm of Keros Bay to Voroscopos. The point of impact of the mast on the man's skull and the implosive damage caused thereto are amply expressed by size of the bay above Kotsinas. In general, so convincing are these connections that we suggest ancient narratives should always trigger in the researcher an interest in the potential of the surrounding geographical context to tell the same story. The visual will inform the oral and vice versa.

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[51] See Euripides Troades 688-691 for a list of a crew's duties during a storm. Someone had to be at the tiller.

[52] This cloud may be the 'bar' which precedes a cyclone. See http://en.wikipedia.org/wiki/Bar_%28tropical_ cyclone%29: 'Navigators of ships at sea often use the first appearance of a bar to steer clear of the approaching tropical cyclone'.

53 See the video clip of the Florida skies during the exiting of the eye of cyclone Michael (Inside the Eye of Cat 5 Hurricane Michael Time-lapse 12 Oct 2018). A dark cloud rotating on its axis arrives overhead in the same way that a dark cloud settles over Odysseus' ship. The commentator of the video is heard to shout 'it's the eyewall'. We suggest that Odysseus ship had been beset by eyewall winds over the previous days. The cyclone had eventually moved out to sea leaving the ship inside the eye. The helmsman does not realise (a) that the ship is within the eye - he believes the improved weather reflects the fact that the ship had left the cyclone (b) that the cyclone has changed direction again and put the ship on a collision course with the eyewall. In fact the winds now do a *volte face* as another cyclone moves in from the north-west.

[54] Note that Aliki becomes a source of salt when it dries out in the Summer months. This reminds us of the salty excrescence of human tears, which in turn adds a subliminal level of grief to the episode.

Figure 7: Lemnos, seen from above helmsman being struck by the mast

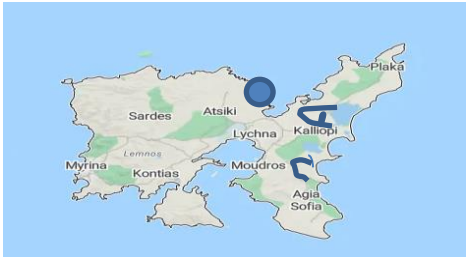


Figure 8: Lemnos, illustrating the helmsman being struck by the mast

Odysseus' helmsman dies because in ignoring his oath he has outraged Helios, who is the guardian of all oaths[55]. But the helmsman's death must also be due to his 'arrogant mind' ('θυμὸς ἀγήνωρ'). That arrogance must consist in part in his audacity in praying for deliverance with hands raised towards Helios, a god whose cattle he had continued to consume for 6 more days. And this after his offence against the god had been brought to his attention by a series of flagrant omens (Od.12.395-398). The religious affront had been exacerbated by the crew's tawdry attempts to consecrate their meal through an *ersatz* ritual (12.356-363). On this reading one may also interpret 'θυμὸς ἀγήνωρ' as 'the helmsman's arrogant appetite'[56].

12. The Etymologies of Odyssey 12

This sequence of events is supported by the following etymological analysis of the passage. The word 'κυβη' is the prime candidate for a creative etymology of the prefix of 'κυβερνήτης' which defines the occupation of our 'tumbling' crewman. The word 'κυβη' means 'head' and it is tumbling 'head first' that is emphasised by the passage and by verbs that are cognate with 'κυβη' (e.g. 'κυβητιζω' = 'I hurl on its head'). However in regard to the helmsman's actions our first port of call after 'κυβη' should be the verb 'κυβισταω' ('I tumble'). This could be creatively derived from two different combinations of roots:

- 'κυβη' ('head') and 'ὀστᾱ' (bones'): both these roots are glossed twice each by the words 'κεφαλή' ('head') and 'ὀστέα' ('bones') in the relevant lines (Od.12.409-414: 'κυβερνήτεω κεφαλήν, σὺν δ' ὀστέ' ... / … κεφαλῆς … / … ὀστέα θυμὸς ἀγήνωρ');
- 'κυβη' ('head') and 'ἱστὸς' ('mast'): the word for 'mast' 'ἱστὸς' also occurs twice in the lines
  mentioned above ('**ἱστοῦ** δὲ …/ … **ἱστὸς** δ' / /….').

[55] See above.

[56] In Odyssey 12, when the cyclonic wind suddenly turns to strike the ship head on, the sail will become wrapped around the mast. This will cause the forestays to give way and the mast to collapse. However the two forestays will not snap at precisely the same instant. This asymmetry will inject a severe lateral oscillation into the mast when it does fall. The mast will veer alternately from left to right. One might compare the oscillation of an athletics javelin when it is airborne.
The helmsman's luck (and the gods) now desert him. We suggest that the very tip of the mast (the *elakate*) cleaves the back of his skull as he stands overlooking the sea on one side of the *ikria*. It crushes 'all the bones' as far as the jaw. The force and angle of the impact will send the helmsman, not diving, but tumbling forwards towards the sea. The attitude he had struck in prayer with his palms bent backwards and parallel to the sky will precisely mimic the pose tumblers adopt as they prepare to throw themselves forward in performing a modern-day Olympic floor exercise. See also Aeneid 1.115 where the helmsman is thrust forwards into a head-first tumble out of the ship by a huge wave striking the side of (?) the stern. This passage must be inspired by Odyssey 12 (**'**ingens a vertice pontus / in puppim ferit: excutitur pronusque magister/volvitur in caput: Aen.1.115-117). It seems unlikely that the helmsman could have been seated since he would not have tumbled head first out of the ship from such a position. We suggest this helmsman (like Silenus in Euripides' Cyclops) was standing below the *aphlaston* looking out to sea with hands raised in prayer.This explains the true application of the innocent-looking simile 'like a tumbler'.

Now, morphologically, the words 'head and mast' ('κυβη/ ἱστὸς') will have an even stronger claim to the etymology of 'κυβισταω' than 'κυβη' and 'ὀστᾶ'. This alerts us to an allegorical possibility in the way the head and mast collide and become momentarily fused. The complete penetration of the helmsman's 'κυβη' by the 'ἱστὸς' allegorically expresses the formation of a new word. The noun 'mast' embeds itself within the noun 'head' to produce the verb 'I tumble' ('κυβη' + 'ἱστὸς' > κυβισταω), just as, in the storm, these two objects ('mast 'and 'head') are fused together and result in an act of 'tumbling'.

The word used in Homer for 'tumbler' is 'ἀρνευτήρ'. As a suffix this would make an acceptable pairing with the prefix 'κυβη' ('head') to produce the word 'κυβ/ερνητήρ' ('helmsman'). On this basis the word 'helmsman' 'κυβερνητήρ' might be creatively thought to mean 'he who tumbles head first' ('κυβη' + 'ἀρνευτήρ')[57]. Again the 'head' is 'first' both in the context of the dive and as the prefix of the word 'κυβ/ερνητήρ'. Last but not least, the men are cast onto the seas 'in the manner of [we suggest] cormorants' ('οἱ δὲ κορώνῃσιν ἴκελοι περὶ νῆα μέλαιναν': 12.418). Theophrastus (*De SIgnis* 16) alludes to the unmistakeable sight of a cormorant on a rock ('κορώνη') allowing itself to be engulfed by an entire wave[58]. No other bird behaves like this. Meanwhile, in Aratus, drenched sailors are compared to 'diving cormorants' ('κολυμβίσιν αἰθυίῃσιν [ἴκελοι]'). Here the term articulating the simile ('ἴκελοι': 296) allusively articulates an accommodation of these 'κολυμβίσιν αἰθυίῃσιν' to Homer's 'κορώνῃσιν' (12.308-309: 'κορώνῃσιν ἴκελοι'). Hesychius meanwhile is the source for the word 'αἰθυια' as a synonym for the Homeric expression for 'cormorants' ('εἰναλιαι κορώναι')[59]. Aratus' term 'κολυμβίσιν' could be interpreted as an adjective or an accompanying defining noun[60] ('divers'). In either case it is clearly cognate with 'κολυμβαω' ('I dive'). In sum, the 'diving' skills of the helmsman are etymologically inherited by the rest of the crew when they too 'fall' into the sea.

To summarise, the helmsman in Book 12 is dashed from the *ikria* but not from his seat. Had he been dashed from his seat he would not merit the comparison to a 'tumbler' a term which also requires him to have been in an attitude of prayer. To imagine him being dashed from his seat would also leave the false impression that the helmsman's seat formed part of the *ikria* on the back of the ship.

13. The Stern Protrusions: their purpose

At this point, with the *threnus* correctly located, we are ready to discuss the true purpose of its protrusions (Morrison Plate 11c). The ends of the *threnus* constituted projections with a socket or indentation within which the steering-oars could be braced in a vertical position by the helmsman[61]. However there is a further key element which allows one to speak of an integrated mechanism for steering a craft. This is the element of severe torsion which can be generated in the leather lashings.

At this point we return to the descriptions of the *threnus* projections on our Byzantine boat. We suggest that, seen from above (that is, from the helmsman's vantage point), each *threnus* projection will have resembled the profile of a partial '*petasos'* growing, as it were,

[57] Compare Virgil's helmsman 'volvitur in caput' (Aeneid 1.116). Note also that the closest morphological candidate for the root of 'ἀρνευτήρ' is the verb 'ἀρνεομαι' which means 'I renounce a duty or office'. This nuance characterises the helmsman's actions very succinctly. He has abrogated his responsibilities.

[58] *Pace* Snyder (Theophrastus *Weather Signs*) this is not the behaviour of a grey crow. There are at least two photographs on the web showing this daredevil behaviour. I myself witnessed a cormorant at Fiscardo, Kefalonia speeding just above the waves for a hundred metres out to sea before plunging deliberately into an oncoming wave.

[59] Hesychius k 3739.

[60] Compare Aristophanes Frogs 'βατρὰχοι κύκνοι' ('Frog-Swans').

[61] Ancient leather bindings will have had a high torsion threshold. The torsion in twisted ropes also gave them *their* strength and elasticity (see the 'well-twist*ing* [as well as 'well-twisted'] yard braces (not halyards) of Odyssey 2.462 ('ἐυστρέπτοισι βοεῦσιν').

from the side of the ship (Figures 5/6)[62]. The floppy rim of the hat equates to the shape of the *threnus* projection with its oarloom (Figures 7/8). Once the oarloom is in place one may consider the oarloom's rotund profile as the equivalent of the centre of the *petasos* where it accommodates the wearer's head. Meanwhile Figure 8 suggests the basic shape of a human 'ear' with the gap in the middle equating to the ear canal ('*epotis'= 'ear-like projection'*). Lastly the *threnus* projection also appears to represent that which is 'cloven or divided in the middle' ('schiston') such as the hoof of a goat or sheep. Thus the Byzantine descriptions of the device 'in which' or 'on which' the oarloom lies, enable us to picture the form of, and visualise the working of, the *threnus* projections. These descriptions complement each other and are mutually supportive of each other's applicability.

