

HERODOTUS 2.96.1–2*

Τὰ δὲ δὴ πλοῖά σφι τοῖσι φορτηγέουσι ἐστὶ ἐκ τῆς ἀκάνθης ποιούμενα, τῆς ἡ μορφῇ μὲν ἐστὶ ὁμοιοτάτη τῷ Κυρηναίῳ λωτῷ, τὸ δὲ δάκρυον κόμμι ἐστὶ· ἐκ ταύτης ὧν τῆς ἀκάνθης κοψάμενοι ξύλα ὅσον τε διπήχεα πλωθηδὸν συντιθεῖσι, ναυπηγεύμενοι τρόπον τοιόνδε· περὶ γόμφους πυκνοὺς καὶ μακροὺς περιείρουσι τὰ διπήχεα ξύλα· ἐπεὰν δὲ τῷ τρόπῳ τούτῳ ναυπηγήσωνται, ζυγὰ ἐπιπολῆς τείνουσι αὐτῶν. νομεῦσι δὲ οὐδὲν χρέωνται· ἔσωθεν δὲ τὰς ἀρμονίας ἐν ὧν ἐπάκτωσαν τῇ βύβλῳ.

This passage from the most important of all our textual sources on Ancient-Egyptian shipbuilding has been discussed by me in my newly published *Commentary*.¹ There I followed the traditional view whereby ζυγὰ is translated as 'thwarts', ἐπιπολῆς αὐτῶν is taken to describe thwarts passing from one gunwale to the other in such a way that each end was placed 'on top of' the gunwale, and the sentence ἔσωθεν δὲ τὰς ἀρμονίας . . . τῇ βύβλῳ is understood to refer to caulking with papyrus. J. S. Morrison² has in recent years on several occasions offered a radically different translation under the influence of the Fourth-Dynasty boats interred beside the Great Pyramid of Giza (c. 2600 B.C.)³. His criticism of the old rendering seizes upon three points:

1. ζυγὰ. ' . . the Egyptian ships described are cargo carriers not galleys and thwarts would have been as few as possible.'⁴
2. ' . . *epipolēs* means over the surface of (and touching) the planks.'⁵

Putting these two points together Mr. Morrison interprets the ζυγὰ as frames or ribs inserted into the hull to assist in maintaining its shape.

3. The strakes of the Khufu-boats were fastened together by tenons and by ropes. Mr. Morrison argues that, since papyrus was the normal material for ropes and since caulking is better done from the outside, the sentence ἔσωθεν δὲ τὰς ἀρμονίας . . . τῇ βύβλῳ is better explained as a reference to a similar reinforcement of the joints with papyrus ropes.⁶

The new interpretation of ζυγὰ is unacceptable. Nile-ships in antiquity and modern times have been characterized by numerous cross-thwarts. The Dahshûr-boats of Senwosret (Sesostris) III (c. 1878–1843 B.C.) are supplied with them at a frequency of more than one per metre of length.⁷ They are commonly present

* I am indebted to Professor J. Gwyn Griffiths for his comments on an earlier draft of this article. The conclusions are, however, my own.

¹ *Herodotus, Book II. Commentary* 1–98 (Leiden, 1976), pp.384 ff.

² In a review of Casson, *Ships and Seamanship in the Ancient World*, *International Journal of Nautical Archaeology* 1 (1972), 230 ff. and in B. Greenhill, *Archaeology of the Boat* (London, 1976), pp.161 ff.

³ M. Z. Nour, Z. Iskander, M. S. Osman, and A. Y. Moustafa, *The Cheops Boats*, i (Cairo, 1960); B. Landström, *Ships of the Pharaohs* (London, 1970), pp.26 ff.

⁴ Greenhill, op. cit., p.162.

⁵ Loc. cit.

⁶ Op. cit., pp.161 ff.

⁷ Landström, op. cit., pp.90 ff.; A. Göttlicher and W. Werner, *Die Schiffsmodelle im alten Ägypten* (Wiesbaden, 1971), pl. XLIV.

on boat-models¹ and are often depicted on representations of freighters and other kinds of ship.² The modern Nilotic *naggr* (*nuggar*) and related vessels, which are the lineal descendants of Pharaonic boats, show this feature in profusion.³ Structurally the thwarts are intended to brace the vessel laterally but they also serve as benches and as supports for deck-planking, if the latter is employed at all. Herodotus' ζυγά fit this feature perfectly; for in almost all nautical contexts where the word occurs elsewhere it refers to cross-thwarts, the only known alternative being 'yardarm'.⁴ What, however, of ἐπιπολῆς? If it must mean 'over the surface of (and touching) the planks', how do we reconcile it with the traditional view of ζυγά? In fact, ἐπιπολῆς need not imply that the ζυγά were in touch with the hull-planking all along their length. Certainly the word can mean 'over the surface of'⁵ but it can equally well mean simply 'on top of' without any accessory notion of spatial extension.⁶ Ἐπιπολῆς αὐτῶν can, therefore, be translated, without any qualms, 'on top of them [sc. the planks]'. It will then constitute a natural, if not particularly precise, description of thwarts fitted on top of the gunwales and spanning the intervening hull-planking.

