

# The Athenian Navy and Allied Naval Contributions in the Pentecontaetia

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IN THE HISTORY of Greece in the Pentecontaetia the Athenian navy played a vital rôle. We know something about its most important operations, but little about its organization, maintenance or size, or about its contribution and that of Athens' allies to the League fleet. The evidence is scrappy, often vague and sometimes inconsistent, but we may extract more from it than has been done.<sup>1</sup>

## I

### Naval Contributions of the Allies

#### *Initial contingents*

Of the allied states which initially contributed ships to the League fleet, no list survives; we can only be certain that they included Lesbos, Chios and Samos, and very probably Thasos. Thucydides' argument in Book 1 as a whole indicates that the initial number was quite large and that the states commuted to tribute payment gradually over a period.<sup>2</sup> We cannot now draw up a full list, but we may make

<sup>1</sup> All dates given are B.C. I use the following abbreviated titles: KOLBE 1899: W. Kolbe, "De Atheniensium re navali quaestiones selectae," *Philologus* N.F. 12 (1899) 503–52 (also published separately). KOLBE 1901: *idem*, "Zur athenischen Marineverwaltung," *AthMitt* 26 (1901) 377–418. KEIL: B. Keil, *Der Anonymus Argentinensis* (Strasbourg 1902). HOW AND WELLS: W. W. How and J. Wells, *A Commentary on Herodotus* (Oxford 1912). WEST: A. B. West, "The Tribute Lists and the Non-tributary Members of the Delian League," *AHR* 35 (1929/30) 267–75. GOMME: A. W. Gomme, *A Historical Commentary on Thucydides I–III* (Oxford 1945–56). ATL: B. D. Meritt, H. T. Wade-Gery and M. F. McGregor, *The Athenian Tribute Lists I–IV* (1939–53). MORRISON AND WILLIAMS: J. S. Morrison and R. T. Williams, *Greek Oared Ships: 900–322 B.C.* (Cambridge 1968). EDDY: S. K. Eddy, "Four hundred sixty talents once more," *CP* 63 (1968) 184–95. I am most grateful to Mr Alan Hall and Professor A. E. Raubitschek for reading and commenting on a draft of this article, and to Mr A. G. Woodhead for a discussion of various points.

<sup>2</sup> E.g., esp. 1.99.3: οἱ πλείους αὐτῶν, ἵνα μὴ ἀπ' οἴκου ᾧσι, χρήματα ἐτάξαντο ἀντὶ τῶν νεῶν τὸ ἱκνούμενον ἀνάλωμα φέρειν, . . . ; 1.19: Ἀθηναῖοι δὲ ναῦς τε τῶν πόλεων τῷ χρόνῳ παραλαβόντες

some reasonable conjectures. A number of the states which joined the League at its foundation possessed warships, having fought on one side or the other in 480–479, and many will have wished, at least initially, to make their contribution in ships rather than money.

Founder-members of the League who fought at sea on the Greek side in 480 were Chalkis, Eretria, Keos and Styra (Artemision and Salamis); Kythnos, Seriphos and Siphnos (Salamis only).<sup>3</sup> Probably most, if not all, initially contributed ships to the League.

Herodotus lists the Greek contingents in Xerxes' fleet at Doriskos (7.93–95): the Dorians of Asia provided 30 triremes, the Karians 70, the Ionians 100, the islanders 17 (probably all from the Kyklades), the Aiolians 60, the Hellespontines 100. When the fleet moved west to Chalkidike it picked up more ships (7.122–23); Herodotus estimates a total of 120 (7.185.1). Even if we allow for exaggeration by Herodotus the figures are large.<sup>4</sup> There is no reason to assume that the Ionian and

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*πλήν Χίων και Λεσβίων*, . . . (this presumably refers both to ships confiscated by Athens and to ships voluntarily surrendered by her allies). For Lesbos, Chios and Samos, cf. Arist. *Ath. Pol.* 24.2. For an early attempt to reconstruct the list see E. Agricola, *De Aristidis censu* (Diss. Berlin 1900) 16–26.

<sup>3</sup> Chalkis (or perhaps rather the Athenian cleruchs: cf. *ATL* III.99 n.21) manned 20 triremes provided by Athens; Eretria manned 7 triremes; Keos 2 triremes and 2 penteconter; Styra 2 triremes; Kythnos 1 trireme and 1 penteconter; Seriphos and Siphnos 1 penteconter each (Hdt. 8.1.2, 46.2–4, 48; cf. 66.2). All except Seriphos were listed on the 'Serpent Column' (M. N. Tod, *Greek Historical Inscriptions I*<sup>3</sup> [Oxford 1946] no. 19). Cf. West 272–73; *ATL* III.197–8. Their losses in 480 will not, I think, have made a significant difference. Aigina possibly a founder-member: D. M. MacDowell, *JHS* 80 (1960) 118–21.

Herodotus' figures for the Greek forces (best interpreted as 'campaign figures') are perfectly plausible and are generally accepted. Various views: How and Wells II.186, 248, 363–64; K. J. Beloch, *Griechische Geschichte* II<sup>2</sup>.2 (Berlin 1931) 61–67; J. Labarbe, "Chiffres et modes de répartition de la flotte grecque à l'Artémision et à Salamine," *BCH* 76 (1952) 384–441; A. R. Burn, *Persia and the Greeks* (London 1962) 381–85, 441–43; C. Hignett, *Xerxes' Invasion of Greece* (Oxford 1963) 155–57, 209–10; N. G. L. Hammond, *History of Greece*<sup>2</sup> (Oxford 1967) 241; Eddy 189ff.

Peparethos also operated at sea at some stage and captured two Karian ships, the spoils from which were dedicated at Delphi: *IG* I<sup>2</sup> 523 note.

<sup>4</sup> *DORISKOS*: Diodorus gives slightly different figures (11.3.7–8): Dorians 40 (including Kos and Rhodes), Karians 80 (not classed as Greek), Ionians 100 (including Chios and Samos), islanders 50, Aiolians 40 (including Lesbos and Tenedos), Hellespontines 80; the ships had been built over three years on Xerxes' orders in the coastal territories, including Lykia, Karia, Mysia, the Troad, the Hellespontine cities, Bithynia and Pontus (11.2.1)—did the other Greek states subject to Persia already have enough ships for their quota? Diodorus also says that the Greeks provided the men and Xerxes "supplied" (i.e., paid for?) the ships (11.3.7; *infra* n.15); however this may be, the Greeks must have kept any ships which they manned and which survived the war. *CHALKIDIKE*: two groups of cities provided troops and

Lesbian fleets had not been rebuilt since Lade. Ionians and Aiolians, and perhaps Hellespontine Greeks, must have provided ships in 490, and losses then were small.<sup>5</sup> In 480 Greek ships will have suffered with the rest of the Persian fleet in the storms; their losses in battle may have been fewer, but we are guessing here. At least half their ships probably survived the campaign.<sup>6</sup> There were still Greek contingents in Xerxes' fleet in 479, probably not in poor condition like the rest. At Mykale many Ionians deserted—the 'second Ionian revolt' according to Herodotus (9.105.1). It is reasonable to assume that Greek ships were not burnt with the rest of the Persian fleet. After the battle the

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ships: Torone, Galepsos, Sermyle, Mekyberna and Olynthos; Potidaia, Aphytis, Neapolis, Aige, Therambos, Skione, Mende and Sane. The 120 ships were provided by "Greeks from Thrake and the offshore islands" (i.e., Thasos and Samothrake; cf. Hdt. 8.90.2).

