SHORTER NOTES

HERODOTUS 2.96.1–2 AGAIN

νομεῦσι δὲ οὐδὲν χρέωνται· ἔσωθεν δὲ τὰς ἁρμονίας ἐν ὧν ἐπάκτωσαν τῇ βύβλῳ.

As A. B. Lloyd points out, the passage from Herodotus which includes this sentence is the most important non-Egyptian commentary on Ancient Egyptian shipbuilding.[1] In the years following the discovery of the Dynasty IV ships buried beside Khufu's pyramid at Giza (*c.* 2500 B.C.),[2] J. S. Morrison suggested a change in the translation of the word (ἐν)επάκτωσαν.[3] Traditionally, and in Lloyd's commentary, the verb ἐμπακτόω has been interpreted as meaning 'to caulk'.[4] Morrison, however, believes that (ἐν)επάκτωσαν ought to refer to reinforcement of a ship's fastenings with papyrus ropes. He bases this interpretation on the evidence of the Khufu boats, which are sewn through v-shaped mortises across the hull's width (Fig. 1), and on the argument that caulking is better done from the outside. Lloyd has challenged this translation, but we would like to support it with some further evidence, in particular evidence of Egyptian shipbuilding practice.

When Wilkinson translated the passage in 1879, he included the phrase, 'the whole is bound within by bands of papyrus'.[5] It was after the discovery of the Dynasty XII Dahshur boats that the passage was re-examined by Clarke, who believed that it described caulking, rather than binding.[6] Thus Clarke found historical evidence for a practice he observed in modern times – that of caulking boats from the inside, a process, Clarke writes, that 'must always have been done or the boat would not float'. Other scholars of shipbuilding followed the same translation. Boreux,[7] Edgerton[8] and Casson[9] interpret the passage as saying that Egyptian boats were caulked with papyrus.

At the same time that Edgerton rejected Wilkinson's translation of (ἐν)επάκτωσαν, he interpreted a boatbuilding scene from Beni Hasan that showed a man with a rope inside a hull. Unlike the Dahshur boats where gunwales were attached to each other and to the hull with lashing, this man, Edgerton says, 'is apparently fixing his rope or thong in the body of the hull, not in the gunwale'.[10] He also noted that by the time of Herodotus no vestige of sewing remained in wooden hulls.

[1] A. B. Lloyd, 'Herodotus 2.96.1–2', *CQ* 29 (1979), 45–8.

[2] P. Lipke, *The Royal Ship of Cheops*, *BAR* International Series 225 (Oxford, 1984).

[3] Review of L. Casson, *Ships and Seamanship in the Ancient World*, in *International Journal of Nautical Archaeology* 1 (1972), 230ff., and in B. Greenhill, *Archaeology of the Boat* (London, 1976), pp. 161ff. Lloyd rightly argues against changing the translation of ζυγά from 'thwart', or 'crossbeam', to 'ribs'. Egyptian watercraft depended upon crossbeams, which seem to be consistently placed about one metre apart, to tie the hull together. Although frames of substantial dimension are known from Egyptian hulls, the smaller boats described by Herodotus would not have required their support.

[4] LSJ, s.v., '*close by stuffing in* or *caulking*', A. B. Lloyd, *Herodotus, Book II, Commentary 1–98* (Leiden, 1976), p. 387.

[5] Sir G. Wilkinson, *The Manners and Customs of the Ancient Egyptians*, ii (London, 1879), p. 207.

[6] S. Clarke, 'Nile Boats and Other Matters', *Ancient Egypt* (1920), 44.

[7] C. Boreux, *Études de nautique égyptienne*, MIFAO 50 (Cairo, 1925), p. 239.

[8] W. F. Edgerton, 'Ancient Egyptian Ships and Shipping', *American Journal of Semitic Languages* 39 (1923), 109ff., esp. 120.

[9] Op. cit., p. 14 n. 15.

