How Many *Pentereis?*

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D URING the course of the fourth century B.C. it is apparent that the τριήρης, the virtual ship-of-the-line in naval warfare for most of the previous century, was gradually superseded as the decisive type of vessel in Mediterranean *naumachiae*. Although the trireme in general continued to be numerically the strongest contingent in fleets of the time, increasing use was made of the τετρήρης and the πεντήρης, both of which formed significant components of victorious naval forces in the sea battles of the last quarter of the fourth century B.C.[1]

According to Diodorus Siculus, the first πεντήρεις were constructed in 399/398 B.C. at the instigation of Dionysius I of Syracuse,[2] who in the following year used the first of the new-style vessels to convey his bride-to-be from her native Epizephyrian Locri.[3] The *pentereis*, or quinqueremes, were probably first deployed in warfare in the summer of 397 B.C. when Dionysius besieged Motya, using many ships in the process.[4] In the eastern Mediterranean they became increasingly more common during the latter half of the century. By the middle of the fourth century Sidon included quinqueremes in its fleet during

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[1] On the gradual decline of the trireme see K. J. Beloch, *Griechische Geschichte* III.1[2] (Berlin and Leipzig 1922) 460 and 461 n.4, to which should now be added J. Taillardat, "La trière athénienne et la guerre sur mer aux Ve et IVe siècles," in Jean-Pierre Vernant (ed.), *Problèmes de la guerre en Grèce ancienne* (Paris 1968) 183–205. As an example of the degree to which the trireme was still numerically predominant at the close of the fourth century, note H. Hauben, "Fleet Strength at the Battle of Salamis (306 B.C.)," *Chiron* 6 (1976) 1–5.

[2] Diod. 14.41.3, 42.2. The reading πεντετηρίς in MSS. **B²D R S V** at Hdt. 6.87 is now universally preferred to the anachronistic πεντήρης of **A** and the rest (*cf.* the comments of G. Grote, *A History of Greece* III [London 1862] 400 n.1). For the tradition recorded by Pliny, *HN* 7.207, attributing the invention of the quinquereme to the Salaminians, see F. Miltner, "Pentere," *RE* 19 (1937) 534.

[3] Diod. 14.44.7.

[4] Diod. 14.47.4–53.5. Motya, which lay some six stades off the coast of Sicily, was Dionysius' prime target when he launched his offensive against the Carthaginians. Diodorus states that a fleet of almost two hundred warships was mobilized for the assault.

the revolt against Artaxerxes III Ochus,[5] and in 332 B.C. both the
Cypriot and Phoenician fleets had contingents of *pentereis* at the time
of the besieging of Tyre by Alexander the Great.[6] Alexander himself
deployed these vessels,[7] and there appears little doubt that the grand
Macedonian naval force under the command of Cleitus in the
Lamian War of 323/322 B.C. must have contained a number of
pentereis.[8] Towards the close of the century quinqueremes were an
integral part of fleets of the Diadochi, as instanced by the degree to
which both Ptolemy I Soter and Demetrius Poliorcetes relied upon
that class of ship at the battle of Cyprian Salamis.[9]

What then of the composition of the naval forces of the Athenians
in the Lamian War, in which Athens' long-standing supremacy at sea
came to an end? No extant literary source suggests any type of ship
other than the τριήρης and the τετρήρης in the Athenian war fleets of
323/322 B.C.[10] There are two references to πεντήρεις, however, in the
Tabulae Curatorum Navalium, the annually compiled inventories of
Athens' fleet and its equipment.[11] The first of these references is

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It is likely that Dionysius' experiments in developing the larger vessels some two years
earlier is to be linked with preparations for the Carthaginian war.

[5] Diod. 16.44.6, τριήρεις καὶ πεντήρεις εἶχε πλείους τῶν ἑκατόν. This reference was
apparently overlooked by Sir W. W. Tarn, *Hellenistic Military and Naval Developments*
(Cambridge 1930) 130, where the claim is made that after Diodorus' information con-
cerning Dionysius, quinqueremes are "not heard of again" until the 330's B.C.

[6] Arr. *Anab.* 2.21.9, 22.2, 22.5.