Herodotus' figures (cf. *supra* n.3): W. W. Tarn, "The Fleet of Xerxes," *JHS* 28 (1908) 202–233; How and Wells II.162, 211–12, 363–66; Beloch, *op.cit.* (*supra* n.3) 67–70; Burn, *op.cit.* (*supra* n.3) 330–32, 440; Hignett, *op.cit.* (*supra* n.3) 172, 209, 345–50; Hammond, *op.cit.* (*supra* n.3) 229; Morrison and Williams 136–37, 140, 151–52, 160. Estimates of the actual numbers of triremes vary between Hdt.'s figure 1207 (1327?) and 600. Six hundred seems too low, unless one rejects the high losses in the storms; and would not Herodotus' figures for Greek contingents have been based on more reliable information than the rest? I do not think we are justified in lowering these figures by as much as half.

<sup>5</sup> Gomme was clearly wrong, for once, to argue that not many Ionian cities had any ships to contribute after 479 (II.272, 279; *sic* also G. Busolt, *Griechische Geschichte* III [Gotha 1897] 78 and n.1); cf. *ATL* III.191 n.24; Eddy 186. The most powerful Greek states at sea in the sixth century had been the Ionians, and Thuc. 1.14 does seem to underestimate the naval forces of East Greece in the years before Salamis: C. Roebuck, *CP* 48 (1953) 10–11, 15 n.7. Ionians, Aiolians and Hellespontine Greeks had provided the core, if not all of Darius' fleet for his Skythian campaign (Hdt. 4.83, 89). Artaphernes raised a fleet of 200 ships from the Ionians and Aiolians in 499 (Hdt. 5.32). There were probably Greek ships in the Persian fleet in 492, and some must have been lost off Athos (Hdt. 6.43–4). In 491 Darius ordered his 'maritime tributary cities' to build warships and horse-transporters (Hdt. 6.48.2); this presumably included Greek states subject to Persia, now including many islands, e.g., Samos (6.25), Chios, Lesbos, Tenedos (6.31) and Thasos (6.48.1). Greek contingents may have had to join the fleet in Cilicia, but more probably at Samos (6.95, 98.1); some may have been picked up later (e.g., the Parians: cf. 6.133.1). On stereotyped fleet figures, see Hignett, *op.cit.* (*supra* n.3) 347–48; one should not push this argument too far, e.g., in dismissing all figures of 600 or 200.

<sup>6</sup> STORMS: Hdt. gives the losses as 400 and 200 triremes (7.188–91, cf. 236; 8.7, 13). Opinions vary on the reliability of his information: e.g., Hignett rejects the latter story, but accepts that nearly 200 out of a total fleet of 600 triremes were lost off Magnesia, *op.cit.* (*supra* n.3) 172–75, 386–92; others accept the latter story and higher total losses, e.g., Labarbe, *op.cit.* (*supra* n.3) 395ff; Burn, *op.cit.* (*supra* n.3) 331, 395–99; Morrison and Williams 136. The Greeks will have known Aegean weather. LOSSES IN BATTLE: we have no reliable figures for the whole Persian fleet, let alone individual contingents. At Artemision Greek losses on the Persian side may have occurred only on the third day, but losses that day were heavy (8.16.3); Salamis: cf. n.47 *infra*.

Samians, Chians, Lesbians and the 'other islanders' joined the Hellenic League.<sup>7</sup>

Ionian and Hellespontine allies helped the Athenians in the siege of Sestos (winter 479/8). They clearly had their own ships, for each sailed home separately. By 478/7, when the new league was founded, they could have built more ships since 479. It is clear that the Ionians were most eager for the new league to be formed and for Athens to become its *ἡγεμών*.<sup>8</sup> We must not forget this enthusiasm; many states with even small numbers of ships may have wished, at least for a time, to contribute actively by providing ships and taking part in campaigns. The Athenians were left to decide which states should provide ships and which money and, briefed by Aristides, will have taken these feelings into account.

With this in mind we may attempt a conjectural list of the initial contributors of ships who had once fought on the Persian side. Certain are Lesbos, Chios and Samos; almost certain, Thasos. From the islands we may add Naxos, some of whose ships deserted to the Greek side at Salamis, probably Tenos and Lemnos and perhaps Andros and Paros;<sup>9</sup> of the Ionians from the mainland of Asia Minor Erythrai, Mile-

<sup>7</sup> Ionian ships in Persian fleet at Samos: Hdt. 8.130.2; Samians report that the barbarians' ships are in poor condition: 9.90.3; Greek desertions at Mykale: 9.103.2, 104; acceptance into Hellenic League: 9.106.4. The "islanders" must have included many of the Kyklades, e.g., Mykonos, Paros and possibly Andros, also perhaps the Dorian islands and some in the northern Aegean, e.g., Thasos, Samothrake, Lemnos and Tenedos (Gomme I.257; *ATL* III. 188–90). The Dorians, Ionians and Aiolians of the mainland joined the Athenian League at its foundation or very soon afterwards. Even in the latter case they could surely have opted to contribute ships, and may therefore be included in our consideration; cf. Hignett, *op.cit.* (*supra* n.3) 261–62.

<sup>8</sup> Sestos: Thuc. 1.89.2; Diod. 11.37.4: "the Ionians and the islanders." Allied ships took part in naval operations in 478. Thucydides' words imply they were from the Aegean (1.94.1: contrasted with 20 from the Peloponnese; cf. Plut. *Arist.* 23.4; but cf. Diod. 11.44.2). Allies urging Athens: Thuc. 1.95.1, "especially the Ionians and the other Greeks recently freed from Persian rule"; Plut. *Arist.* 23.4, "especially the Chians, Samians and Lesbians." Enthusiasm: I see no reason to doubt it; cf. Gomme I.294; McGregor (*infra* n.14) 20; *contra* R. Sealey in *Ancient Society and Institutions, Studies presented to V. Ehrenberg* (Oxford 1966) 242–48; M. H. Chambers is doubtful, *CW* 62 (1968/69) 247–48 (a good brief discussion of recent work on the foundation of the League).