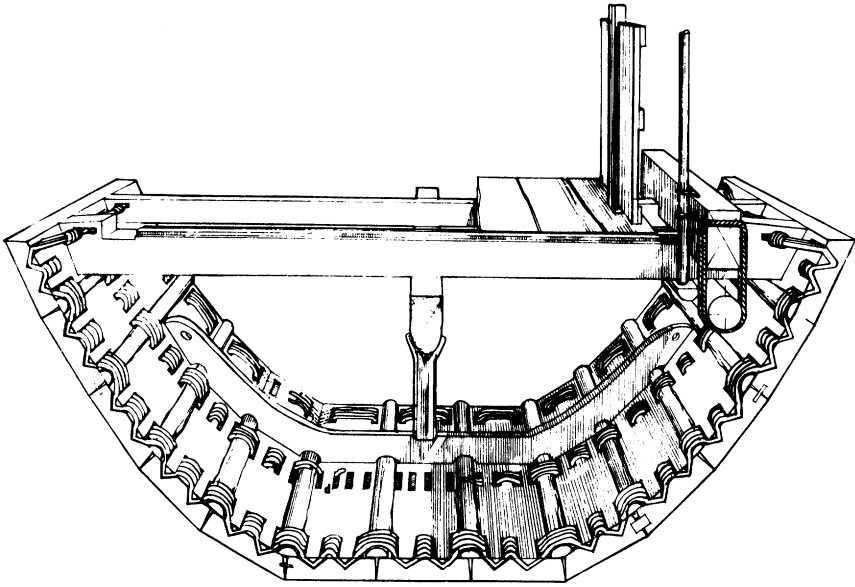[10] Op. cit., p. 135. But note that S. Wachsmann (*Seagoing Ships and Seamanship in the Late*

Fig. 1. This cross-section of the Khufu hull illustrates ropes threaded through v-shaped mortises cut into the inner surfaces of planks. Every other sewn boat known to us relies upon sewing along plank seams, here covered with battens secured by the ropes. (Artist: Peter Schmid.)

Lloyd's argument for the traditional interpretation of the word (ἐν)επάκτωσαν centres on three points:[11] the lexicographical argument that the compound ἐμπακτόω must refer to 'stuffing material into cracks [between plank seams] to make the seams watertight'; the view that Herodotus was offering implicit contrasts to Greek practice and thus would be contrasting an Egyptian method of fastening seams vertically with ropes *inside* the hull (ἔσωθεν ... ἐν ... ἐπάκτωσαν; Fig. 1) with a Greek practice of doing so on the *outside*;[12] and the lack of evidence for sewn boats in Egypt after the Old Kingdom.

The lexicographical point is worth further examination, for none of the parallels supports the meaning 'caulk'. The compound ἐμπακτόω occurs only in Herodotus, but Lloyd cites for a parallel Aristophanes' *Wasps* 127–8, ἡμεῖς δ' ὅσ' ἦν τετρημένα | ἐνεβύσαμεν ῥακίοισι κἀπακτώσαμεν. Here, however, the stuffing with rags is expressed by ἐνεβύσαμεν ῥακίοισι, and κἀπακτώσαμεν is more likely to complement than to repeat this precise thought. Here, and in all other passages cited by LSJ, the verb πακτόω is best taken as 'fasten', 'make fast', 'bind fast',[13] and this sense is also

Bronze Age Levant [unpublished Ph.D. dissertation: Hebrew University, December 1989], p. 199) has pointed out that this is probably a rope used to guide a plank into place and that the tomb of Nefer (illustrated in B. Landstrom, *Ships of the Pharaohs* [Garden City, NJ, 1970], p. 38, fig. 103) shows true lashing within a hull. Wachsmann also comments on Herodotus 2.96.1–2 (op. cit., pp. 188–9).

[11] Op. cit., pp. 47–8.

[12] Lloyd, op. cit., p. 47.

[13] *Anthologia Palatina* 10.23, λαίφεα; Archilochus 279 West, πακτῶσαι, glossed by Photius as συγκλεῖσαι; Aristophanes, *Lysistrata* 265, μοχλοῖς δὲ καὶ κλήθροισι | τὰ προπύλαια πακτοῦν; Sophocles, *Ajax* 579, δῶμα πάκτου.

appropriate to the five additional contexts produced by a word search through the *TLG*. Of these, a reference in Eustathius to Herodotus' usage is particularly interesting (Eustathius, *Odyssey* 1.211, *ad* 5.248):