[7] At Tyre (Arr. *Anab.* 2.22.3; Curt.Ruf. 4.3.11, 4.4.7–8) and among the vessels dis-
assembled in the Levant and transported overland to Thapsacus, thence downriver to
Babylon (Arr. *Anab.* 7.19.3). Also, among the *hypomnemata* brought to light after Alexander's
death were instructions to Craterus to have built one thousand ships "larger than
triremes" (Diod. 18.4.4).

[8] For the decisive naval battles of the Lamian War no extant source provides details of
the composition of the Macedonian fleet. The only direct reference to the grand fleet under
Cleitus is at Diod. 18.15.8, where the force is put at 240 ships. Given Alexander's experience
at Tyre and the evidence that he subsequently incorporated *pentereis* into his naval forces
(*supra* n.7), there is little likelihood that such vessels were not included in the fleets which
played such a vital rôle in the defeat of the Athenian navy. That the Diadochi relied so
heavily on quinqueremes would also suggest this was so.

[9] Main sources for the naval engagement off Salamis (including the ship numbers) are
Diod. 20.49.1–52.6; Plut. *Demetr.* 15–16; Polyaenus, *Strat.* 4.7.7. The battle itself has been
well discussed by J. Seibert, *Untersuchungen zur Geschichte Ptolemaios I* (Münchener Beiträge
56, 1969) 190ff, and the problems of the ship numbers most recently by H. Hauben
(*supra* n.1).

[10] Diod. 18.10.2 records that it was the intention of the Athenians to commission both
triremes and quadriremes. At Diod. 18.15.8 and Just. *Epit.* 13.5.8 (echoed by Oros.
3.23.15) there is no indication of the types of ships which comprised the fleets.

[11] *IG* II[2] 1629 line 811; 1632 line 35.

recorded as follows in *IG* II² 1629 *d* line 811, datable to the year 325/324 B.C.:

ΚΑΙ ΠΕΝΤΗΡΕΙΣ : ΓΙΙ·

If Athens had seven *pentereis* in 325/324 B.C., it is somewhat surprising that there is no mention in the sources of them having been commissioned in the Lamian War of 323/322 B.C.—especially so, as it appears certain that the opposition forces had some vessels of that class. Faced with this apparent anomaly, Sir William Tarn concluded that Athens did not mobilize her attested seven quinqueremes as they were in an experimental stage and considered a failure.[12]

Historical comment on this line from the naval lists has, since 1883, been based on the reading of seven *pentereis*, first published by U. Koehler in *IG* II in that year and subsequently reproduced by J. Kirchner in the *editio minor* in 1927. It should be noted, however, that the text is not so definitive, as can be seen from the accompanying photograph (PLATE 2).[13] In fact, the reading of the numerals has had a quite remarkable run of conjectures, as the following tabulation indicates:

1830's	L. Ross	: ΓΙΙΙ
1840	A. Boeckh	: ΙΙΙ
1857	K. Pittakis	: ΙΙΙΙ
1883	U. Koehler	: ΓΙΙ
1927	J. Kirchner	: ΓΙΙ[14]

Even more remarkable is that not one of the above conjectures is correct. The difficulty in ascertaining the true reading of the stone is due to an over-inscription by the stonemason (see PLATE 2 and Figure 1). To arrive at both what was initially inscribed and what was superinscribed it is necessary to take into account the manner in which the naval inventories were compiled.

In the recording of data the *Tabulae Curatorum Navalium* are of a

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[12] Tarn, *op.cit.* (*supra* n.5) 131.

[13] Permission to have a photograph of the relevant section of EM 10383 taken and published was generously granted by the Greek authorities.

[14] Ross's proposal is recorded by Kirchner in *IG* II² p.256 in the commentary to line 811 of *IG* II² 1629. For the other conjectures see A. Boeckh, *Urkunden über das Seewesen des Attischen Staates* (Berlin 1840) 494 col.d line 90; K. S. Pittakis in Ἐφημερὶς Ἀρχαιολογική (1857) 1555 col.d line 90; U. Koehler, *IG* II, Pars II (1883) 809 col.d line 90; J. Kirchner, *IG* II², Pars II, Fasc. I (1927) 1629 line 811.