Figure 9 The threnus projection with the steering-oar in place as seen by the helmsman looking down over his port side

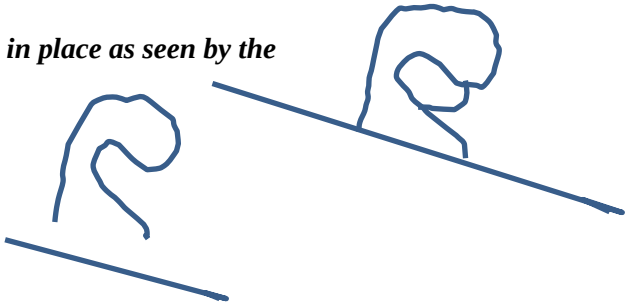


Figure 10
The threnus projection without the oarloom

14 How the Homeric Steering Oar Worked

By extrapolating the evidence provided by Morrison Plate 11c, we can now reconstruct the way a Bronze Age steering-oar operated. The shard shows an unmanned pair of steering-oars. They are lashed by bindings to the ship's side by means of a slot cut below the gunwale through which the straps have been fed. The helmsman is gesticulating backwards as if motioning to people on land (or encouraging his crew to disembark). The scene is reminiscent of the activity on the stern of Theseus' ship on the Francois Vase[63].

It is likely that the 'fragile' and 'little' tiller bars were of no great length[64]. Indeed Morrison 11c shows what seems to be a slender tiller protruding diagonally from the oarloom. It seems likely that this strut is of a piece with the oarloom, This reminds us that the word 'καμαξ' ('tiller') in being a synonym of 'κερκις' in a different sense ('weaver's shuttle') could be also be interpreted as a synonym of 'κερκις' in the sense of 'strut;' In other words the ancient tiller could have constituted, not a separate C-headed spanner, but an integral appendage of the oarloom which it controlled

In Morrison figure 11c the parallel steering oars are in their default, or relaxed, position. This will allow the leather lashings (which are visible attached to the gunwales) to regain some elasticity. On either side of the steering-oars are two grey uprights which spring from the gunwales and which do not quite reach the top rail of the ship. These brackets to all intents and purposes look like carbon copies of each other but their differences are as important as their common factors

We start by highlighting the fact that only the right upright is attached to or rests against the reverse side of the lower rail, a rail which passes in front of them, half-way down their length. The left upright should only be thought to be attached at its base and specifically to the gunwales from where it slants diagonally upwards and inwards, thereby creating a gap

[62] See illustrations at 'digitalmodern.blogspot.com' and 'http://www.flashcardmachine.comprint/?limit_flagged=include&topic_=1872633&mode=single&cpp=3&size=5x8. See also (and most convincingly) the Dioskouros on the Louvre amphora S1677.

[63] The libation taking place on the stern reminds one of the Hipponax fragment mentioned above. This ritual could suggest either journey's end or journey's beginning.

[64] Aristotle *Mechanica* 850d: 'μικροῦ οἴακος'; Lucian *Navigium* 6: 'λεπτῆι κὰμακι'.

between the gunwales and the top edge of the side of the uprights that is visible to us. This space gives the helmsman a particular option. If he grips the pommel of the (port) steering oar, he can thrust the oarloom inside and down to the bottom of the gap. In his struggle against the counter-thrust of the leather lashings he will succeed in bringing the steering oar virtually parallel with the gunwales. At this point the top half of the steering oar from pommel to leather lashings is ready to be pushed outwards through the gap created (as we have seen) between the bottom half of the left upright, the bottom rail, and the gunwales. The helmsman having pulled the oarloom through the gap now yanks it upwards so that the pommel rests on the top of the bottom rail. He takes a well-earned rest. The entire steering oar now lies outside the ship though the force of the lashings pins it hard against the side of the ship. Of course later, when the helmsman reverses this procedure and brings the oar handle back inside the rails, the upright will stop the oar handle from suddenly springing back sideways inside the boat under pressure from the lashings. In view of its function, it may well be that this upright curved slightly in a C shape[65]. The top curve of this 'C' will have accommodated the handle of the oar when the helmsman took a moment or two to catch his breath on the inward leg. With the torsion in the lather lashings pressing the handle against the 'ceiling' of the 'C', we see no reason why the helmsman should not have also availed himself of this 'lay-by' on the outward 'leg'. He will have required a rest before gathering his forces to thrust the oarloom outside of the ship through the gap discussed above

The next step on the 'outward leg' is represented in Morrison's plate 11c with two major differences. The port oar is brought up to a diagonal position and now lies parallel with the starboard steering oar which has undergone the same procedure *mutatis mutandis*. One difference consists in the [invisible] torsion that the lashings have undergone. A second difference consists in the upper and lower rails now passing behind the oarloom not in front of it. In sum, Morrison plate 11c shows the oarlooms at rest and relaxed behind the two rails with the oar blade angled outwards through the rail and gunwale, and looking down over the waters. In our exposition however the oarloom is under torsion as it is flattened against the rails from the outside.

The next stage involves finishing what has been started. The steering oarloom is pulled upwards to a vertical or slightly right-of-vertical position outside the ship. Once this stage is reached, the oarloom will be suffering extreme torsion whilst also entirely obscuring the right upright.

At the same time the spindly tiller reaches a horizontal position just where the right upright crosses the top rail. At this juncture the tension in the lashings will not allow the tiller to go any further. Instead the helmsman gathers himself for a final effort. He yanks the oarloom upwards as though he were pulling a huge nettle out of the earth. Simultaneously he succeeds in wrenching the rising tiller through the gap that exists between the right upright and the top rail. On crossing the gap the tiller or 'strut' pulls down sharply as the force of the lashings reasserts itself and the helmsman ceases to strain. The "tiller strut" now lodges tight against the base of the lower rail at a position of 13.30 hours viz-a-viz the helmsman seated on the *threnus*. The torsion in the lashings will keep the tiller tight to the rail.

To clarify the latter stages of this procedure requires us to tell the story in a different key

The little spur ('tiller') that is visible between the left-hand upright and the oar shaft engages our full attention. This is attached to the steering oar much as modern crutches have a protruding spur on which to rest the hand. This spur will have passed outwards between the gunwale and the second rail during the initial stages of the procedure when the helmsman was forcing the oar handle out of the ship. The spur will have had little room for manoeuvre at that stage. The helmsman will have had to twist the oar handle anti-clockwise to ensure

[65] The oar handle will be pushing upwards and inwards against the roof of the 'C'.

that the tip of the spur rose slightly in order to negotiate the gunwale - this even before beginning the process of pushing the oar handle downwards and outwards. In any case, as the oar is pulled towards the vertical, the spur now approaches the right-hand upright which unlike its counterpart is attached at its midriff to the rail that passes in front of it. At this point the helmsman will have to jerk the oar handle upwards to ensure that the spur clears the top of the upright. Once the base of the spur (that is, the point where it meets the oar shaft) has passed over the right upright, the helmsman can allow the torsion in the lashings to pull the oar downwards again such that the spur now nestles in the crook between the right upright and the lower rail[66]. Judging from its original position in the picture, the spur should now be pointing half backwards towards the prow. This position - at half-past one from the helmsman's perspective - will indicate the default direction of the boat (that is, straight ahead with the wind coming over one's left shoulder).

However there is a problem with this interpretation. The pressure on the spur will now be so great that it will snap (or simply slip off the oarloom) causing the steering oar itself to lose any traction. This is where the *threnus* takes centre-stage. By forcing the bottom end of the oarloom into the *threnus* socket (see Figure 2), the helmsman enables the severe torsion in the leather to be suborned by the steering oar which can now be manipulated by the tiller in directing the orientation of the ship.

We return to the procedure adopted by the helmsman. As he pulls the oarloom past the vertical, he simultaneously eases the bottom of the oar-handle around the *threnus* protrusion on the side of the ship, just below the slot where the lashings are tied. As the loom reaches the mouth of the socket the severe torsion pulls it back hard into the socket where it becomes tightly ensconced.

15. Steering

The helmsman in the act of easing the loom into the socket of the *threnus* projection, also causes the strut or tiller to grip hard against the right upright. With the spur's armpit (as it were) now snug against this upright but not having to bear any significant pressure, the helmsman is ready to steer[67]. The steering-oar is very stable because the leather lashings exert torsion on the oar handle tending to embed it into the *threnus* projection. Thanks to the elasticity of the leather, the steering-oar becomes the steering column for the ship. Steering using the tiller becomes easy and efficient[68].

The steering-oar uses the torsion created as a form of power-steering. Viewed from a point out to sea on the port side, the oar will appear slightly slanted from left to right as one's eye travels up it towards the helmsman. This is because the slot for the lashings and the *threnus* projection are slightly forward of the little right upright. Meanwhile the tillers, the port one at 07,30 hours the other at 04.30, will be at the most regular and advantageous angle for the helmsman as he runs with the wind. In making micro-adjustments, he will be edging one oar towards the gunwales and holding the other in position (e.g. port at 07.00 starboard at 04.30)[69]. To turn the boat hard right, the redundant port tiller will be fully flattened against the ship's side whilst the starboard oar is pushed out to about 15.00 hours. Conversely, the

[66] The spur will be resting on top of the second rail. Note too that the lashings may be somehow bound to the steering oar so that the oar springs back when the spur is yanked upwards to clear the right upright. Perhaps there were small holes in the loom through which the lashings were fed. Alternatively the loom will have had deep horizontal grooves from which the leather ties, being bound extremely tightly, could not slip out. See Casson p. 226, note 6.

[67] The only force exerted on the spur will derive from the helmsman as he pushes or pulls on the tiller using the spur's contact with the right upright as a guide.

[68] For literary references that suggest the pivoting of the steering-oar on its long axis see Morrison p.195 with notes. See also p. 291f. For Casson's summary of our knowledge of the steering-oar see his pp.224-228. See also his observations on Morrison's findings on p. 225/6 note 5.

[69] See Plato Alcibiades 117c-d; Aristotle Mechanica 5 550b25.

ship will begin to turn left, if the procedure is mirror-imaged with the helmsman holding the port steering oar at 09.00 hours. One might have thought that if the tiller were pulled back any further than a position perpendicular to the oarloom, there would be a risk of the 'armpit' (as it were) between spur and oar handle losing contact with the right upright. However the *threnus* projection will keep the oar-handle rigidly fixed in position. The helmsman can even set both steering oars simultaneously to a position perpendicular to the ship's sides. At that setting, the oar-blades will be face-on to the direction of travel and will be slowing the craft to a crawl. That is, the helmsman with his arms akimbo will be coordinating the braking and slowing of the ship as he prepares to undertake a landing manoeuvre (or an attack). The rowers meanwhile will be pushing gently on their oars to prevent the ship stalling.

16. Another Function of the Steering Oar

This is what we take to be happening in Morrison plate 11d (Louvre E.735). Despite initial appearances, the crew are not pulling hard on their oars. There would be little point if the helmsman is retarding progress by keeping the steering oar blades at 90 degrees to the direction of travel. Meanwhile all eyes, those of the rowers, *prorates* and *keleustes* are trained on the helmsman. They have been waiting for a signal which now suddenly arrives in the shape of a gesture from the helmsman's right arm. In our view this gesture tells the rest of those on board that the helmsman's steering oars which have been held rigidly straight have now made contact with the sea floor. To free up one hand to make the signal will mean the helmsman using a spanner-shaped tiller with both ends shaped as a 'C'. These ends will have been attached to the thinnest part of both oarlooms just below the pommels before being pushed down until they grip. This enables the helmsman by holding the 'spanner' in the very middle to keep both oars parallel to each other with one hand.