ἁρμονίαι δέ, ἄδηλον οἷαι τῇ σχεδίᾳ πεποίηνται. εἰκὸς δὲ ἀπὸ φυτῶν τινων γενέσθαι, δι᾽ ὧν ἦν ἀναπληροῦσθαι τὴν τῶν στυππείων χρῆσιν. ἐπεὶ καὶ τοιούτοις τὸ παλαιὸν αἱ νῆες ἡρμόττοντο. καθὰ δηλοῖ καὶ Ἡρόδοτος ἐν τῷ, πακτοῦσι τὰς ἁρμονίας, βύβλῳ. τουτέστι κατασφαλίζονται.[14]

The reference to hemp or tow (στυππείων) and the verb ἡρμόττοντο ('fit together', 'bind fast') show clearly that Eustathius takes Herodotus to refer to binding, not caulking. In none of the other passages cited is the meaning 'caulking' possible; and the compound used by Herodotus need not point in that direction. The cognates of the verb also bear this out, for example the noun πάκτωσις, defined by LSJ as *fastening, putting together*. Another cognate noun is πάκτων, a '*light boat* of wickerwork [actually papyrus] used on the Nile'. Papyrus boats were never caulked, so this cannot be the source of the name; rather the reference must be to the binding fast of papyrus bundles to make the vessel. Clearly this is the basic meaning of the verb, derived from the adjective πηκτός, 'well put together, compacted', which frequently refers to objects put together from several pieces.[15] The meaning 'made fast, fastened' is entirely appropriate for the verb in the *Wasps* passage, and this sense is appropriate also to the compound in Herodotus 2, where τὰς ἁρμονίας ἐν...ἐπάκτωσαν can readily be interpreted as 'they bound/fastened in the seams'. There is no need to resort to an invented meaning 'caulk', which has no support elsewhere in Greek.

As for Lloyd's second point, he rightly concludes that there is no evidence for seams sewn on the outside of ships in fifth-century B.C. Greek shipbuilding. On the other hand, it may be that the contrast Herodotus was making was between Greek shipbuilding methods that did not use lashing at all and Egyptian shipbuilding traditions that depended upon it.

Finally, on the topic of sewn boats in Egypt after the Old Kingdom, Lloyd rightly states that the Dahshur boats, as they appear today, are not fastened with ropes other than at the gunwale. However, reconstruction of the vessels after they were excavated resulted in major changes to their structure. In addition to iron bands nailed around the hull, beams were nailed into re-cut notches, some plank ends were sawn off, and almost all of the dovetail fastenings were crudely enlarged in all dimensions. During the recording of timbers from the hull of the Dahshur boat in the Carnegie Museum of Natural History, it became clear that the few ancient dovetails remaining in the planks have ambiguous features.[16]

Rather than appearing as simple fastenings, the ancient mortises have a rounded depression across their wide ends and taper gracefully, though somewhat unevenly, to the plank edge (Fig. 2). As far as we are aware, this is not the case in contemporary Egyptian dovetail fastenings used in furniture and other forms of construction.

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[14] Cf. Eustathius, *Iliad* 2.683 (ad 9.144), where the same definition is given, and Eustathius, *Odyssey* 2.294 (ad 23.41), where πακτῶσαι is defined as τὸ συγκλεῖσαι. The other passages are Aristophanes, fragment 721, ἐπιπακτοῦν τὰς θύρας; Hipponax, frag. 104 line 19, τὴν] θύρην ἐπάκτωσα. It should be noted, though, that Photius glosses πακτῶσαι as σφηνῶσαι θύραν, using a verb which can refer to plugging up holes.

[15] For example a plough (Homer, *Iliad* 10.353, *Odyssey* 13.32) as opposed to a one-piece, αὐτόγυος plough (Hesiod, *Works and Days* 433); a stool (*Homeric Hymn to Demeter* 196).

[16] C.W.H. is grateful to the Carnegie Museum of Natural History for permitting her to record timbers from the Dahshur boat, acc. no. 1842, in their care.

Fig. 2. Dovetail mortises in plank surfaces of the Dahshur boat in the Carnegie Museum of Natural History sometimes retain curious traces of former fastenings, and may have once been for lashings rather than wooden tenons. Unaltered mortises have smooth curves, as on the left side of this fastening; recut mortises have sharp, angled lines, as on the right side, but unusual depressions with rounded ends often remain visible in the bottom of the cut.

Traces of similar rounded depressions can be seen in some of the re-cut mortises, and it may possibly be that these are the remains of shallow lashing mortises.