<sup>9</sup> NAXOS: four ships deserted, Hdt. 8.46.3; six, Hellanicus; five, Ephorus (Plut. *Mor.* 869A–C); see Hignett, *op.cit.* (*supra* n.3) 14. Naxos earlier a major naval power (*ATL* III.98–99) but suffered badly in 490 (Hdt. 6.96). TENOS: reinforcements to Xerxes at Phaleron, nature uncertain (Hdt. 8.66.2–67.1); one ship deserted before Salamis (Hdt. 8.82.1). Listed on 'Serpent Column', like Naxos. ANDROS: reinforcements to Xerxes at Phaleron; later neutral, probably until after Mykale (Hdt. 8.108.1; 111–12). PAROS: neutral in 480; contingent left behind by Persians at Kythnos, already suspect (Hdt. 8.67.1); joined Greek side soon after

tos, Myous, Phokaia, Priene, Teos and perhaps Klazomenai.<sup>10</sup> About the Dorians from Asia Minor we can be less certain, but the cities of Rhodes are likely; perhaps also Halikarnassos, Iasos, Knidos and Kos.<sup>11</sup> From the Hellespont, Bosporos and Propontis we may reasonably add Abydos, Byzantion, Kalchedon and Kyzikos,<sup>12</sup> and from the north-western Aegean some of the cities of Chalkidike: probably Akanthos and Potidaia and perhaps Mende, Skione and Torone.<sup>13</sup>

### *The original arrangements*

We may assume, then, that originally a fairly large number of states provided ships, in some cases only small contingents. Very probably a monetary value was placed on ship contributions at the very start. This seems the only satisfactory explanation of Thucydides' statement (1.96.2) that Aristides' first assessment of the *φόρος* of the League amounted to 460 talents, in view of the much lower actual figures for tribute known from the later quota lists, when the League had expanded and many states which had originally contributed ships had already commuted to payment of tribute. Aristides clearly assessed each state in monetary terms first, and then on his recommendation the Athenians decided which states should contribute ships and which money. Only if contribution of ships was given a monetary equivalent could it be properly equated with payment of tribute and the assessments accepted as fair by the allies, as they clearly were. Also, when allies did later change to payment of tribute there clearly was an ac-

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Salamis (Hdt. 8.112.2); a prosperous island because of its marble quarries. LEMNOS: one ship deserted after first battle at Artemision (Hdt. 8.11.3; cf. 82.2). See *ATL* III.189–90, 197–99, 242. Another possible: SAMOTHRACE (cf. Hdt. 7.185.1; 8.90.2).

<sup>10</sup> All these provided ships at Lade, except Klazomenai (already occupied by the Persians: Hdt. 5.123), contributing 8, 80, 3, 3, 12 and 17 triremes respectively: Hdt. 6.7–8, whose figures seem plausible (Burn, *op.cit.* [*supra* n.3] 209–10; Eddy 189ff). See also *ATL* III.199–203; Roebuck, *loc.cit.* (*supra* n.5). I follow *ATL* in assuming a large initial membership; *contra*, most recently, Sealey, *loc.cit.* (*supra* n.8); see also N. G. L. Hammond, *JHS* 87 (1967) 41–61.

<sup>11</sup> See *ATL* III.208–13, 242; Hdt.'s figure for Artemisia's contingent (5 ships: 7.99.2) is remarkably low.

<sup>12</sup> See *ATL* III.204–07, 242; one may ignore the brief loss of Byzantion in 477. Other possibilities are Lampsakos, Perinthos and Selymbria.

<sup>13</sup> Cf. n.4 *supra*. The revolt of Pallene, led by Potidaia, after Salamis: Hdt. 8.126–29, cf. 9.28.3. There seems no reason to doubt that Potidaia had ships; Akanthos had a good harbour used by the Persians as a base in 492 and 480 (Hdt. 6.44.2; 7.115.2–116); cf. *ATL* III.222–23 and generally 214–23. Skyllias the diver was surely serving on a Skionian ship (Hdt. 8.8). Other possibilities are Argilos and Mekyllerna.

cepted monetary equivalent for their earlier contribution of ships (Thuc. 1.99.3).<sup>14</sup>

Aristides may have based his assessments of individual cities, at least the Ionian, on the survey of Persian territory carried out by Artaphernes after the Ionian Revolt. This was in cash terms; all subjects of Persia had to pay tribute and also perform military service when called upon. This for maritime states would usually mean naval service, and the obligation seems to have included provision of ships; but we cannot be sure that in the Persian system there was a fixed equation between money and ships.<sup>15</sup>

What was the equation established by Aristides? Eddy has plausibly argued that the monetary equivalent of one ship provided was one talent of tribute. At that time one talent was roughly the cost of building and probably also equipping a trireme. Later in the century the cost had probably risen considerably. We cannot be sure that the equation remained the same; if it did, then the financial obligations of ship-contributing allies were probably increasing considerably in comparison with those of tributary allies, which did not markedly increase during the Pentecontaetia. This would be a good reason for ship-contributing allies to change to payment of tribute.<sup>16</sup>

<sup>14</sup> *ATL* III.235–37; M. F. McGregor, “Athenian Policy at Home and Abroad,” *Semple Lectures* (Cincinnati, Nov. 1967) 15–32; Hammond, *op.cit.* (*supra* n.10) 54; Eddy 184–89. *Contra* M. H. Chambers, “460 Talents,” *CP* 53 (1958) 26–32: *φόρος* refers to money only, and the figure 460 is a mistake by Thucydides. *φόρος* in Thuc. 1.96.2 and 2.13.3 does seem to include a valuation of the ships contributed, though it is true that elsewhere Thuc. uses *φόρος* to mean money only (as Eddy admits, 187) and even money as distinct from ships (e.g., 7.57.4, 57.5). Chambers (29) points out that no assessment list or quota list mentions ships or a money equivalent of ships; but there would be no question of giving one sixtieth of (the value of?) a trireme to the goddess, even if this were a meaningful operation to the officials concerned, since the allies did not hand over their ships each year as the tributary allies handed over their money, but kept them for later use. There must have been some form of naval records in the League archives, perhaps only in perishable form; nothing has survived on stone.

<sup>15</sup> Artaphernes’ assessments: Hdt. 6.42; *cf.* How and Wells II.78–79; *contra* O. Murray, “*Ὁ ἀρχαῖος δασμός*,” *Historia* 15 (1966) 142–56, restating the case that Hdt. refers to a continuing claim of tribute by the Persian King. Tribute: Hdt. 3.90; ships and military service: *supra* nn.4–5. Note however Diodorus’ remark (11.3.7) that Xerxes “provided the ships” or perhaps rather “covered the cost of the ships”: τὰ δὲ σκάφη τοῦ βασιλέως χορηγοῦντος. Was it therefore beyond the subjects’ obligations to pay for the ships, though they might be called upon to build them? Earlier example of Aristides’ military assessments: the Covenant of Plataea, if authentic, Plut. *Arist.* 21.1.

<sup>16</sup> The equation: Eddy 189–95. Gomme (II.33 n.1) refers to a suggestion that the equation was 1 trireme = 3 talents, because a large proportion of tributes from the larger cities of the League was 3 talents or a multiple or fraction of 3, rather than 5 or 10. The latter point has

The allies would not have expected shipbuilding costs, however, to be their main annual expense; they kept the ships from year to year and may have regarded them as a fairly permanent asset. They would lose some in storm or battle and would have to replace them, but money spent on this would go to their own citizens, and shipbuilding and provision of equipment would be a useful source of employment. The maritime cities had mostly built warships before; they must have had the facilities and skilled workmen, and it made good sense to use them.