Eventually, as the ship creeps ever closer to shore, a gentle scraping 'feeling' rather than 'sound' will be felt by the helmsman through his 'spanner'. This will indicate to the helmsman that the ship has reached the nearest point to land at which a regular mooring can be undertaken. The steering oars will be slightly longer than the depth of the ship. Thus the scraping noise will not indicate the grounding of the ship but merely its extreme proximity to the shingle beneath. The keleustes now transmits the order that the rowers should cease to 'push on their oars' and should now 'rest on their oars'. In short order the anchor is weighed and the stern cables attached to a tree or a rock. Indeed on our vase there appears to be an *epibates* already descending a ladder either to effect an advanced landing, or to secure a stern cable. In any event there now followed the painstaking evening chore of 'tying up' offshore (see *Odyssey* 12.366f; Aeschylus *Suppliants* 764ff).

To have reached such a comprehensive interpretation on the basis of very limited material might seem overbold. However there is support in the literary record. Ovid at Tristia 3.9.10 mentions that Medea brings her oars into contact with 'these' shoals off Tomis. This is regularly interpreted as a metaphor for a seaborne arrival but nothing prevents it from expressing the way a helmsman gauges the proximity of ship to land by using both steering-oars. We note here that 'remos' is not a royal plural but alludes to the use of both oars. Similarly 'shoals' is not a figurative form of 'inshore waters' but a reference to the sandbanks that plagued the Euxine south of the Danube mouths[70]. In the light of the hydria scene discussed above, it seems that the post of helmsman demanded a knowledge of much more

[70] See European Environment Agency TECHNICAL Report 71 chapter 12 The Rivers of the Black Sea by Shalva JAOSHVILI 'Offshore in the delta, there are sandy shoals and banks'. For ancient testimony see Ammianus Marcellinus 22.46': 'now the entire Pontus throughout its whole circuit is misty … and is full of shoals, since the air is often thickened and condensed from the evaporation of moisture, and is tempered by the great masses of water that flow into it; and, because the many rivers that pour into it from every side bring in mud and clods, it rises in shoals that are full of ridges'.

than reefing and brailing. Meanwhile Medea will have known the Euxine and its treacherous waters a lot better than Jason or the other Argonauts. Lastly, in assuming control of the helm Medea is taking the man's role, a role she continues to play in murdering her brother to distract her Colchian pursuers.

To further define the location of the landing as Tomis, Ovid speaks of the stern cable being removed from the 'tumulus' ('solvitur aggere funis' Tristia 3.9.10). A 2-3 metre high tumulus is thought to have existed near the Tomitan coast. It is thought to have acted as a redoubt in times of military threat from outside. An illustration from the nineteenth century is thought to have included the tumulus.Ten thousand tumuli often very small in size are known to have existed across Dobrogea, the hinterland of Tomis, therefore to posit the existence of one in the city of in Tomis itself is not a great stretch especially when Ovid makes multiple references to such a monument[71].

Figures 11/12: Topographic reconstruction and picture of Tomis (see Petre Covacef below)

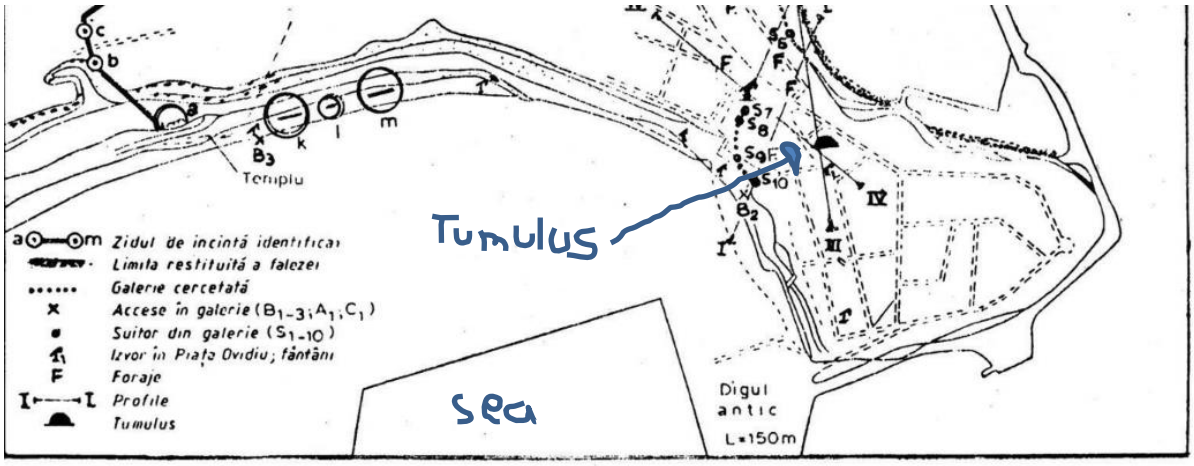
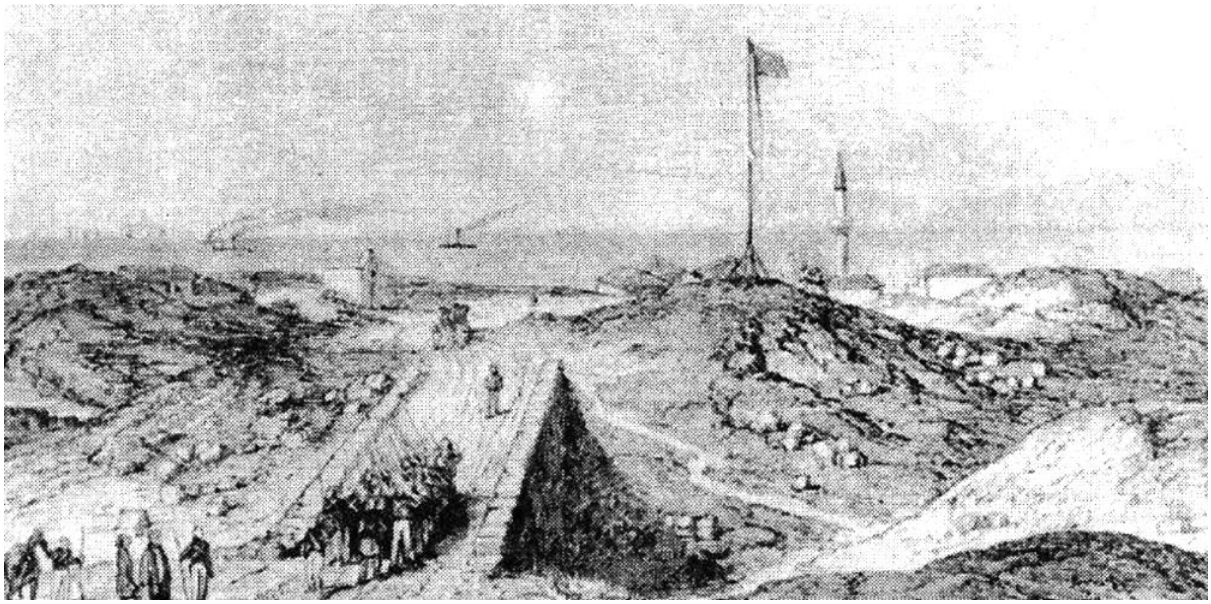


Fig. 1. Tomis în sec. II - VI. Restituire topografică.



[71]Figure 12: See Ovid Tristia 5.10.17-18; 3.14.41; Ex Ponto 1.8.62. See the site on the sketch below. For all the remarks or sketches on the Tomitan Tumulus see PETRE COVACEF – Despre un tumulus la Constanţa (Un răspuns tehnic la o întrebare a D-lui Dan Sluşanschi) Pontica 31 1998, pp. 261-264.

Figure 13 (below) Black Figure – warship lands on hostile beach. Note the rowing oars are face-on to the sea. They can be held still to bring the ship to a halt or they can be pressed into action such as when the crew 'push on their oars'

17. The stowing of the steering-oars

The ship scene on the Francois vase reveals the same uprights which are one of the keys to understanding how the steering-oars worked. This vase-painting also depicts an extra detail which adds significantly to our knowledge of the design of the steering-oars. Morrison notes that in the scene showing Theseus' Athenian vessel coming to land after the death of the Minotaur, the blades of the steering-oars 'have a swelling half-way down on each side' (p.84). Casson meanwhile (p.225) comments on a 'heel-like extension' visible on other reliefs and graffiti.

This brings us to the question of the position of the steering oars when they were out of commission during a voyage. On the open seas, when changing to sail power (and sail-guidance), the helmsman will not reverse the procedure detailed above. If he were to require the steering oars again (especially in an emergency), he would be faced with a very taxing manoeuvre, one which might prove beyond him and his stroke men. Instead, many illustrations show the steering oar lying horizontally along the side of the ship[72]. We need to know how it was positioned there, why it was positioned there, and whether the asymmetries of the blade were related to the stowing of the steering-oar in this manner.

18. The *epholkaion*

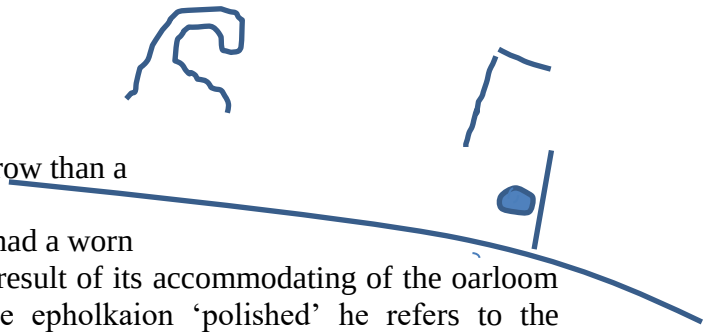
Our undertaking to fully explain the presence and importance of the *epholkaion* is bound up with the way steering oars were stowed in general. When the steering-oar had to be stowed *en route* it was not shipped and left inside the vessel. It had to be left ready to hand. Now we suggest that the *threnus* was not the only special crossbench at the stern of Homeric ships. There was also a bench which provided the protruding *epholkaia* which, like the *threnus*, receives only one mention in Homer. In book 14 of the Odyssey the hero is trying to convince Eumaios that he had recently escaped from a Thesprotian ship by slipping down the *epholkaion*[73]. The way we make sense of this is to assume that the *epholkaion* consists in the protruding edges of a second special 'mezzanine' thwart. It is this crossbench that provides the footrest for the helmsman, not, as Morrison supposes, the *threnus*. The *epholkaia* protrude from the sides of the ship at the stern and are forward of the helmsman and of the 'footrest'

[72] Casson Figure 108; Morrison Plate 26a.
[73] Odyssey 14.350. For a summary of previous attempts to explain the *epholkaion* see e.g S.Mark, *op. cit.*, pp.131-134.

on which he sits (‘threnus’). They are the two ends of one and the same crossplank. Thus the *ephalkaion* has a very similar DNA to that of a *threnus.*

However the projections of these two types of thwart have a different appearance. An *epholkaion* will have resembled the top of an ancient stone loom weight with its accustomed hole[74]. The main function of the *epholkaion*’s hole is to receive the stern cable. But the *epholkaion* also plays a role in securing the steering oar when the latter is not in use.