This suggestion appears even more plausible when the early Dynasty XII timbers from the pyramid complex of Senwosret I (c. 1850 B.C.) at Lisht are examined.[17] These sturdy planks are the remains of a boat or boats purposefully broken apart and buried just below the surface of the ground as foundations for ramps and causeways. The planks were joined by deep mortise-and-tenon edge fastenings and by a type of webbing in L-shaped lashing holes. Lashing holes are on plank edges and inner surfaces only.

This lashing was an integral step in the construction of these vessels, and appears in definable patterns on more than half of the 24 drawn timbers. Similar patterns of lashing mortises in strategic locations, for example at scarfs, are visible in the excavated Khufu vessel. Curiously, the lashing pattern on the Lisht timbers exactly parallels the position of the dovetail fastenings on the Dahshur hulls: fastenings are found on one edge near the ends of the planks and, on the opposite plank edge, slightly closer to the centre of the plank.

In sum, each of Lloyd's arguments against the translation of the word (ἐν)επάκτωσαν may be reconsidered in light of new evidence for methods of ancient Egyptian hull construction, and a consideration of how the verb itself is used in other

[17] C. W. Haldane, 'New Evidence for Ancient Egyptian Hull Construction', *Mariner's Mirror* 74 (1988), 141–52.

Greek texts. We believe that the closing sentence of the passage should read as follows:

'They bind in the seams from within with papyrus.'

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ARCHAISMS IN THE TROIZEN DECREE

The decree of Themistocles, discovered by M. H. Jameson and first published by him in 1960 has given rise to.an intense debate centring on the question of the decree's authenticity.[1] This debate has focused to an important extent on supposed archaisms or anachronisms in the text. If a word appears to be used in an 'archaic' manner, i.e., in this instance, one peculiar to the early fifth century, it may be an indication of the inscription's authenticity. Conversely, a word employed in a manner proper to a later time may be an indication of the decree's actual period of origination. Thus an early and influential commentator, D. M. Lewis, argued for the decree's authenticity asserting: 'I see no reason to suspect a forgery. There are too many traces of official and archaic language.'[2].

However, in the commentary to the decree in Meiggs–Lewis only the use of μεθίστημι instead of ὀστρακίζω in line 45 and the use of ξένοι for μέτοικοι in lines 7, 13 and 30 were still regarded as examples of official and archaic language: 'These seem to be the surviving points from an attempt to show that there was "no reason to suspect forgery".'[3] But are these in fact instances of the archaic employment of these two words?

Lines 44–7 of the decree contain provision for the recall of certain men previously ostracized:

ὅπως δ' ἂν καὶ ὁμονοοῦντες ἅπαντες, ᾿Αθηναῖοι | ἀμύνωνται τὸμ βάρβαρον, τοὺς μὲν μεθεστηκότας τὰ [δ']έκα] ἔτη ἀπιέναι εἰς Σαλαμῖνα καὶ μένειν αὐτοὺς ἐ[κε|ῖ ἕως ἂν τι τῶι δήμ]ωι δόξηι περὶ αὐτῶν.

Lewis comments, 'I find this the clearest single piece of evidence for authenticity. These men have been ostracized, but the word is not used, although forms of it are frequent and universal in general literature from Herodotus (8.79.1) onwards. It is not used because it is not the official word, perhaps even because it does not yet exist. The official word is μεθίστημι.' He goes on to say that this official word occurs in only a few passages all of which, he thinks, 'depend, directly or indirectly, on documents': Philochorus 328 F 30, Schol. *Knights* 855, Arist. *Pol.* 1284a21, Plut. *Them.* 11.1, Plut. *Arist.* 8.1, and Aristides 46, p. 248 Dind. Lewis concludes: 'A forger who avoided τοὺς ὠστρακισμένους would have shown remarkable restraint and knowledge.'[4]

Leaving aside the question of whether the Athenians employed an 'official' word for ostracism in 480 or afterwards, I wish only to draw attention to some examples of the subsequent use of the verb μεθίστημι. Most important is Ps.-Demosthenes

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[1] *Hesperia* 29 (1960), 198–223. A summary of the early stages of the debate is provided by M. H. Chambers in *Philologus* 111 (1967), 166–9.
[2] *CQ* n.s. 11 (1961), 61–6.
[3] R. Meiggs and D. M. Lewis, *Greek Historical Inscriptions* (Oxford, 1969), p. 52.
[4] Op. cit., p. 62.