Andocides (3.38) says that Athens provided ships for some allied states which did not possess them, perhaps for smaller states without shipbuilding facilities. Athens above all now had the facilities and skilled workmen. It was to her advantage for as much shipbuilding as possible to be carried out at Piraeus, for it would be financially rewarding for Athenians (the allies must have had to pay for these ships) and helpful in securing high and uniform standards of ship construction and performance. It would have been more convenient administratively for Athens if the states concerned changed to tribute payment, and no doubt Athens in time encouraged this. The reference in Andocides is not precisely dated; one would naturally date it to the early years of the League.<sup>17</sup>

What was the total initial assessment of the ship-contributing states? One can only conjecture; a maximum figure of 200 ships seems reasonable. Athens too will have had an assessment, perhaps as high as 150 ships.<sup>18</sup>

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some force, though one may adduce against it some tribute figures of states which probably originally contributed ships: Miletos 10 talents, Chalkis 5, Kos 5, Akanthos probably 5 at first appearance, Mende 8, not to mention amounts of 1 or 2 talents. But surely the reason for this phenomenon is the nature of the currency system used. Cost of trireme: Arist. *Ath. Pol.* 22.7; Polyaeus, *Strat.* 1.30.6; A. M. Andreades, *History of Greek Public Finance I* (Cambridge [Mass.] 1933) 322 n.6; J. I. Armstrong, *The Trierarchy and the Tribal Organization of the Athenian Navy* (Diss. Princeton 1949) 23 n.11; J. Labarbe, *La Loi navale de Thémistocle* (Paris 1957) 44 n.2. Labarbe argues that in 480 one talent would have covered the cost of equipment also. I owe the last suggestion to Mr Alan Hall.

<sup>17</sup> It is possible but not likely that this is a confused reminiscence of the provision of 20 ships by Athens to Chalkis in 480 (the 'Chalkidians' of Hdt. 8.1.2 may have been Athenian cleruchs, cf. n.3 *supra*). One should not lightly dismiss or ignore information in the speech of Andocides, as is often done. The chronology may be confused or vague (here the chronological context is the 85 years of the Athenian Empire) but the factual information is not necessarily wrong; cf. pp.208ff *infra*; Hammond, *op.cit.* (*supra* n.10) 54–55. The naval references in Andoc. 3.37–38 are ignored in the recent edition by U. Albin (1964); cf. p.194 *infra*.

<sup>18</sup> Hammond, *op.cit.* (*supra* n.10) 54, 58, argues that the total assessment of ships was 300

*The obligations of the ship-contributing states*

These states had to provide ships for the League fleet annually, or at least when called upon by the *ἡγεμών*, Athens (*infra*, pp.193f). Their assessed contributions were the maximum, not the normal, requirement. They had to man the ships with their own citizens, perhaps supplemented by hired rowers and slaves; there were slaves in Chian ships in 412 (Thuc. 8.15.2), but Chios may not have been typical, and the situation may have been unusual even for Chios. The conscripted foreign rowers in the fleet at Syracuse (Thuc. 7.13.2) were most probably rowers conscripted by the allied states which provided ships for that expedition, to row in their ships, not in Athenian ships. Whether allied states had earlier used conscription to man their ships we do not know, but it is likely.

Payment of crews during periods of service would be the main expense facing allied states contributing ships. The periods would vary in length, and the resulting expense in money, let alone in ships and men's lives, might be high; but the pay was mainly if not entirely going to their own citizens. A long season probably meant active campaigning rather than routine patrols, and this gave greater hope of booty to offset expenditure. Athens clearly did give a share of the booty to her allies, almost certainly only to those who had shared in the campaign. These may well have expected to cover their costs as a result; this was probably the case in the early years, at least until after Eurymedon and perhaps until the early 450's.<sup>19</sup>

*Expenditure of League funds*

Were any League funds spent on the League fleet in the early years? This is a difficult problem to which no certain answer can be given, since all depends on two highly controversial questions: what amounts of money were paid as tribute in the years 477–454/3 or 477–450/49,

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and that Athens contributed one half; but this does not necessarily follow from Thuc. 1.99.2 and 3.10.4 (*ἀπὸ τοῦ ἴσου*).

<sup>19</sup> Chios: possessed more slaves than any other Greek state except Sparta in 412 (Thuc. 8.40.2); had suffered heavy losses of ships and men in Sicily, and the ships may have been easier to replace than the crews (*cf.* n.46 *infra*). Foreign rowers at Syracuse: (Nicias' letter) *οἱ ξένοι οἱ μὲν ἀναγκαστοὶ ἐσβάντες* as opposed to *οἱ δὲ ὑπὸ μεγάλου μισθοῦ τὸ πρῶτον ἐπαρθέντες . . .*; the latter clearly rowed in Athenian ships, and perhaps allied ships also, *cf.* Dover *ad loc.*; but there is no evidence that Athens could demand crews for her ships from allied cities (Gomme I.372). Booty: Plut. *Cimon* 9.2–3; *cf.* 13.5–7. *ATL* III.237–38.

and what was the accumulated reserve in 454/3 or 450/49? *ATL* argued that almost all the tribute went into the reserve and “little, if any, was used for current expenses” (p.238); but elsewhere *ATL* suggested that as the amount of tribute increased, because ship-contributing states changed to tribute payment, some or all of the extra money was paid to Athens, to build extra ships to maintain the size of the League fleet and to pay the crews to man them; thus gradually the Athenian fleet was more and more supported by League funds—later, by the 440’s, probably completely so. It is possible that some money was given to allied states, especially those with considerable fleets, to provide ships in addition to their assessed number.<sup>20</sup>

Besides this some money must have been spent on campaigns—the main activity of the League and the main purpose of its foundation (Thuc. 1.96.1). It would have been reasonable, for example, to cover from League funds the cost of replacing Athenian and allied ships lost during campaigns (such losses could not be budgeted for, and could be considered a League responsibility), as opposed to those which became unserviceable after a full ‘natural life’.

### *Changes to tribute payment*

When and why did most of the ship-contributing states change to tribute payment? Thucydides refers to the changes (1.99) after his brief mention of the revolt of Naxos and before describing the Eurymedon campaign. But we cannot draw precise chronological conclusions from this, for the preceding sentence (1.98.4) passes from the revolt of Naxos to the other revolts which followed, probably over a period of several decades, and it is these revolts which Thucydides sets out to explain in 1.99.<sup>21</sup> Some states may have changed to tribute payment very early, probably distant states making small contributions which were more trouble than they were worth, but the more important changes probably came after Eurymedon.