The validity of the traditional view of ζυγά is strengthened by a further point. If Mr. Morrison's view were correct, it is most improbable that Herodotus could have written νομεῦσι δὲ οὐδὲν χρέωνται 'They do not use ribs';⁷ for it is well-nigh certain that the ζυγά of the new interpretation would have been νομέες. It might be countered that νομέες were not frames in general but 'active' frames,⁸ i.e. that Herodotus does not exclude the possibility that the Egyptians used 'passive' frames in the construction of their freighters. However, the case for such an interpretation is speculative in the extreme. Our knowledge of shipbuilding in the Classical World is certainly opposed to it. *Odyssey*, 5.244–57 and such wrecks as the Grand Congloué (third–second century B.C.), Dramont (first century B.C.), and Chrétienne A (first century B.C.) demonstrate unequivocally the use of pure shell-building, i.e. the system where 'passive' frames only are employed,⁹ and all data from other sources are entirely compat-

¹ G. Reisner, *Models of Ships and Boats* (*Catalogue Général du Musée du Caire*) (Cairo, 1913), 4798 ff.; S. R. K. Glanville and R. O. Faulkner, *Catalogue of Egyptian Antiquities in the British Museum. II. Wooden Model Boats* (Oxford, 1972), e.g. pp.8–13.

² e.g. Landström, op. cit., pp.99 (317), 101 (319), 110 (342), 112 (345 and 348), etc.

³ S. Clarke, 'Nile Boats and other Matters', *Ancient Egypt* (1920), pp.5 ff., 43 ff.; J. Hornell, 'The Frameless Boats of the Middle Nile. Part I', *Mariner's Mirror* 25 (1939), 417 ff.; 'Part 2', op. cit. 26 (1940), 125 ff.; id., *Water Transport* (Newton Abbot, 1970), p.215; cf. Greenhill, op. cit., p.111, fig. 63.

⁴ LSJ 757, s.v.; L. Casson, *Ships and Seamanship in the Ancient World* (Princeton, 1971), p.220.

⁵ Cf. Herodotus, 4.201.1; Strabo, 12.7.3 (C570).

⁶ Cf. Herodotus, 1.187.1; Aristophanes,

Plutus 1207.

⁷ If we exclude lexicographers, νομεῦς in this sense is confined to Herodotus and Procopius (*Bell. Goth.* 4.22.12). Its interpretation is based on Herodotus 1.194, Hesychius, s.v. (where it is glossed as τῶν πλοίων τὰ ἐγκοίλια 'the futtocks of ships', cf. Casson, op. cit., p.221), and the context of Procopius.

⁸ So L. Basch ('Ancient Wrecks and the Archaeology of Ships', *IJNA* 1 (1972), 45 ff.) and J. S. Morrison (in Greenhill, op. cit., pp.165 ff.).

⁹ Basically there are two ways of building a plank-boat. Either one constructs a plank shell and then fits in such bracing as is necessary or one constructs a skeleton of frames and the planks are then fitted around that. In the first case the frames are said to be 'passive', in the second 'active'. However, intermediate stages do occur where one or more 'active' frames are used together with 'passive' frames. As far as I know, neither skeleton-building nor the

ible with that technique. Granted in some wrecks the use of 'active' frames cannot be positively excluded but there is not a shred of evidence to suggest their employment and the hypothesis is totally unnecessary. The etymological argument that the word *νομέυς* means 'director-frame' and implies an 'active' frame is worthless. Even if we admit the validity of such a use of etymology,¹ it must be conceded that the metaphor 'director, controller, regulator' could easily have been applied to ribs inserted after the construction of the shell since their specific function was to regulate, control, or maintain the shape of the hull. The use of *νομέες* in Herodotus 1.194 to refer to 'active' frames in Mesopotamian skin-boats in no way strengthens the etymological thesis. When confronted with this novel phenomenon Herodotus, and any other Greek for that matter, would surely apply to it the most apposite Greek terminology. A word for the Greek 'passive' frames would naturally be employed to describe the 'active' frames of these foreign vessels. We cannot, therefore, use this passage as proof that *νομέες* were *exclusively* 'active' frames, only that the word *could* be applied to such a feature. The probabilities are, therefore, overwhelmingly in favour of regarding *νομέες* as a general word for frames or ribs and that, in turn, provides compelling evidence that the *ζυγά* of 2.96.2 were not ribs.