<u>Figure 14</u>: The helmsman’sview over the port side of a Homeric galley close to the stern



First of all, an *epholkaion* lies nearer the prow than a *threnus* projection given that the *ikria* and *threnus* had no further crossbeams to furnish. We think it had a worn transverse trough on its underside, this being the result of its accommodating of the oarloom on numerous occasions. When Homer calls the epholkaion ‘polished’ he refers to the underside being rubbed to a sheen by frequent use. At the same time the threnus will have a similar worn trough as we shall see

It is also possible that the round pommel so clearly visible on Morrison plate 11c had a round hole in which it sat at the end of the epholkaion. In any event when the time came to stow the steering-oar, the pommel was forced towards the stern to disengage the oar-loom from the socket in the *threnus* projection. On emerging from the socket, the oarloom will wish to slump back prow-wards to the point where the lashings suffer the least torsion. That is the diagonal position shown in Morrison plate 11c with the difference that the loom will still be outside the rails and the torsion will be blunted by the oarloom pressing against the ship’s side. The next stage in the manoeuvre is to bring the pommel down until the oarloom is horizontal and suffering the sort of torsion that would incline the shaft of the loom upwards and inwards from the pommel. Having forced the loom around the edge of, and under, the *epholkaion* the helmsman leaves the oarloom to nestle in the worn groove under the *epholkaion*. The manipulation of the oarloom has had the effect of obliging the other end of the oarloom nearest the blade to swing outwards and upwards past the outer edge of the *threnus* projection. At this point the helmsman manoeuvres the oarloom back above the *threnus* and lodges it securely in a trough that crosses its upper side.Thanks to the effects of the torsion in the leather lashings, the steering-oar loom will be pinned hard between the *threnus* projection (on the upper surface of which it presses down hard) and the *epholkaion* (on the lower surface of which it presses hard upwards). One can easily imagine how quickly the *epholkaion* became not ‘polished’ but ‘*worn to* a polish’[75]. For it was not just used for stowing the steering-oar but also as an attachment point for the stern cables. To redeploy the steering oars the helmsman will have reached down to dislodge the oar pommel from under the epholkaion. At the same time the oarloom will be disengaged from the trough along the threnus protrusion. With the torsion still pinning the oarloom to the ship’s side the oarloom has to be wrenched upwards until it returns to the vertical. The *threnus* is reengaged with the oarloom as before and in short order the ship is ready to be steered. Odysseus meanwhile uses the *epholkaion* on its own as a means to disembark.

[74] See carlos.emory.edu/ODYSSEY/NEAREAST/tools.html. A doughnut with a squared base, is also a useful image to have in mind. See also Casson figure 187. These stone anchors approximate very closely to the shape we have in mind.
[75] Odyssey, 14.350,

Returning to the *threnus* projection and its shape, we are reminded that helmsmen are regularly portrayed on Greek Vases as wearing a *petasos.* This may be a visual pun relating to the appearance of the *threnus* projection, a projection on which the exercise of the helmsmen's 'art' depended. Potters were literate people. If the *petasos* was also the symbol of Hermes the guardian god of travellers and traders, then that will have been a welcome by-product of this pun.

19. The Elucidation of passages requiring clarification

These procedures can help us elucidate passages that have hitherto provoked disagreement.

(a) Euripides Helen 1536: 'πηδάλιά τε ζεύγλαισι παρακαθίετο'

Euripides' *Helen* line 1536 has been something of a puzzle. Casson translates as follows: 'the steering oars were lowered alongside the ship by pennants [or literally 'that by which something is hung or suspended']'[76]. Morrison prefers the word 'cords' or 'strops' as a translation of 'ζεύγλαισι'. In fact the line probably means 'the steering oars were fixed alongside [the ship] having been lowered from the cross-thwarts'. Our reasons for this conclusion are as follows

We know from Hesychius that 'ζεύγλη' is a variant of 'ζυγος' meaning 'yoke'. If that is so, then 'ζεύγλη' could be synonymous with 'ζυγος' in other senses as well, for example in the meanings of 'cross-thwart' or 'rank' or 'pair'. Meanwhile we now know that when the steering oars are taken out of service the crossbenches provide the essential protrusions through which the steering oars can be temporarily lodged alongside the ship. But the context of this passage relates to urgent preparations not to moor but to set sail. At the same time the force of the verbal prefixes 'παρα' and 'κατα' must be given full weight

The meaning therefore must be '**they lowered the steering oars from [between] the crossbenches and set them alongside [the ship]**. The two crossbenches are those of the *threnus* and *epholkaion*. Meanwhile it is worth digressing on the word 'ζυγὸς' which conveys a certain social-political bipolarity as an image. The word must have grown in association through the duality of the lower-class helmsman on his *threnus* and the aristocratic passengers 'up top' on the *ikria*. Not surprisingly then in Euripides' Ion, the eponymous hero has concerns about the Athenian *hoi polloi's* reactions if he were to rush into making common cause with the 'the topmost crossbench of the city' (also known as 'the *kaloi k'agathoi*).[77] That is, first rung of the social and political ladder' will be represented by the first, or topmost, of only two crossbenches on the figurative *ikria-cum-threnus.*

That the procedure of lowering the steering oars should form part of the messenger's list of nautical 'toils' or 'chores' endured by the crew in the *Helen* ('κἀν τῷδε μόχθῳ': 1537) serves only to augments its importance. The lowering of the steering-oar was the start of a difficult series of manoeuvres that led to its engagement in the *threnus* projection. Meanwhile in the *Helen* the Phoenician ship is about to undertake its maiden voyage. It has been in dockyards where the steering-oar will have to have been raised to its stowed position to avoid becoming waterlogged whilst the rest of the ship absorbed water before setting forth. New ships will have required a period in the water prior to departure[78]. The soaked timbers swollen with water will have fused together ever more tightly as the hour of departure

[76] Casson, *op. cit.*, p. 226, note 8.
[77] Euripides *Ion* 595: 'rushing to the first rank within the city': 'δ᾽ ἐς τὸ πρῶτον πόλεος ὁρμηθεὶς ζυγὸν'.
[78] See Odyssey 8.34-38 where Alcinoos' youthful crew launch a new ship and leave it moored overnight.

neared[79]. This procedure will have highlighted any structural deficiencies in the hull and pointed up any excessive leakages before setting sail. Neither the steering-oar nor the rowing oars will be left in the water at this stage. The lighter they were the better, especially at the start of the journey when the ship had to be manoeuvred out of harbour under oars.

(b) Euripides:Helen1597-1599: οὐκ εἶ᾽ ὃ μέν τις λοῖσθον ἀρεῖται δόρυ, / ὃ δὲ ζύγ᾽ ἄξας, ὃ δ᾽ ἀφελὼν σκαλμοῦ πλάτην᾽

In the same play we hear of the keleustes ordering his charges to launch an attack on Helen's ship. Depending on where they are they are commanded to either break up the crossplanks or pull oars through the thole-pins (if they are in the water). The initial objective is to storm the ship Thus 'οὐκ εἶ᾽
ὃ μέν τις λοῖσθον ἀρεῖται᾽ δόρυ᾽ should mean '**will not someone mount the end of the ship**?'. This should refer to the ikria which is the quarter deck at the stern where we learn Helen is seated (Ἑλένη
καθέζετ᾽ ἐν μέσοις ἑδωλίοις … παρακέλευσμα δ᾽ ἦν πρύμνηθεν Ἑλένης':1571, 1602-16030). No doubt the *threnus* and *epholkaion* protrusions will assist the first wave of boarders but essentially the text moves downwards from the *ikria* to the *threnus/epholkaion* and onto the thole-pins.

(c) Euripides Iphigineia in Tauris 1347-1348, 1354-1355:

We learn that the crew of a ship has prepared their stations for immediate departure. The initial focus falls on the crew's disposal of stern cables ('ἦγον διὰ χερῶν πρυμνήσια': 1352)[80]. However they find they are the first of the ship's defences to be breached ('εἰχόμεσθα τῆς ξένης πρυμνησίων τε': 1355-1356). The rowers are however ready to sprint away with thole-pins already primed with oars ('ναύτας τε πεντήκοντ᾽ ἐπὶ σκαλμῶν πλάτας ἔχοντας,..':1347-1348). One might now expect a pleasing chiasmus with 'καὶ δι᾽ εὐθυντηρίας οἴακας ἐξηροῦμεν εὐπρύμνου νεώς' expressing an attack on the thole-pins of the fleeing ship. Indeed it is only logical that attacks from the beach should focus on the accessible features of a ship. However the text we have articulates an attack on the tillers which are to be removed through some form of portal on board ship ('καὶ δι᾽ εὐθυντηρίας / οἴακας ἐξηροῦμεν εὐπρύμνου νεώς') It seems to us likely that tillers have been confused with oars and portals with thole-pins. In other words an emendation is called for. We suggest the word 'αὐχενες' ('oar handles') should replace 'οἴακας' ('tillers') and that 'δι᾽εὐθυντηρίας' is a corruption of 'δι᾽ εὐθυντηρίων' ('through the thole-pins'). Thus the passage now reads 'we tried removing the oar handles through the thole-pins'[81]This recalls the order issued by the keleustes at Euripides Helen 1598 that someone should remove the oars from the thole-pins.

(d) Aratus Phaenomena 351-352: 'καί οἱ πηδάλιον κεχαλασμένον ἐστήρικται / ποσσὶν ὑπ' οὐραίοισι Κυνὸς προπάροιθεν ἰόντος'.

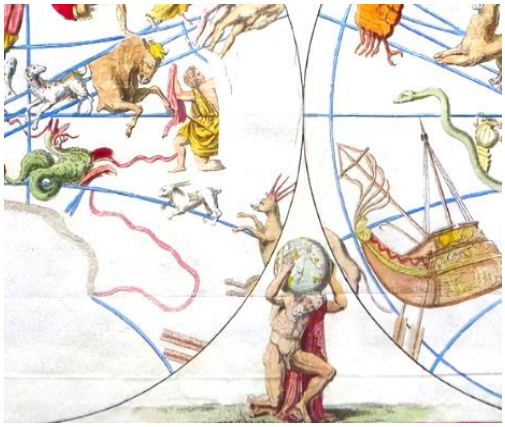
In Aratus, when the Argo comes to rest after beaching backwards, it seems reasonable to suppose that the steering-oar had not been engaged. If it had been, it would have suffered damage as the keel grounded on the pebbles or sand. We take the word 'κεχαλασμένον' to mean that the steering oar had been 'slackened' so that the blade was at a 45 degree angle to the beach and out of harm's way. As distinct from Classsical representations of the Argo, Medieval illustrations depict the steering oar as being set straight with Canopus, the constellation's brightest star, marking the tip of the blade. The Farnese

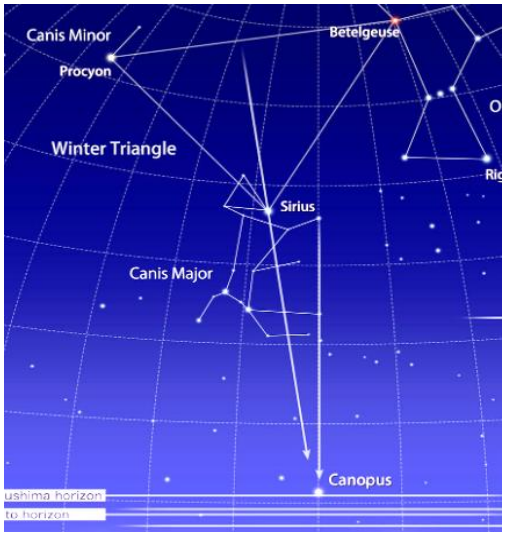
[79] See Morrison, pp. 297-298 for an explanation of the role of the *hypozoma* and *entonos* in compacting the timbers of a vessel before its maiden voyage.
[80] Note Ovid's reference to this line at Ovid Tristia 3.9.11 'dum sequitur celeres ancora tracta manus'.
[81] For αὐχενες see Pollux Onomastika 1.90. According to the author the steering oar has different words for different parts. The 'neck'seems to be the 'top' since the end and the middle are spoken for. The 'neck' suggests the junction between the bottom of the loom and the top of the blade.