formulaic nature. One of the recurring formulae is that used to record the annual reckoning of ships made by the ἐπιμεληταί when they were about to surrender their duties to the incoming board of dockyard curators. Seven of the extant *tabulae* contain all or part of this formula giving the total count of Athenian naval vessels. Of these seven, the first three (from within the period 357/356 B.C. to *circa* 331/330 B.C.) show a gradual evolvement of the formula, which in the last four cases (from the years 330/329, 326/325, 325/324 and 323/322 B.C.) is fully developed and constant in its formulaic elements, of which there are four. I have elsewhere referred to this as the *Arithmos* formula and given a full account of its elements.[15] The four constant elements of the fully developed *Arithmos* formula are as follows:

(1) ἀριθμὸς τριήρων τῶν ἐν τοῖc νεωρίοιc καὶ τῶν ἐμ πλῶι οὐcῶν (often followed by lines inserted within the formulaic structure to explain any unusual acquisitions included in the above ἀριθμόc): then the actual numbers.

(2) τούτων ἐμ πλῶι: then follow the numbers (usually followed by an inserted formulaic expression to indicate how many of these had been voted by the *demos* as horse transports, unsuitable for warfare).

(3) τετρήρειc δ(έ) ἐμ μὲν τοῖc νεωρίοιc παρέδομεν: then follow the numbers.

(4) ἐμ πλῶι δέ: then follow the numbers.

The four basic elements of the *Arithmos* formula for 325/324 B.C. (*IG* II² 1629 lines 783ff) record the following numbers:

(1) HHHΡΔ = total number of triremes was 360,
(2) ΔΔΔII = (of which) 32 were at sea.
(3) ΔΔΔΔIII = in the dockyards were 43 quadriremes,
(4) ΓII = and 7 (others) were at sea.

Given that the annual ἀριθμόc was recorded in such formulaic terms, it is possible to reëxamine *IG* II² 1629 line 811 to see what the difficulty is, how it arose and what is the demonstrably correct reading.

Of particular interest in this instance are the final five lines of the formula, which read as follows in *IG* II² 1629 lines 808–12, and

[15] *BSA* 72 (1977) 1ff, esp. pp.2–4.

which contain basic elements (3) and (4) of the *Arithmos* formula for 325/324 B.C.:

(3) ⎰808   τετρήρεις δ' ἐμ μὲν τοῖς
   ⎱809   νεωρίοις παρέδομεν
    ⎰810   ΔΔΔΔΙΙΙ
     811   καὶ πεντήρεις : ΓΙΙ
(4)   812   τετρήρεις δ' ἐμ πλῶι : ΓΙΙ

As observed earlier (*supra* n.14) there have been numerous conjectures as to the correct reading of line 811, and the difficulty is due to an over-inscription. Represented graphically, the line appears as follows on the *stele*:[16]

ΒΙΑΠΛΕΛΝΤΛΗ Ρ Ϝ ΓϚ ⊡ Ι Ι

Figure 1

That the stonemason made an error when initially inscribing the line is explicable in the light of the nature of the formula. After having inscribed basic element (3) of the *Arithmos* formula (lines 808–10) the mason proceeded to the usual final element of the standard formula, with his initial inscription of line 811 reading:

ΕΜΠΛΩΙΔ Ε ΞΓΙ Ι

Figure 2

Since the previous year's ἀριθμός, however, an innovation in ship types had occurred at the Athenian dockyards—the πεντήρης. Furthermore, these vessels were actually *in* the dockyards at the time of the inventory. Therefore a new insertion was required within the established formula, and in such a position as to make clear that they were not at sea. Rather than an erasure of the initial inscription at line 811, the mason elected to over-inscribe, adapting the existing letters where possible,[17] with the resulting over-inscription being:

[16] See also PLATE 2. In both January 1976 and January 1978 I was able to examine this section of *IG* II[2] 1629 (=EM 10383) at the National Epigraphical Museum in Athens. I must again express my gratitude to Mrs Peppas-Delmousou and her staff for their advice and assistance.

[17] Both methods of correction were used by the inscriber of this inventory. For example at lines 70, 83 and 84 erasure was employed, but over-inscription with adaptation was used also at lines 543, 815 (first half of the line to the end of the *mu*), 838 and the first half of 839 (to the end of the first *tau*).