Thucydides 1.99 has been well discussed by *ATL* (III.244–52). He clearly refers to actual reluctance to go on actual campaigns, which

<sup>20</sup> F. B. Marsh, *Modern Problems in the Ancient World* (Austin 1943) 36–37; *ATL* III.89, 229, 237–38, 248–52, but their figures are far from certain. More study is needed of this aspect of the subject. Athenian crews paid from tribute: Plut. *Cimon* 11.2; Athenian ships: Thuc. 1.99.3. Tribute used for pay: Just. *Epit.* 3.6.4.

<sup>21</sup> Cf. West 270: “466–440.” On the graduality of the change see Thuc. 1.19 (*supra* n.2).

led the majority of the ship-contributing states “to accept an assessment by which they were to pay, instead of the ships (which they had previously contributed), a corresponding sum of money.” He is looking back after a series of actual experiences.<sup>22</sup>

There is a curious paradox in the chapter: Thucydides does not seem to give the reasons for the revolts (as he announced), but the reasons for the changes to tribute payment and for the failure of the revolts. He does not make clear why, after changing to what they must have thought a less burdensome form of contribution, the states nevertheless revolted. For our purposes, though, he is clear enough: the allies gave up contributing ships because the exacting demands of Athens and the service away from home became an increasing burden. They may well have been in financial difficulties and hoped that tribute would prove an easier burden. One may suppose that this hope proved false in some cases, resulting in *φόρων ἔκδειαι* and eventually revolt.

Plutarch also gives an account of the changes (*Cimon* 11): the allies did not meet their obligations in providing men and ships (a clear reference to land warfare also), though there was no defaulting over tribute payment—on this Plutarch differs from Thucydides. They wanted to live at peace now that the Persian threat was gone (this implies a context after Eurymedon). The other Athenian generals tried to make the allies meet their obligations, punished those who did not and thus made the Athenian Empire unpopular; but Cimon when general applied no compulsion and accepted money instead of active service, and ‘empty ships’, that is, ships without crews, thus letting the allies become soft and unwarlike and no match for the Athenians, whom he trained in a vigorous naval training programme.<sup>23</sup>

Plutarch gives no explicit indication of date, but he makes Cimon a

<sup>22</sup> 1.99.3. *ATL* is surely right (III.246–47) to refer *ἐράξαντο* to later changes to tribute payment (which is clearly how Plutarch understood Thucydides), rather than to decisions made in 477, as Busolt, *op.cit.* (*supra* n.5) III.78 and Gomme I.283. Gomme unjustifiably belittles the allies’ contribution to the League fleet in the early years (e.g., I.279 n.2); Thucydides’ words in 1.99.2 imply an earlier period when Athens was popular and there was genuine co-operation and enthusiasm over campaigns (*cf.* 3.10.4).

<sup>23</sup> On this chapter see West 271–72; Gomme I.284–86; *ATL* III.244–52; R. Meiggs, “The Crisis of Athenian Imperialism,” *HSCP* 67 (1963) 7. The question of Plutarch’s sources is a vexed one. He certainly used good historical sources other than Thucydides, e.g., Hellanicus. One can see here traces of a conventional picture, deriving perhaps from a later period, but there is no reason to doubt his information about what actually happened, as opposed to his references to personalities. *νήες κεναί*: *cf.* esp. Thuc. 2.90.6; 4.14.1; 8.19.3.

key figure in persuading the allies to change to tribute payment. If this is correct, we may assume a date for Cimon's proposal before his loss of prestige over Thasos, that is, the mid 460's, or after his return from exile and before his departure for Cyprus and his death, that is 451–50 (or possibly 457–450—*cf. infra*, p.209 and n.88; in this case the chronological limits are very wide). The attribution of the key rôle to Cimon, however, is not certain. Suspicion is raised by several points: first, Cimon's mildness is contrasted with the harshness of the other generals and combined awkwardly with his underlying cunning.<sup>24</sup> Earlier in the life Plutarch had contrasted Cimon's mildness with Pausanias' arrogance (a rhetorical element here), and made it play an important part in winning over the allies in the first place. In his life of Aristides Plutarch ascribes the leading rôle on this occasion to Aristides.<sup>25</sup> Secondly, Plutarch in his life of Pericles ascribed the naval training programme to Pericles.<sup>26</sup> One may suspect that Plutarch inflated the rôle of his present subject of study for what may charitably be called artistic purposes.

Personalities apart, however, Plutarch adds, besides rhetorical colour, some useful information, notably the references to 'empty ships' and naval training, which is clearly not derived merely from an intelligent reading of Thucydides (as, for example, the reference to the removal of the Persian threat may be).

From our sources, then, we may conclude that Athens' allies were increasingly reluctant to continue active campaigning abroad, once the threat from Persia had gone and the prospects of recouping costs from booty had diminished. The expedition to Cyprus in 460 may well have been popular and perhaps also, at least initially, the involvement in Egypt. But this involvement was a long one and the allies lost

<sup>24</sup> For Cimon's cunning, however, *cf. Cimon* 9.2–4, a story which Plutarch ascribes to Ion of Chios.

<sup>25</sup> Plut. *Cimon* 6.2–3 emphasizes Cimon's rôle as colleague of Aristides much more than *Arist.* 23.1–3; in the account of the foundation of the League (*Arist.* 23.4–24) Cimon is not mentioned at all, *cf. Arist. Ath.Pol.* 23.4–5. It may be doubted whether Cimon could have been general as early as 478: Burn, *op.cit.* (*supra* n.3) 559 n.44. For an example of what may be a reverse anachronism see Plut. *Arist.* 25.3: Plutarch ascribes to Aristides a comment on the proposal made by the Samians, doubtless in the League Synod, to transfer the League treasury to Athens; but Aristides was long since dead in 454. It is possible, however, that such a proposal had been made earlier, during Aristides' lifetime, and not adopted; see *ATL* III.262, P. Salmon, *La politique égyptienne d'Athènes* (Brussels 1965) 185–86.

<sup>26</sup> Plut. *Per.* 11.4; see S. K. Eddy, "Athens' Peacetime Navy in the Age of Pericles," *GRBS* 9 (1968) 141–56. I hope to discuss the training programme in a subsequent article.

ships and men.<sup>27</sup> Involvement in the war in Greece must also have been unpopular; it meant fighting other Greeks for the benefit of Athens only and probably offered little prospect of booty.<sup>28</sup> Three years of peace after 454 may have given them a taste for inactivity. A call to arms in 451/0, even if made by Cimon and directed against Persia, may well not have evoked an enthusiastic response.

One contributing factor has, I feel, been overlooked. The majority of the ships used by Athens' allies in the 470's and 460's had probably been built just before 480, as had Athens', some perhaps as early as 491.<sup>29</sup> These would have served as the core of the allied naval contingents for some years, but they were not a permanent asset. The 'natural life' of a trireme was probably over 20 years, if it escaped destruction or major damage in storm or battle (a big 'if') and if it was properly looked after.<sup>30</sup> The need for regular maintenance was known, and there is no reason to doubt that warships received it.<sup>31</sup> Nevertheless, probably by the 460's and certainly by the 450's the fleets built around 480 would be suffering considerable natural wastage; suddenly over a short period of time a large proportion of the allies' ships may have become unserviceable, and replacement would involve considerable capital outlay. Some of the larger allied states, with maritime interests and good harbours and shipbuilding facilities, were no doubt prepared to make up the wastage—indeed they may well have had a regular shipbuilding programme throughout, like Athens; but for many states this prospect of major capital outlay may well have been a vital factor in their decision to change to a clear and predictable money payment.