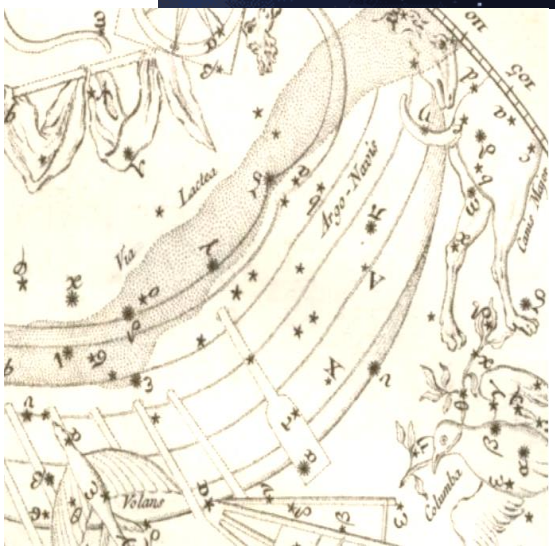
Atlas however shows the oar in its 'slackened' diagonal position and this seems to represent the most accurate depiction of the celestial blade. There was an ancient polemic over the visibility of Canopus from latitudes more northerly than Egypt. Eudoxus included the hull and steering oar of the Argo in a circle of stars he thought were invisible. Hipparchus however (1.11.7-8) thought Rhodians could see the ship and he stretched the steering oar to include Canopus.

Now Aratus was writing for the court of a Hellenistic king, Antigonus Gonatas, whose kingdom was centred on the palace at Pella in Macedonia. He was also writing an ostensibly didactic work in which clearly the material addressed had to be accessible to the reader. He will have wished to include Canopus but not at the expense of coherence in his exposition. Firstly the word Canopus offers a tempting if bilingual etymology[82]. The Latin 'CANis' ('dog') seems to be melded with the Greek 'POUS' ('foot') to create 'CAN[O]POUS'. This may be alluded to in the words 'ποσσὶν ὑπ᾽ οὐραίοισι Κυνὸς'('under the hind feet of the dog' or 'at the celestial feet of the dog')[83]. And indeed Canopus is (though a long way) under the feet of Canis Major on Nicolas Lacaille's detailed star map (see Figure 18 on the tip of the steering oar and the top right hand corner). Line 351 however allegorises a change of constellational organisation through the narrative it articulates. As we have seen at the end of a voyage the Greek steering oar is clamped to the side of the ship. It is not allowed to remain 'slackened' as it was during the beaching of the ship. Instead Canopus, in mythology the helmsman of Menelaus' ship, jumps ship, as it were, to secure the oar to the gunwales as we have described in detail below. But this narrative now impinges allegorically on the shape of the constellation. The tip of the oar swings upwards to lodge on the threnus projection. On Lacaille's map we now need to find a star that will fit this change of location whilst remaining 'under the hind feet of the Dog'. By far the best candidate is Pi Puppis (just to the right of the words 'Argo – Navis'. This is supported by the fact that the Farnese Globe shows the upper hind legs of Canis Major virtually touching the new location of [84]the steering oar's tip, just below the ship's aphlaston. Yet all in the sky continues to be in flux for Canis Major is 'rushing off forwards' even as we speak. Nevertheless Aratus has seized the moment. His allegorising of the final position of the tip of the now decommissioned oar as the new location of the southernmost point of the night sky is a tour de force. Pi Puppis is in Aratus' judgement the lowest star that can be seen from Macedonia

[82] Bilingual etymologies were not uncommon. Note 'ἐπι – damnum' ('heading towards loss/damage') as the ill-omened etymology of the city of Epidauros. See Plautus *Menaechmi* 2.1.42.
[83] The word 'ὑποὐραίος' is propounded by several commentators as an adjective. It should mean 'lower- sky'. The phrase now becomes a very apposite locative 'at the feet that are low in the sky'. See Kidd (2004) p.271 note on line 245.
[84] The word 'pous' in Greek can mean 'foot' or 'leg'.







Figures 15, 16, 17, 18 Argo, Canis Major, Lepus Canis Major, Procyon, Orion, Canopus

To recapitulate, given that we must assume the Argo had reached Pagasae and journey's end, the main verb in line 351 ('ἐστήρικται';'was tautened') will allude to the stowing of the oar horizontally and externally against the ship's side with the leather straps under torsion. Aratus, the didactic poet, has detailed the crew's landing procedure in order to redefine the parameters of the night sky. As the helmsman pushes down on the oarloom pommel, so the tip of the steering oar rises to the threnus projection where it grips fast thanks to the torsion. Aratus intends the star Pi Puppis which now marks the location of the threnus projection to act as the new limit of the southern skies. We note also that the omnipresent heel we see on the tip of the steering oar blades is intended to allegorise the star Pi Puppis. The end of the steering oar is the end of the southern night sky. And the 'ab re' etymology of 'Canopus' as 'under the legs of the Dog' is fleetingly more accurate than ever.

20. Sexual Comedy in the skies

There is a curious undertone to these two lines ('καί οἱ πηδάλιον κεχαλασμένον ἐστήρικται / ποσσὶν ὑπ' οὐραίοισι Κυνὸς προπάροιθεν ἰόντος'). What is usually tautened under a dog's hind legs is the dog's penis. Dogs were notoriously priapic in the eyes of the ancients and it seems churlish to ignore an authorial attempt at sexual comedy here. The first line now becomes a metaphor of the dog's arousal. Its 'oar' having been slack' it is now become priapic. The excited dog, Canis Major, runs off 'in front' with its 'oar erect' in the hunt for the hare and/or female company[85]. The pronominal 'οἱ' however will have to

[85] Ancient poetry cannot be reduced to one scholastically-sanctioned meaning. It is polysemantic.

reconfigure itself here as the exclamatory ‘οἰ’ which here expresses the astonishment of the author in an aside. The vastness of this dog’s erection is cause for literary embarrassment. Moreover the word ‘πηδάλιον’ is clearly a metaphor for ‘penis’ in the comic writer Theophilus (fragment 6). In a passage from his ‘Neoptolemus’, preserved by Athenaeus (13.560a), a young wife of an old husband is compared to a boat which does not ‘obey one whit a single steering-oar’[86]. The fact that ancient ships had two steering-oars supports the implication of this line that that such a wife needs two penises to keep her ‘on course’. The entire Aratean couplet may be retranslated as ‘and, my word, the flaccid penis became erect under the hind legs of the Dog as it trotted off ahead’.

This subtext gains support through perceived allusions to other contexts that are highly thought-provoking. The dog Argos in Odyssey 17 has almost the same name as the ship Argo which relates that story to both of the constellations which are synthesised in the sexual humour of these two lines, namely Canis Major (‘Great Dog’) and the ship to which the steering-oar belongs (‘Argo’). In Homer, the dog Argos ‘lies in front of the gates’ (‘προπάροιθεν’) both ‘sluggish’ (17.303-304) and ‘not working’ (294-295). The last two are nuances of the adjective ‘ἀργος’ which derives from ‘ἀ-εργος’ (‘not working’). However the adjective ‘ἀργος’ also means ‘swift’ and the dog had formerly chased game, even ‘deer’[87]. This dual aspect of the dog is clearly meant to allude to the contrasting meanings of the word ‘Argos’. Odysseus joins in this etymological debate in wondering whether the dog is ‘for show’ (that is, ‘not working’ or ‘ἀ-εργος’) or whether it runs ‘swiftly’ (‘ἀργος’). Eumaios is not slow to contribute either in alluding to the dog having formerly ‘amazed with its speed’ and to its likeness to slaves who ‘no longer wish to do their work’. References to work in the passage are plentiful but in a negative key (‘ἔργα’ ‘ἐργάζεσθαι’). Indeed the piling up of a midden heap by Odysseus’ door attests to the laziness of masterless slaves.

The metrical position of ‘προπάροιθεν’ in Homer and Aratus is the same, but the word is particularly evocative of Homer’s passage because of the virtual synonyms a few lines earlier (‘πάροιθεν’’πάρος’) also in relation to Argos. *Their* use as a temporal adverbs makes them intermediaries between the two occurrences of ‘προπάροιθεν’ in Homer and Aratus. Most convincing of Aratus’ consciousness in alluding to Homer however is his echoing of Homeric occurrences of ‘προπάροιθεν’ with verbs meaning ‘to go’ in the introduction to Homer’s Argos episode. The word is used by Odysseus at line 282 in a temporal adverbial sense with the verb ‘to go’ (‘ἀλλ’ ἔρχευ προπάροιθεν’) and even earlier at 277 when Eumaios wonders if he will go into the palace ‘first’(‘ἐγὼ δ’ εἶμι προπάροιθε’). The Aratus episode meanwhile concludes with the same nexus (‘Κυνὸς προπάροιθεν ἰόντος’)[88]. Lastly, the dog Argus used to chase hares (Od. 17.295) which is the main occupation of Canis Major in Aratus (338/9).