The final problem concerns the precise function of papyrus in constructing the hull. Here too it seems probable that the old view is correct. In the first place, not only is there no evidence of sewn boats in Egypt after the Old Kingdom but the much later Dahshūr boats are certainly not so constructed. Secondly, in modern Nile boats which, let it be reiterated, are demonstrably the lineal descendants of Pharaonic craft, seams can be caulked from within by clothing or anything else that comes readily to hand.² A third point should also be borne in mind. 96.1–3 consists of a series of implicit contrasts with Greek practice. The Egyptians construct freighters of acacia (the Greeks of fir, acacia only being used for internal features); the Egyptians build up strakes of short pieces of wood (the Greeks use long planks); the Egyptians brace their hulls simply by using *ζυγά* (the Greeks employ *νομέες*); the Egyptians use one steering-oar and that is placed in the centre-line (the Greeks use two and they are placed on the quarters). If *ἐμπακτόω* referred here to sewing the seams together vertically on the *inside* of the hull, as in the Khufu-boat, we should have to postulate that Herodotus had in mind a *contrasting* contemporary Greek custom where seams were fastened vertically with ropes *ἔξωθεν*. There is not, however, the slightest evidence of any such custom in fifth-century Greek shipbuilding.

Finally and most important, there is the lexicographical argument that the compound *ἐμπακτόω* could hardly refer to anything but stuffing material into cracks to make them water-tight, cf.

occasional use of 'active' frames has been identified in the Mediterranean World before the fourteenth century A.D. (Casson, *op. cit.*, pp.202 ff., and A. Christensen, 'Lucien Basch: Ancient Wrecks and the Archaeology of Ships: a Comment', *IJNA* 2 (1973), 137 ff.).

¹ The complex relationship between etymology and semantic evolution suggests

the advisability of extreme caution in using this method (cf. the development of the English 'tack' and 'truck/truckle').

² Clarke, *op. cit.*, p.50. He further remarks 'To caulk a hull as we do it, the boat must be on land and attacked from the outside, but in the case of the nagg the traveller remedies the leak as he travels along, which indeed I have assisted in doing!'

ἡμεῖς δ' ὅσ' ἦν τετρημένα
ἐνεβύσαμεν ῥακίοισι καπακτώσαμεν.¹

To conclude. Without the least strain on the Greek the traditional interpretation of 2.96.1–2 provides a perfect description of a style of Nilotic boat-building exemplified from the Middle Kingdom down to modern times. It must be preferred to Mr. Morrison's attempt to manhandle the text into yielding a description of the much older constructional principles of the Khufu-boats. That is not to say that boats of the type described by Herodotus were the only species of freighter built in Egypt during the fifth century. His conviction to the contrary carries little weight when we bear in mind his tendency to generalization² whilst the variations observed on the Upper Nile in modern times as well as sheer common sense suggest the extreme likelihood of local differences in antiquity also.³ In some areas in Herodotus' time 'passive' ribs may well have been used. After all, they certainly occurred in the Old Kingdom—on royal barges at any rate—and if, as seems probable, the Egyptian word *wgiw/wg3yw* refers to such a feature, they were also to be found much later.⁴ Admitting all this, however, the crucial point to us is that in the area where Herodotus, or his source, culled the information recorded in 2.96 the standard cargo-carriers were evidently ribless boats of the *naggr* type⁵ and it is these that he is attempting to describe. We should, therefore, still translate:

Their freighters are constructed of acacia whose shape is closely similar to the Cyrenaean lotus and whose sap is gum. From this acacia, then, they cut planks about two cubits long and fit them together after the fashion of brickwork, building their ships in the following way: they fix the two-cubit planks around long tenons set close together. When they have built their ship in this way, they stretch thwarts over them [sc. the planks]. They do not use ribs. They caulk the seams from within with papyrus.

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¹ Aristophanes, *Wasps* 127–8.

² Lloyd, *Herodotus, Book II. Introduction* (Leiden, 1975), pp.149 ff.

³ Cf. C. Boreux, *Études de nautique égyptienne* (MIFAO 50) (Cairo, 1925) p.289.

⁴ Op. cit., pp.290 ff.

⁵ It should be observed that Herodotus

is talking about the structure of the boat *at the time of building*. After long use shell-built boats often weaken and it is perfectly possible that in Egypt, as elsewhere, they eventually needed strengthening by the insertion of ribs (cf. Casson, op. cit., p.202).