<sup>27</sup> Allied ships in the expedition to Cyprus: Thuc. 1.104.2; allies in the force which stayed in Egypt: 1.109.1; allied ships in the relief squadron: 1.110.4; Samian losses in Egypt: W. Peek, *Klio* 32 (1939) 289–306 (the monument to Hegesagoras). The losses in Egypt were probably not overwhelming: *infra* p.198.

<sup>28</sup> There is an indication of these feelings in Plut. *Cimon* 18.1; *cf.* West 271–72. There were allied ships in the sea battles against Aigina (Thuc. 1.105.2), but perhaps not at Halieis or Kekryphaleia; *cf.* R. Meiggs, *JHS* 63 (1943) 22.

<sup>29</sup> *Supra* pp.180–81 and nn.3–5.

<sup>30</sup> See appendix; the average life of a trireme, allowing for premature losses, was probably under 20 years.

<sup>31</sup> For example, the importance of drying out ships regularly by drawing them up a beach, or preferably a slipway, was already known: Hdt. 7.59.3, the Persian fleet beached at Doriskos for drying out—this was perhaps the reason why the Persian ships sailed better than the Greek in 480. Covered slipways or 'shipsheds' were known in Greece already in Polycrates' time: Hdt. 3.45.4; *cf.* Morrison and Williams 134–35, 181–86. By the 470's most maritime states in the Aegean probably had some for their warships.

*The 'absentees'*

A. B. West first noted the absence of a number of allied states from the quota lists of the first period (454–50). He argued that this must be due not to the accident of preservation but to the fact that they were still contributing ships; also that they all appear in the quota lists of the second period because they had all been persuaded by Cimon in 450 to pay money instead. West accepted Plutarch's attribution of the key rôle to Cimon and argued that the only plausible historical context is after Cimon's return from exile (which he dates to 451), that is, during Cimon's preparations for his campaign to Cyprus.<sup>32</sup> *ATL* adopted and developed the argument, suggesting a longer list of 14 states still providing ships in the late 450's (besides Lesbos, Chios and Samos, which never commuted): Akanthos, Andros, Chalkis, Eretria, Hestiaia, Iasos, Keos, Kythnos, Paros, Potidaia, Seriphos, Siphnos, Styra and Tenos. Following a suggestion made earlier by Wade-Gery they emphasized that most of the states were islands, situated, within a certain radius from Piraeus and convenient for collecting a fleet.<sup>33</sup>

Some of this group, however, seem too unimportant to have continued so long to provide ships. The contributions of Kythnos, Seriphos, Siphnos and Styra at Salamis were small; they may well have contributed ships to the League fleet initially, but if we may judge from the amounts of tribute which they paid later, the number of ships contributed would have been small. It seems unlikely that they had not commuted before the late 450's, but this is inevitably a subjective judgement.<sup>34</sup> The same may be said of the three states distant from Athens: Akanthos, Iasos and Potidaia. Their contributions, especially that of Iasos, would not have been large; certainly, I think, not large enough to compensate for the inconvenience of distance.<sup>35</sup>

<sup>32</sup> *Supra* n.1. His list was Chalkis, Eretria, Keos, Kythnos, Naxos, Potidaia, Seriphos, Siphnos, Styra, Tenos and (tentatively) Andros and Hestiaia. His arguments against a context in the 460's have, however, been refuted, e.g., by Meiggs, *loc.cit.* (*supra* n.23).

<sup>33</sup> *ATL* III.249–50, 267–68; Wade-Gery, *Hesperia* 14 (1945) 219–20.

<sup>34</sup> Contributions at Salamis: *supra* n.3. Tribute amounts: Kythnos 3 talents (List 5.IV.27); Seriphos 2 talents in 451/0 (List 4.I.20), 1 talent in 448/7 (List. 7.IV.2) and later; Siphnos 3 talents (List 5.IV.20); Styra 1 talent (List 5.IV.28). I doubt whether Hestiaia ever contributed ships to the League; if she did, the argument applies to her *a fortiori*, for her tribute in the second period was only 1,000 drachmai (List 8.II.36).

This is Gomme's second objection to West's theory (I.286); Chalkis, however, may have built ships after 480, if she did not keep the 20 ships provided by Athens then (but *cf.* n.3).

<sup>35</sup> Akanthos paid 5 talents in 450/49 (List 5.III.34, figure restored), 3 talents in 446/5 (List

Must we assume a single explanation for all the absences? On West's criteria Naxos should be included in the list. Perhaps it should; if not, the point is demonstrated.<sup>36</sup> Disaffection may have been the cause of some of the absences, but not, I think, of all.<sup>37</sup>

One of West's basic points, however, remains likely, that the impulse for the last major change to tribute payment was provided by the preparations (451/0) for Cimon's expedition to Cyprus. Plutarch's attribution of a key rôle to Cimon may still be correct, and it is not true that there was no time for Cimon to have acted thus in 451/0 and still produced a fleet for the campaign of 450.<sup>38</sup> Allies who still contributed ships (at least nominally, for they may not have been called on to do so for several years) could have been approached in 451 concerning the proposed campaign and required to promise a naval contingent or pay money instead; if they wished, they could hand over ships that were still seaworthy (Plutarch's 'empty ships') for which they would receive money or perhaps rather credit against tribute. There is no need to assume that many ships belonging to allied states were left in home waters in 450, and it would not have been beyond Athens' capabilities to build enough ships to make up any shortage and to organize crews to man them.<sup>39</sup> Athens probably carried out a major shipbuilding programme at this time (*infra*, p.210), and though some allied states were not willing to participate in the campaign, many of their citizens with experience as rowers may have been willing and eager to serve in Athenian ships as hired rowers.

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9.II.29) and later; Potidaia 6 talents—she does not appear in the lists until 446/5 or 445/4 (List 9.III.7, restored; 10.II.4); Iasos 1 talent (List 5.V.21).

<sup>36</sup> Gomme's first objection (I.286); *cf.* pp.199f *infra*.

<sup>37</sup> This argument has been put most forcefully by Meiggs, *op.cit.* (*supra* n.23) 6–9; H. Nesselhauf, *Untersuchungen zur Geschichte der delisch-attischen Symmachie* (Klio Beiheft 30, 1933) 12–13. One can only explain Thuc. 1.99 on this assumption, that there were revolts and disaffection in this period. Gomme's suggestion (I.278), that the absentees were paying tribute direct to Athenian officers of squadrons stationed in the area, should be rejected; we should expect the quotas to be paid to Athena nevertheless, and the amounts recorded (*cf.* ATL III.265ff).