21 Canis Major and Canis Minor

Now closely related to Canis Major is Canis Minor the name of which in Greek is ‘Procyon’. This etymologises as ‘in front of / the dog’ or ‘the dog in front’. This is also the meaning of Aratus’ phrase ‘Κυνὸς προπάροιθεν [ιόντος’]. If retranslated and reconfigured as ‘of the one who goes in front of ‘The Dog [Sirius]’ or ‘of the dog going in front’ the same words come to refer to Procyon (twice)[89].This is in part a celestial footnote. Procyon has a

[86] See John Maxwell Edmonds. *The Fragments of Attic Comedy*, pp. 570-571.
[87] Note ‘ἐλαφρος’ (‘deer’) and ‘ἐλαφος’ (‘nimble’) as a background etymological connection.
[88] The verb ‘εἰμι’ regularly implies speed as at Odyssey 2.428-429 ‘ … νηὸς ἰούσης /.
ἡ δ’ ἔθεεν κατὰ κῦμα’.
[89] The mythological figure behind Procyon is Maera. Her name etymologises as ‘the most vigorous heat’ (‘ακμαιοτατον καυμα’) according to Hesychius. This must relate the dog to the canicular season of male feebleness and female vigour. The name therefore acts as a touchstone of our discussions relating to these themes.

more northerly declination and therefore appears to the observer to ‘rise first’ ahead of Sirius. However the sexual subtext is still active, for the following retranslation is also now possible: ‘my word, the slack ‘penis’ has become erect under the hind legs ‘of the Dog who goes first (that is ‘of Procyon’)’ or ‘of a dog [or ‘of The Dog’] as it runs off ahead’. Canis Major clearly enjoys the chase as the pursued as much as the pursuer. The entire line however could be included in an Ablative Absolute construction giving the following reading: ‘the penis went taut with Procyon being under his back legs’ or whilst a [different] dog was running along, his (‘οἰ’) penis became erect under its hind legs’ or ‘whilst a dog was running along under The Dog’s hind legs, it had an erection’. Meanwhile the priapism of Canis Major remains unchecked according to this version: ‘his flaccid penis went taut by the agency of the rear legs of a dog as it went in front of it.’. Here Canis Majot is aroused by a passing dog the posterior of which emits a smell. Alternatively again, the exclamatory ‘οἰ’ will revert to its status as a pronominal dative of interest and will be closely attracted to ‘ὑπ[ο]’ (= ‘an erection was had by him under the hind legs of Procyon or of a dog rushing ahead.… ’)'. These meanings can be further reformulated if we construe ‘Κυνὸς προπάροιθεν ἰόντος’ on the basis of an adverbial use of ‘προπάροιθεν’, namely ‘[under the hind legs] of the Dog-Who-Rises-First. Procyon has risen before Sirius both spatially, temporally and sexually.

However Aratus’ emphasis on ‘προπάροιθεν’ provides a further twist in the tale. In the Iliad there is a reference to the same word in the context of ‘going’. Apollo reassures Hector that he will ‘go in ϛadvance’ to make the road smooth for the chariots who are to cross the compromised Achaean wall. This fills Hector with intense energy which is expressed sexually rather than militarily. The hero is likened to a horse that bounds over the plain, self-conscious of its manly beauty and intent on copulating with ‘mares’. Furthermore the simile underlines the frustration of the stallion at being stabled in, for him, an unnatural environment. As soon as it is fed, it breaks its chain. Its animal instincts overpower it. If Argos the dog has some connection with the Argo (and the allusions to the ‘rudder-as-penis’ and the Homeric ‘προπάροιθεν’ seem to guarantee this) then we are forced to consider the possibility that Aratus’ Dog is in some sense a member of the ship’s crew. These crew members have themselves been restricted to a life of the utmost restriction. They have fed well on the numerous beaches they have visited, but their desire, once the Argo has been beached for the last time, is, like the horse of the Iliad, to fulfil neglected urges. Certainly this seems to be the case with one of their ‘stars’.

In Apollonius Rhodius, Jason, the leader of the Argonauts, is specifically compared to Sirius, the Dog Star. The ‘rising’ (‘ἀντέλλει’) or ‘springing up to the heights’ (‘ὑψόσ' ἀναθρώσκων’)[90] of Sirius is underlined in 3.957& 3.959. Although these actions are to be expected of a celestial star, yet, on the other occasion Sirius is mentioned (2.527), we also hear of its ‘risings’ (‘ἀντολέων προπάροιθε Κυνὸς’). These could be considered sexual metaphors, especially given the reference to Aratus in 2.527 namely ‘προπάροιθεν Κυνὸς’. This reference gives us pause. We have been conditioned to translating this nexus together. This makes us wonder whether the translation of Apollonius’ ‘ἀντολέων προπάροιθε Κυνὸς’

[90]We suggest there is more than a hint here of the etymology of ‘man’ ‘ἀνθρώπος’ namely ‘ἀναθρώσκων’ or‘rising up’. The verb can also be written ‘ἀνθρώσκων’ which makes the (priapic) flavour even stronger. ‘ suggest that Procyon was ‘ahead of Sirius too that in Aratus the lines ‘καί μιν καλέουσ' ἄνθρωποι / Σείριον. Οὐκέτι κεῖνον ἅμ' ἠελίωι ἀνίοντα / φυταλιαὶ ψεύδονται ἀναλδέα φυλλιόωσαι’ (331-333) could be reformulated so that ‘Σείριον’ becomes an adjective and joins the syntax of the line it is in. This would leave the reader the option of translating the words ‘καί μιν καλέουσ' ἄνθρωποι’ as ‘Men (i.e those who etymologically and priapically rise’) invoke him; the trees feebly giving forth leaves try to dupe his destructiveness [given that] he no longer rises frivolously together with the sun’. The priapically-challenged men pray to the star that causes their loss of priapism. Nature tries to mollify the ‘destructive’ Sirius which is to be taken seriously (‘κεινος’ = ‘κενος’) now that it is visible on its Morning Rising on July 18th when its light is no longer drowned by that of the Sun. Apollonius juxtaposes ‘κεινωι / Σειριωι’ (2.523-524) to ensure the reader examines the reference to Aratus carefully (‘Σείριον. οὐκέτι κεῖνον’). The ‘rising’ of Sirius is another omen of the star’s virility henceforth. This is no longer just an empty-headed dog.

should not rather be 'before the Dog of Risings'. This would suggest that the people of Ceos, to restore the virility of their males performed their sacrifices 'in the presence of the Dog of Priapism'. Although there is no direct evidence of the use of the sexual nuance of 'ανατολη' the synonymous verb 'ἐξανίστημι' ('make to rise') is used by Euripides of 'making the penis rise'(Cyclops 169). The fact that Euripides qualifies the 'penis 'as 'straight' ('ὀρθὸν') only adds to the sense of 'rising' in the verb.

The reference to Zeus Ikmaios ('ικμαιος'), we suggest, conceals an etymological allusion to the word 'ικμαινω' meaning 'I express liquid', 'I cause liquid to be exuded' (amongst which semen must be included). Furthermore there is an underlying reference to 'sperm-casting' in the appellation given to Apollo. Attention is drawn to the substantive 'Ἑκάτοιο' ('Apollo' or 'the 'Far-shooter') by the subsequent word 'ἔκητι' at *Argonautica* 2.524. This means 'at the will of' and is etymologically related to Hecate ('She who wills'). However 'ἔκητι' has an alternative form in 'ἕκατι' which is a literary omen pointing back to the importance of the preceding Ἑκάτοιο'. Now the word Ἑκάτοιο' could also be considered an adjective of the word 'λοιμοῦ'. In this case 'the warder off' (Aristaeus) may be thought to be warding off the 'far-shooting disease'. This we suggest is a paraphrase for 'impotence'. Male ejaculation was termed 'seed-casting' ('σπερμοβολεω'). Thus the sense of 'throwing' will conjure up ejaculation. Hesychius defines 'Ἑκάτος' as 'μακροβολος' ('far-shooting'). This synonym seems to crystallise the issue. The affliction suffered by the people of Ceos was related to the failure of men to shoot their semen a long way. This in turn entails the lack of a firm erection[91].

Hesiod is the poet who first associates male impotence with the season of Sirius. Women, he notes, are the most wanton but men are the feeblest during the Dog-Days (Works and Days 587). This feebleness is picked up by Apollonius through a further etymology of a proper name, this time 'Φθίην' (2.520) which can only be thought to derive from 'φθίω' ('I fade in physical strength'). The double mention of Phthia in the same passage (514) is intended to focus attention on the name. On the same topic, the reference to 'Lycaon' seems to evoke the word 'λυκαινα' ('she-wolf'). Certainly in late antiquity she-wolves in Isidore were avaricious of men 'snatching them towards themselves and seizing them' (18.42.2). Petronius' Fortunata is described as 'lupatria' or 'lupa trita' ('worn-out she-wolf': 37.6) and she dances the erotic 'cordax'' (52.8). On the other hand a man seen by a wolf was thought to be poisoned and dumb-struck (Pliny 8.80). The enfeebling effect of the wolf is clear in the man's inability to speak. This should remind us of the enfeeblement and muteness of Medea in Apollonius (3.957-973) immediately after Jason breezes in for all the world 'like Sirius'.

Other etymologies may also help to knit the narrative together. At Apollonius 2.522, the Keian gift to Zeus of an altar (and the future 'offerings' that an altar will continue to receive) seems to be reflected in the components of the word describing the 'holy river' of Apidanos ('ἱερὸν ῥόον Ἀπιδανοῖο'). The word 'ἀφιας 'means 'altar' whilst the suffix 'δανος' means 'gift'. Meanwhile the mention of Athamas may allude to Strepsiades' comment in Aristophanes' Clouds to the effect that he fears being sacrificed to the clouds 'like Athamas'. Given that the context of Apollonius' passage deals with sacrifices that ensure the abatement of the worst of the summer heat, a reference to a sacrifice to the Clouds seems very pertinent[92]. Clouds will blunt the heat and above all bring rain. Moreover the mention of Kronos is we suggest intended to evoke the sense of a particular 'season' (in this case, the Dog-Days). The Greek word for 'season' namely 'χρονος' is attributed as an etymology of the god ('κρονος' > 'χρονος'). The word 'Othrys' ('Ὄθρυν') meanwhile may be related to

[91] There may also be a reference to Hecate who was known as a goddess who protected pregnant women.

[92] Hesychius mentions him as being sacrificed to the clouds. Sophocles' eponymous play portrayed the sacrifice of Athamas for having wronged his wife Nephele ('Cloud'). Clearly the hint of men wronging women is also not out of place in a reference to male impotence during the time of greatest female hormonal energy.

‘θρυπτω’ in the Middle Voice (‘I am enfeebled’). At the same time Hesychius relates ‘ὀθρυεν’ to ‘κρημνωδης’ which derives from ‘κρημνος’ (‘lips of the vagina’). On the same theme the verb ‘μινυθεω’ means (of flesh) to ‘waste away’ and this, like the ‘enfeebling’ root of Aristaeus’ ‘Phthia’ (‘φθινω’) seems to be echoed in the mention of the Minoans (‘Μινωίδας’). Returning to the theme of purification and sacrifice, the word Keos (‘Κέος’ ‘Κηος’) of the island where the *aition* takes place can be related to ‘κεια’ ‘κηια’ meaning ‘purification by sacrifice’. Lastly the word ‘Παρράσιον’ (‘Parrhasian’) seems to carry a metapoetic charge. It can be considered to derive from ‘παρα’ and ‘ῥησις’ (‘speaking to one side’ ‘oblique discourse’). By their own (oblique) admission, the text of these authors is anything but straightforward.

If, in Apollonius, the Keians’ affliction is less one of fever and rabies, but one of male impotence during the season of Sirius, then this throws new light onto Aratus’ lines ‘καί οἱ πηδάλιον κεχαλασμένον ἐστήρικται / ποσσὶν ὑπ' οὐραίοισι Κυνὸς προπάροιθεν ἰόντος’. They could now be translated as follows: ‘and his penis having been slack became taut under his hind legs *before the departure of the Dog*’[93]. The phrase ‘Κυνὸς προπάροιθεν ἰόντος’ will now allude to the passing of Sirius and the end of the Dog-Days. Like the Ceans, following the intervention of Aristaeus and the institution of sacrifices, the figure concerned in Aratus is (now) able to have an erection even before the influence of Sirius is past. This retranslation also alludes indirectly to Hesiod who specifies that the season of the Dog-Star ended fifty days after the Summer Solstice. This will be August 9th according to most ancient calendars which date the solstice to June 19th. Hesiod advises against sailing before then since such voyages bring mischief and are ‘snatched’. This stands as an implicit criticism of the Argonauts’ voyage which on this reading was completed before the ‘going away of the Dog’.