KAI ΓENTH PF I ⸦ ⹀ I I

Figure 3

In the past confusion has arisen due to the mason's attempts to adapt the initially inscribed numerals to his superimposed line. Once it is seen that the last two numerals of the original ΓΙΙ were over-inscribed with a colon,[18] it is clear that the correct reading of line 811 of *IG* II² 1629 is:

KAI ΠΕΝΤΗΡΕΙΣ : ΙΙ

To complete the *Arithmos* formula it was necessary, yet, to record the number of quadriremes at sea. The standard wording for basic element (4)—ἐμ πλῶι δέ—was no longer adequate. Having inserted the πεντήρειc line as a tailpiece to the μέν clause (in order to indicate that the *pentereis* were in the dockyard at the time), it became imperative to redefine the δέ construction to avoid ambiguity, and to ensure that there be no confusion as to which type of ship was at sea. Hence element (4) became, in this unique instance, τετρήρειc δ' ἐμ πλῶι (followed by the numerals to indicate seven).

Athens then, had only two quinqueremes at the close of 325/324 B.C. and according to the *Arithmos* formula for 323/322 B.C. had none two years later.[19] Nonetheless there is a second reference to a πεντήρηc in the *Tabulae Curatorum Navalium*. At *IG* II² 1632 lines 23–35 it is attested that a certain Πυθοκλῆc was principal trierarch on a τετρήρηc and then trierarch on a πεντήρηc in the archonship of Cephisodorus—that is, in 323/322 B.C.[20] It would appear that at least one Athenian quinquereme existed, and was in commission, during 323/322 B.C. The fact that it is not included in the *Arithmos* formula for the end of that archon-year suggests that it was either sunk or captured—perhaps in action in the Lamian War?

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[18] Where numerals occur on the same line as the general text of the inscription in EM 10383 they are always separated from the text by a colon. For parallels to the colon formed by two roughly horizontal lines (as here) see *inter alia*, lines 761, 762, 766, 774, 778. It is the common practice of this stonemason.

[19] *IG* II² 1631 lines 167–74, together with *BSA* 72 (1977) 4–9.

[20] See also J. K. Davies, *Athenian Propertied Families 600–300* B.C. (Oxford 1971) 484–85, Πυθοκλῆc (*I*) Ἀχαρνεύc.
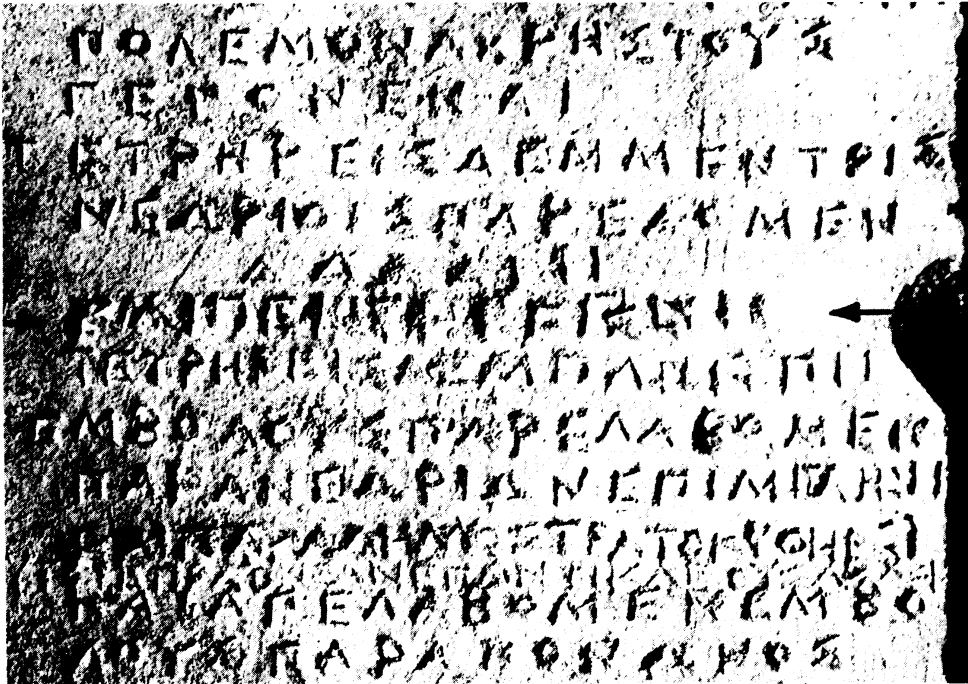
IG II² 1629 (=EM 10383) LINES 806–18, WITH LINE 811 ARROWED
(*photograph by courtesy of the Epigraphical Museum, Athens*)