<sup>38</sup> *Sic* ATL rightly (III.250), against Gomme (I.286, objection 3) and Meiggs, *JHS* 63 (1943) 31.

<sup>39</sup> Plut. *Cimon* 11.2: χρήματα δὲ λαμβάνων παρὰ τῶν οὐ βουλομένων στρατεύεσθαι καὶ ναῦς κενάς, . . . Credits may be the reason why some of the absentees do not appear in the quota lists until 450/49 or later. For it is unlikely that allies could only change to tribute payment at the time of a reassessment. Alternatively, perhaps, money paid in lieu of service in 451/0 may not have been counted as tribute. ATL III.246 n.9 seems to argue that Plutarch says that the allies regularly provided 'empty ships', but this was surely a once-

### *The later years*

After 450 we may assume that only Lesbos, Chios and Samos continued to provide ships regularly for the League Fleet; after 440/39 only Lesbos and Chios, and after 427 only Methymna and Chios. We should not, however, assume that all other allied states gave up all their warships if they voluntarily changed to tribute payment. We know only that this happened if they revolted (*infra*, p.199). Some of the larger maritime states may well have kept a few warships, and we must not exclude the possibility that occasionally they may have sent them on a campaign with the Athenians. This is specifically attested for 415, when Rhodes sent two penteconters as well as 700 slingers on the Sicilian expedition. Thucydides speaks of 34 ships provided by “Chios and the other allies.” Who were the “other allies”? Just Methymna and Kerkyra? Or should one allow for one or two other tributary or non-tributary allies? We cannot be sure.

Tributary allies had an obligation of military service under Athens’ command. This usually meant service on land, but in certain circumstances naval service may have been allowed as an alternative or partial alternative.<sup>40</sup>

### *Mustering and organizing the League fleet*

We have very little information about the way in which the League fleet was mustered and organized. Clearly Athens as *ἡγεμών* was

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only operation. Fast shipbuilding was perfectly feasible in winter 451/0: cf. J. Taillardat in *Problèmes de la guerre en Grèce ancienne*, ed. J.-P. Vernant (Paris 1968) 184–85.

<sup>40</sup> Rhodian penteconters: Thuc. 6.43 (but the earlier assessments of ship-contributing states had probably been in terms of triremes only). Thuc. 2.9.5 says that of Athens’ allies only Chios, Lesbos and Kerkyra contributed ships at the beginning of the Peloponnesian War, but this must refer to regular contributions. Other non-tributary allies of Athens besides Kerkyra may occasionally have provided ships, especially for expeditions to the west, e.g., Zakynthos, Kephallenia and the Messenians of Naupaktos (cf. Thuc. 2.25.1; 4.9.1). Eddy (193) only allows for contributions by Chios and Methymna in 415, and therefore probably overrates their contributions; cf. n.46 *infra*.

IG I<sup>3</sup> 22, lines 10–16 appear to refer to a Milesian obligation to provide soldiers, also possibly to make a naval contribution (line 10), but the inscription is very fragmentary; cf. p.201 and n.66. Inscription normally dated to 450/49: *ATL* II, D 11; III.256; cf. J. H. Oliver, *TAPA* 66 (1935) 177–98. But Mattingly, referring to Thuc. 4.42.1, suggests 426/5 (*Historia* 10 [1961] 176); see, however, Meiggs, *op.cit.* (*supra* n.23) 25. D. M. Lewis, *BSA* 49 (1954) 24 n.19, denies any reference to Milesian military assistance to Athens.

At Arginusae there were 10 Samian and some other allied ships: Xen. *Hell.* 1.6.29. Allies supplying troops: Gomme I.315; *ATL* III.249 n.17; *contra* Mattingly, *loc.cit.*

principally responsible for this. In a passage in his speech *On the Peace* which has received little attention, Andocides describes briefly how, having secured walls and ships, the Athenians won their empire by persuasion, stealth, bribery and force; “by persuasion we arranged that the Hellenotamiai should be appointed at Athens to control the common funds, that the fleet should gather at Piraeus and that such states as possessed no ships should be supplied with them by us.”<sup>41</sup> The chronology of the passage as a whole is vague: the first clause quoted could refer to 454 rather than 477; the second may well refer to the same period, but this cannot be proved. Clearly at some stage the Athenians secured the mustering of the allied contingents at Piraeus. Previously it may normally have been at Delos, but Delos did not have such good harbour facilities at this period nor such protected anchorages. Athens thus also had a specious case for the move to Piraeus, especially when she was providing a larger and larger share of the total League fleet.<sup>42</sup> But a date early in the League’s existence is not excluded, in which case there may have been no regular mustering point before Piraeus.

Most of the states which continued to provide ships were island states or cities of the Ionian seaboard, and Wade-Gery has plausibly suggested (*supra* n.33) that Athens was happy for those states to continue contributing ships who could send their ships quickly to Piraeus, as earlier perhaps to Delos, and could be reached quickly if the need arose. In an emergency situation near Athens the Athenian fleet was large enough to cope on its own.

Descriptions of actual campaigns during the Pentecontaetia provide further evidence, though one cannot be sure that years of major naval expeditions were necessarily typical. Plutarch speaks of Cimon setting sail from Knidos for the Eurymedon campaign with 200 ships; his force included allied contingents, which had probably been ordered to muster at Knidos. It would have been senseless to make the allied ships come to Piraeus and then set out for the eastern Mediterranean; Knidos had good harbour facilities and was a very suitable mustering-point.<sup>43</sup>

<sup>41</sup> 3.38: *πέισαντες μὲν οὖν Ἀθήνησι ποιήσασθαι τῶν κοινῶν χρημάτων Ἑλληνοταμίας, καὶ τὸν σύλλογον τῶν νεῶν παρ’ ἡμῖν γενέσθαι, ὅσαι δὲ τῶν πόλεων τριήρεις μὴ κέκτηνται, ταύταις ἡμῶς παρέχειν* Cf. *supra* p.185 and n.17; *infra* pp.208ff and n.86; Hammond, *op.cit.* (*supra* n.10) 54; *contra* A. G. Woodhead, *JHS* 79 (1959) 152.

<sup>42</sup> Cf. *supra* p.187 and n.20.

<sup>43</sup> Plutarch’s account of the campaign is good and detailed (*Cimon* 12–13). Only he men-

A similar arrangement may be assumed for the expeditions to Cyprus in 460 and 450; on both occasions allies sent ships (Thuc. 1.104.2, 112.2). When Samos revolted in 440 Athens had to send ships specially to Chios and Lesbos to summon help (Thuc. 1.116.1). Does this indicate that there was not yet, or no longer, any requirement of allied states to provide ships regularly each year? We cannot be sure, for the summons was sent probably in about April 440, and one could reasonably argue that the date for them to send their annual squadrons to Athens had not yet arrived.<sup>44</sup> It seems likely that there had been and continued to be such an obligation. The Athenians will have wished to ensure that allied crews were well trained and that the combined fleet could operate as a unit. We should not assume that each state had to send each year the full number of ships for which it was assessed; that was the maximum requirement.