Of even greater moment however is the fact that this new version of the line now leaves the preposition ‘οἱ’ unclaimed. If we assume it is not exclamatory then we are free to assign an identity to it which will not be that of Canis Major or Sirius. In the light of Apollonius’ identification of Sirius with Jason, the most natural person to choose is ‘Jason’ based on the adjective of his name at Phaenomena 348. This now makes Aratus’ text in collaboration with Apollonius’ not simply scatological but even potentially allegorical. In saying that the Sirius-like Jason has become priapic even before the end of the Dog-Days, the author is satirising a figure whom Hellenistic kings must have regarded as an Heroic role model.

The phrase ‘Κυνὸς προπάροιθεν ἰόντος’ continues to produce fresh meanings however. Thus nothing prevents the word ‘προπάροιθεν’ resolving itself into two words. Indeed this is encouraged by the emergence from the text of the etymologised name for ‘Procyon’ whose presence in the text we have already confirmed (‘**Κυνὸς προ** πάροιθεν ἰόντος’). This arrangement also permits us to consider for example ‘προ … ἰόντος’ as the verb ‘προειμι’ *in tmesi*. Alongside this we should also be aware of the potential of the phrase to constitute a genitive absolute. One could now translate as follows: ‘and the flaccid penis has become erect under his hind legs while the Dog [Sirius] is going forwards before the public’. This now more obviously ascribes the erection to a human being, one who has returned to the adoring gaze of his countrymen. Apollonius seems to allude to this in his comparison of Jason to Sirius ‘rising loftily fair and clear to see’. Meanwhile the Argo’s crew march through the city like stars (1.236-240). Another version of Aratus’ text presents this sexual phenomenon in an even more lustful light: ‘and its slack penis became erect under its hind legs, while the Dog in Front [Procyon = ‘Κυνὸς **…** πάροιθεν’] was coming before the public (‘προ … ἰόντος’). Here we have an astronomical note according to which Procyon, the constellation, precedes Sirius onto the celestial stage. Once again then the text alludes to the

[93] One of Aratus’ most characteristic ploys is to use a present participle in lieu of a substantive. Thus at line 607 we have ‘ἐπερχόμεναι χηλαὶ’ meaning not ‘the arriving Claws’ but ‘the arrival of the Claws’.

specific season of a constellation's rising and effectively gives a date for the restoration of Canis Major's sexual strength. Procyon's heliacal rising anticipated that of Sirius. According to Pliny at 18.68-69, Canicula ('Procyon') signalled the beginning of intense heat. Meanwhile Clodius Tuscus gives an exact date for Procyon's rising, July 15th. According to him Sirius did not rise until July 18th.

On July 10th meanwhile, the winds that preceded the cooling Etesians began to blow. These preliminary winds were known as the 'prodromoi' ('those that go in front'). The etymology of this word could be glossed by the nexus 'προ … ἰόντος' in our passage. Thus one could translate the line in such a way as to exaggerate further the dog's recovery of his sexual energies: 'Κυνὸς προ πάροιθεν ἰόντος' = '[he became priapic] in advance of [πάροιθεν] the one who goes in advance of [ἰόντος … προ] the Dog [Κυνὸς]. The 'one who goes in advance of' will now be one of the 'prodromoi'. Thus the passage pushes back even further the date of Canis Major's return to sexual potency. By July 10th, when the 'prodromoi' had begun to blow. By then Canis Major was already seeking sexual partners.

22. Germanicus and the Argo

Germanicus Aratea 355: 'puppis demisso tantum stat lucida [or 'roscida'] clavo'
Germanicus' translation of these same lines of Aratus is anything but straightforward. Firstly, the phrase 'puppis … tantum stat' could convey the notion that 'only the stern continues to exist' (the Argo's prow not being extant in the sky). In this context, the alternative reading 'roscida' for 'lucida' is very attractive. In Aratus the Argo's prow is 'dim' and 'starless' [in the sky] ('καὶ τὰ μὲν ἠερίη καὶ ἀνάστερος …'). But the word 'ἠερίη' can also suggest 'early dawn', the time of maximum dewfall according to Varro (Res Rustica 2.2.10). Whilst the stern in Aratus is overwhelmingly 'bright'(350:'τὰ δὲ πᾶσα φαεινή ….') nevertheless 'roscida' ('dewy') as a description of Germanicus' stern would constitute [from the reader's perspective] an allusion to the alternative meaning of 'ἠερίη' ('early morning')[94].

If, on one reading of Germanicus' text, the dissolution of the Argo *qua* ship is evoked, then early dawn is the right time for this dissolution to be dramatized by a parallel celestial narrative. Indeed if in retrospect Germanicus has reconfigured 'ἠερίη' in Aratus so that it means 'early dawn', then the prow's 'star-lessness' reflects the theatrical moment when, in the face of a secondary source of light, namely the Sun, the ship becomes starless. This Argo does not rot away as in one version of its demise. Instead, we must suppose that as the ship beaches stern-first the juddering impact causes shock waves that shatter the structure of the ship forward of the mast[95]. In this light, the Argo's wrecking becomes an aition of the sudden early morning, sun-drenched, starlessness of its prow. As Hipparchus tells us, the prow was not congenitally starless. Aratus knew that its starlessness came over it at dawn. So did Germanicus.

But it will be asked why the stern's stars do not themselves disappear. Such is the force generated by the beaching ship as it hurtles towards land that an array of starfish will be cast up not just on the shingle but also over the stern. The luminosity cast by these inhabitants of inshore waters is so intense that they will cast their radiance over what remains of the ship. The author of this article has seen how bright these creatures are. On a trip along the east coast of Kefalonia, near Roboli we encountered a deep crimson Echinaster Sepositus. At the same time these starfish will be interspersed with other stars, namely the Argonauts whom

[94] '*Ros*cida' carries a probable etymological allusion here to 'Aurora'. See Cicero Aratea IV.7 (ed. Soubiran 2002 note 11 p.233): 'cum primum gelidos rores aurora remittit'.
[95] Compare Strabo 2.3.4 where the fear of a grounded ship breaking up reveals the ever-present likelihood of such an occurrence. Even a gentle grounding was likely to be too much for a vessel. Clearly the beached (stern) half was always likely to survive even if damaged ('καὶ δὴ καὶ συμβῆναι ὅπερ ἐδεδίει: καθίσαι γὰρ τὸ πλοῖον, ἡσυχῇ δέ, ὥστε μηδ' ἀθροῦν διαλυθῆναι').

Apollonius characterises as stars at 1.240. They will have been catapulted onto the beach at Pagasae where they lie spread-eagled on the beach like so many starfish. Thus when Aratus, following the beaching, describes the remaining stern of the ship as 'shining all over' he is not exaggerating ('τὰ δὲ πᾶσα φαεινή': Phaenomena 350). At the same time these unheralded and invisible actors in Aratus' celestial drama, these starfish and nameless sailors, are allegorised in the frequent mentions of nameless stars that populate the anonymous regions of Aratus' sky. Thus passages such as 'πάντα μάλ᾽ ἠερόεντα καὶ οὐκ ὀνομαστὰ φέρονται' (385) and ἀλλ᾽ ἄρα πάντες /ἁπλόοι ἄλλοθεν ἄλλος ἀνωνυμίῃ φορέονται' (145-146) ironically keep the lives of ordinary people and creatures at the forefront of the reader's mind[96]

Meanwhile, Germanicus' recently-beached stern will still be 'dripping wet' ('roscida') from the surf through which it has ploughed. This nuance elicits the sense of 'has come to a halt' which the verb 'stat' is able to bear. It also elicits the nuance 'just' from 'tantum'. Germanicus' text is able to ring the changes of the various meanings of its words. It is as if the text is a kaleidoscope which almost insensibly moves from one tableau to the next. The new meaning of the line is now: 'the dripping stern has just come to a halt'. The suddenness of the act of beaching also emerges from this reading. That is, this retranslation redramatises the events we have been discussing in the previous paragraph. The stern would not be dripping unless its 'halting' took place immediately after it had hit the beach. The Argo stops dead as its prow disappears.

Meanwhile, in its most obvious sense, 'demisso clavo' ('the helm having been lowered') has little to offer either to this context or to the previous one. A beaching is an inappropriate time to lower the rudder (that is, to engage it). Much more likely is the translation 'with the rudder at an angle downwards' or 'the rudder having been made less erect' (that is, 'temporarily decommissioned'). This is a Silver Latin nuance of 'demisso' appropriate to Germanicus' era. Its meaning also implies that the rudder will be spared any damage during the landing. Such a reading accords well with the evidence of the Farnese Globe where the steering-oar is presented at a 45 degree angle (see Figure 14 above).

In other words, we must assume that the steering-oars were not always and invariable stowed horizontally when not required. This will particularly apply when the ship is at sea and is reflected in the legion of vase paintings that show steering-oars at a 45 degree angle. Clearly, during changeable weather, a helmsman would wish to have the steering-oar reasonably 'to hand' even when under sail. Removing the steering-oar from its stowed position between the *epholkaion* and *threnus* was a pernickety procedure as we have seen. Meanwhile in support of this reading of 'clavo … demisso' we could point to Aratus' participle 'κεχαλασμένον' ('relaxed' 'untensed'). For beachings then, we may assume that the steering-oars were left loosely hanging by the ship. This is illustrated on the Francois vase where Theseus' ship has clearly just beached[97].

Meanwhile the word 'stat' may also allude to the fact that the ship has been 'set straight' on the beach by the use of props. This would be a proper way to signal the end of the Argo's mission[98]. Indeed the most suitable word for 'prop' in Latin would seem to be 'clava' ('wooden stick'). The words 'clava' and 'clavus' share a common meaning in the sense of 'dummy weapon'. Such a weapon will clearly be of wood and can hardly be much more than

[96] 'all unnamed and exceedingly dim they go on their way';'but all of them one on one side one on another they go namelessly on their way'

[97] Note the position of the mast. When lowered its tip ('elakate') normally rested in a crutch behind the helmsman on the ikria. However during a vigorous manoeuvre such as beaching, perhaps the mast was situated to cover the middle two quarters of the ship so that it did not unbalance the craft. In such a reconfiguration the crutch will be resituated amongst the rowers. This will allow the pair next to the crutch to hold the mast at its tip to prevent it leaping out on impact. Note that the vase Louvre E735 (Morrison 11d) shows the rudder as straight and therefore engaged suggesting that a beaching is not in the captain's mind at this point.

[98] See the Homeric Hymn to Apollo 507.

a stick. Our view is that Germanicus is trying to broaden the semantic range of 'clavus' by relating it to 'clava' ('stick') and allowing it to express the Greek word 'ἐρμα' ('prop'). The expression 'demisso … clavo' would therefore come to mean (singular for plural) 'the props having been inserted [into the sand /pebbles] the dripping stern stands upright[99]'.

It also seems possible that Germanicus has noticed the sexual innuendo in Aratus' words and is pursuing its implications. A 'stick that has just become less erect' ['demisso tantum … clavo'] is a reasonable evocation of a post-coital penis that has become flaccid. There must be presumed to have been an ejaculation of semen the part of Canis Major which in turn will mean that 'the stern of the Argo continues dripping' [now with semen]'. Such a scenario will not be impossible, given Canis Major's position right in front of the ship's stern[100] . In any event, as we have seen, Jason/Sirius' semen is ejaculated a long way, in testimony of his concupiscence and virility. Such a narratological development of one's source material will also be wholly in the manner of a Hellenistic poet.

Lastly, if 'clavus' means a 'dummy gladiatorial weapon' then 'demisso tantum' will mean that the weapon has 'just been lowered' as a sign of submission. The stern now takes on the mantle of a trainee gladiator who is 'dripping' ('roscida') with sweat after a duel which has been conducted with all the rigour of a contest to the death in the amphitheatre. This combatant is 'still standing' ('stat'), that is, he is technically undefeated but, having submitted to his opponent, he will now have to await the coach's verdict to see if he is to be 'spared' for the stoutness of his resistance. The loss of his 'prow' now explains the reason for the Argo's submission. This novice is half-dead on his feet. We are inevitably reminded of Josephus' famous comment on the Roman army: 'It would not be far from the truth to call their drills bloodless battle, their battles bloody drills' (*Bellum Iudaicum* 3.75)[101].

23. The Blade of the steering oar

To recapitulate, when the steering oar is not in commission but horizontally 'stowed' outside the ship's side, it exerts severe pressure upwards from under the *epholkaion*, and equally severe pressure downwards onto the *threnus* projection. This counter-pressure from opposite sides serves to pin the oar securely in place. The remaining part of the jigsaw, the swelling on the blade noticed by Morrison, now falls into place. It seems to emanate from the middle of the flat part of the blade. We suggest that, when stowed, the vertical blade will be flush with the side of the ship and pointing markedly upwards due to the respective heights of the *threnus* projection (higher) and the *epholkaion* (lower). However the curving profile of the stern must have meant that the straight oar blade soon parted company with it. This must have caused aerodynamic problems. Logically the steering oar will be stowed just when a fair wind starts blowing astern. The helmsman will then start steering by using the sheets to adjust the sail in the manner of Dionysos on the Exekias Cup. But a tail wind will blow into the gap between the vertically-aligned oar blade and the side of the ship. The flat, sail-like surface of the blade will attract the wind into a narrow but significant tunnel between blade and ship. At very least this will tend to blow the blade outwards causing the pinned blade to oscillate erratically from side to side. In wind, this will cause the precious blade to hammer repeatedly

99 For props supporting ships on land see Iliad 1.486.

100 The whole sentence now reads: 'the [dog's] prick having become flaccid, the stern remains, dripping [with semen]. See the Farnese Globe for the position of Canis Major viz-a-viz the Argo.

101 The whole sentence now reads 'the stern, having just lowered its dummy weapon, is still standing dripping with sweat'. In a creative sense the word used here 'puppis' could be considered to derive from the Latin 'pupillus' ('ward' 'someone under the guidance of another'). Such an etymology would underpin this manifestation of the Argo as a gladiatorial trainee under the auspices of a 'lanista'. Moreover the word 'ἠερίη' in Aratus is a synonym of 'βλαβη' 'hurt, harm, injury'. We suggest that Germanicus is allowing the damage suffered by the shipwrecked prow of the Argo to modulate into the injury suffered by a gladiator.

against the side of the ship. To dissipate the power of the wind and to allow it to pass around the blade of the steering oar, a fin will have been added just at the point where the blade would have parted company with the ship's side. This will have allowed the line of the blade to continue to contour the ship's side sufficiently to eradicate the worst effects of the wind. However the vertical blade will have been facing upwards into the wind meaning that there must have been a tendency for the horizontal fin to encourage the majority of the air to pass underneath it causing the stern to rise in the manner of an aircraft. Perhaps the fin was tilted downwards slightly. This will have increased drag and downforce but added to the ship's stability.

In later ships we must assume either that the curvature of the hull towards the stern was less marked or that the steering oar was shorter (or was itself curved). For the later heel attachment observed by Casson must mean that steering-oars were naturally able to contour the ship's side until the very foot of the blade was reached. This heel filled a very small gap between oar and ship and allowed the entire shaft of the blade to fit snugly along the side of the ship minimising any adverse effects of a following wind[102].

It is worth pointing out that this heel seems to be on the leading edge of the blade not on the flat of the blade. This will mean that oars were now attached with the blades, not parallel, but perpendicular, to the ship's side. This may also suggest the ancients had not only discovered but applied the principles of drag and downforce. Drag and downforce are maximised (a) by having a horizontal spoiler [in this case the oar blade] (b) by the asymmetry of that spoiler [in this case the heel] (c) by increasing the surface area of the spoiler [in this case the long rib along the middle of the blade in the Casson examples given above], and (d) by increasing the tilt of the spoiler relative to the wind. Increased downforce will have kept the ship more secure in the water.

24. Polyaenus: Strategems 5.43[103]

A tactic of the helmsman Calliades was to constantly release his steering-oar to thwart attacks from the rear. The pursuer's 'epotides' or 'prow cheeks' would then bump into the steering-oar, forcing the ship's ram to face towards Calliades' thranite rowers. The account implies that the steering-oar involved was of the later design. It had to be perpendicular to the stern to be effective in impeding an attacker closing on the stern. The account also suggests that to release the oar into a position where it would baulk another ship's 'cheeks' was relatively quick and easy. One assumes a trigger mechanism had been developed that made the steering-oar flip up and down easily. Casson doubts that a steering-oar had the strength to fend off an attack. However some deft manoeuvring by the helmsman just before the release of the oar could have put the would-be attacker in a position where his 'cheeks' were vulnerable to being baulked at short range. When the author says 'pursuing' one assumes he means 'coming from behind'. In any case, the result of the stratagem was that the attacker's ram kept being deflected vainly towards the blades of the outermost rowers. The galley shown in Casson figure 108 seems to have a steering-oar that fits the bill. It is longer than the ship. The oar is shown in a vertical position by artistic licence. In reality the blade must have been perpendicular to the hull in order that the heel could contour the curving stern.

Acknowledgments

[102] This explains the asymmetry of the blade on ships such as those in Casson figures 108-110 and 114. See also below however and http://www.rclandsailing.com/design.html: 'Traditionally in any sailing vehicle the only force that is used to counteract the sail and keep the vehicle from flipping over is weight. An alternative is to generate an aerodynamic force (down force) to counteract the sail … This can be accomplished by making the rear beam in the shape of an asymmetric airfoil. The drawback is that an asymmetric airfoil creates more drag than an equally sized symmetric foil'.

[103] For the text and an alternative explanation see Casson note 5, pp.225-226. See also Morrison, p. 292.

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25. References

- Apollonius Rhodius. *Argonautica.* Loeb Harvard.
- Archilochus. *Elegies fragments* 5A 6-7 (Diehl 3).
- Clauss and Martine Cuypers. 2012. "Letters in the Sky: Reading the Signs in Aratus' Phaenomena". In *The American Journal of Philology* 133 (2012): 209-240.
- Casson, Lionel. 1995. *Ships and Seamanship in the Ancient World* (*paperback edition*) *Corpus Inscriptionum Latinarum.*
- Covacef, Petre. 1998. "Despre un tumulus la Constanţa (Un răspuns tehnic la o întrebare a D-lui Dan Sluşanschi)". In *Pontica* 31: 261-264
- Cox, Arthur N., ed. 1999. *Allen's Astrophysical Qualities* (4th ed.). New York: Springer Verlag.
- Crumlin-Pedersen O. 1966. *Two Danish Side Rudders* in *The Mariner's Mirror* 32: 251-26.
- Ekroth, Gunnel 'Altars' in *The Oxford Companion to Ancient Greece and Rome*: 80-84
- Festus. 1997. *De Verborum Significatu*. Ed W.M. Lindsay. Teubner.
- Gerling, Claudia. 2015. *Prehistoric Mobility and Diet in the West Eurasian Steppes 3500 to 300 BC* (De Gruyter) *Corpus Inscriptionum Graecarum.*
- Glare, P.G.W. (ed). 1982. *The Oxford Latin Dictionary.*
- Goodwin W.M. 1959. *A Greek Grammar*
- Hesychius Alexandrinus. 1867. *Lexicon.* Ed. Schmidt, M.
- Kidd, D. 1997. *Aratus Phaenomena.*
- Le Bonniec, Henri. 1969. *Les Fastes d'Ovide* in *Orpheus* 16.
- Lehoux, Daryn.1997. *Astronomy, Weather, and Calendars in the Ancient World*.
- Liddell, H.G; Scott, R; Jones, H.S; MacKenzie, R. 1996. *A Greek-English Lexicon*
- Maltby, Robert. 1991. *A Lexicon of Ancient Latin Etymologies*.
- Morrison, J.S. and Williams, R.T. 1968. *Greek Oared Ships 900-322 B.C.*C.U.P.
- Newlands, Carole E. 1985. *Playing With Time.*
- Polak, Marinus. 2004. "An early roman naval base at Vechten (prov utrecht / nl): facts and fiction in Honesta Missione". In *Festschrift Für Barbara Pferdehirt* (Römisch Germanische Zentralmuseum; Hrsg: 69-98.
- Pollux. 1824. *Onomastikon.* Ed. Wilhelm Dindorf *3 vol, Lipsiae in libraria kuehniana.*
- Ramban. 1976. *Commentary on the Torah. Deuteronomy*. Translated and annotated with index by Ch.B. Chavel. New York.
- Samus, N. N.; Durlevich, O. V.; et al. 2009. *VizieR Online Data Catalog: General Catalogue of Variable Stars.*
- Sophocles. *Tragedies.* Loeb Harvard.
- Soubiran, Jean (ed.). 2002. *Cicéron Aratea, Fragments Poétiques*.

- Ștefan Maria-Magdalena, Stefan, Dan and Sirbu Valeriu. 2017. "Tumuli, Roads and Plots. Decoding the Monumental Funerary Space of the 4th-3rd Centuries BC Kallatis". In *Journal of Ancient History and Archaeology* 4.1: 59**.**
- Stroud, Ronald S. "An Argive Decree from Nemea concerning Aspendos". In *Hesperia*: 206-207.
- Volk, Katharina (2010) "Aratus" in *A Companion to Hellenistic Literature.* Ed. James J.
- Yonge, C.D (1849) *An English-Greek Lexicon.*

Online Sources

- Apollonius Rhodius *Argonautica* (Loeb Harvard).
- www.n.nathalie. martin.free.fr/ pages/Cours4.html.
- The Brightest Stars (2019) (online essay).

www.latin4everyone.wordpress.com/2013/03/.
www.plicklider.com/ pix _f03.htm ww.livescience.com