Our only other evidence dates from the Peloponnesian War. For example, when Mytilene revolted, probably in late June 428, ten Mytilenaeon triremes were in Piraeus as *βοηθοὶ* “in accordance with the terms of the alliance”;<sup>45</sup> this shows that at least in the war years Lesbos had an obligation to provide ships regularly. Ten was probably Mytilene’s normal obligation—a small squadron for routine service; more could of course be called for if necessary for a particular campaign.<sup>46</sup>

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tions the attack on Phaselis and the intervention of the Chians, and the changes in ship construction. He mentions no subsequent reinforcements. Diodorus’ account differs greatly (11.60ff): Cimon left Piraeus with 200 ships, summoned 100 more from “the Ionians and all the others” and then took more from the newly-won allies (Karian, one presumes). But caution is necessary in using Diodorus’ account, for he has just said that Cimon called in briefly at Piraeus between the Eion campaign (476?) and this one (467?), and later he confuses this campaign and that of 450 (*infra* n.48).

<sup>44</sup> Also they were probably called on to supply more ships than usual: 25 (Thuc. 1.116.2) plus 30 (1.117.2). *Pace* Gomme (I.351) the 25 ships may represent the normal annual contribution of Chios and Lesbos together. If the 25 ships were expected to go to sea soon in any case they could be quickly dispatched; the further 30 took more time to prepare. Perhaps the 55 ships were the total assessed contributions of the two islands together; Eddy (194) assumes a somewhat higher assessment: 35 ships for Chios and 30 for Lesbos, roughly half their total numbers of ships. The date: Gomme I.356, 390.

<sup>45</sup> Thuc. 3.3.4: the ships *ἔτυχον βοηθοὶ παρὰ σφῶς* (*sc.* the Athenians) *κατὰ τὸ ξυμμαχικὸν παροῦσαι*. The date: Gomme II.252. He also refers (II.254) to Thuc. 8.15.2, an unusual case and not exactly parallel: the Athenians called on the Chians to send a squadron as a pledge of loyalty (8.9.2) and they sent 7 ships.

<sup>46</sup> Cf. n.44. In 430 Chios and Lesbos sent 50 ships to join 100 Athenian (Thuc. 2.56.2). In 425 four Chian ships went to Zakynthos (4.13.2); in 423 Chios sent 10 ships with the Athenian expedition against Mende and Skione (4.129.2), in 416 six ships against Melos (5.84.1);

## II

## Sources of Supply of Ships

Athens had four main sources during the Pentecontaetia: (1) Capture of ships in battle; against this one must offset losses of ships in battle and storm. (2) Compulsory surrender of ships by allies who had revolted and been conquered by Athens. (3) Voluntary surrender of ships by allies who were changing from ship-contribution to payment of tribute. (4) Shipbuilding at Piraeus; this was obviously the main source, but it will be convenient to consider it last.

*Capture of ships and loss of ships by Athens*

I take as a starting point the battle of Salamis, where we know that at least *ca.* 150 and perhaps 180 (+ 20) Athenian triremes took part. The Greeks captured “many” Persian ships and destroyed “many more” (Hdt.8.96); according to Diodorus (11.19.3) they lost 40 ships, a plausible figure. Greek losses will have been more than offset by the ships captured and the Athenians must have shared in both.<sup>47</sup> At Mykale there was no naval engagement and the Persian ships were burnt on land.

Until 454 we hear of no major losses of ships by Athens, but several

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but in 415 Chios probably sent some 20 ships to Sicily (6.43). These and a further five (7.20.2) were lost, and yet in 412 Chios had 60 ships when she revolted.

<sup>47</sup> 200 triremes is the traditional figure for the Athenian fleet in 480; now found in the ‘Themistocles Decree’, line 14. It may be the total for the whole campaign rather than the total at Salamis. Hdt. 8.18 says that half the Athenian ships at Artemision were damaged. Labarbe argues that 70 ships were lost by the Athenians (but that they had 70 more to make up a total of 200 again at Salamis). But it seems unlikely that as many as that were a total loss at Artemision; in the emergency the Athenians will have kept as many ships going as possible, and they may well have manned some of the captured Persian ships with Athenians who had survived the loss of their own ships. Labarbe denies that they could have done so without adapting them, for which there was no time; certainly under normal circumstances captured ships may have been adapted before use, but this was a crisis, and I doubt if the differences between triremes from different shipyards were insuperably great. See Burn, Hignett, Labarbe (*supra* n.3) and M. Amit, *Athens and the Sea* (Coll. Latomus 74, Brussels 1965) 20 n.8. Persian ship losses: Hdt. 8.96; Ctesias (*FGrHist* 688 F 13.30) says 500 lost—an exaggeration; Diodorus 11.19.3 says over 200 destroyed besides those captured—more plausible. Amit 18–26 and Morrison and Williams 223ff have brief surveys of Athenian naval history in the Pentecontaetia.

major acquisitions by capture. At Eurymedon Athens and her allies captured or destroyed 200 Phoenician ships (Thucydides) and destroyed the reinforcing squadron of 80 ships; the number captured may have been over 100, an important acquisition by Athens, even if she gave to her allies some of the ships along with their share of other booty.<sup>48</sup> We cannot be sure about the quality of the ships captured. Soon after Eurymedon Cimon dealt with some small groups of Persians in the Thracian Chersonese and captured 13 ships.<sup>49</sup> When Thasos revolted (465), he defeated the Thasian fleet and captured 33 ships (Plut. *Cimon* 14.2); the rest were later confiscated (*infra* p.200). In 460 an Athenian and allied fleet went to Cyprus and Egypt, but we have no certain evidence of significant gains or losses before 454.<sup>50</sup> During the war in Greece there were several sea battles. For Kekryphaleia we have no information about gains or losses; later Athens and her allies fought Aigina and her allies and captured 70 of their ships;<sup>51</sup> the rest of Aigina's ships were subsequently confiscated (*infra* pp.200–01).

<sup>48</sup> This seems the best interpretation of confused and conflicting evidence: Thuc. 1.100.1, *ἔλλον τριήρεις Φοινίκων καὶ διέφθειραν τὰς πάσας ἐς διακοσίας*, 200 being clearly the total of those captured plus those destroyed (*cf.* de Romilly's translation: "ils prirent ou détruisirent . . ."); Plut. *Cimon* 12.8, probably following Callisthenes, says many ships escaped, many were destroyed and 200 were captured—the total lost has become the total captured (*cf.* Jacoby's note on Phanodemus, *FGrHist* 325 F 22); Diodorus 11.60–61 cannot be trusted, since he has clearly confused this battle with that of 450, to which probably belongs the capture of 100 ships with crews—based on the last four lines of the 'Eurymedon epigram' (see esp. Wade-Gery, *JHS* 53 [1933] 82–95; W. Peek, *HSCP* Suppl. 1 [1940] 97–116 and *Griechische Vers-Inschriften* I [Berlin 1955] no.16); the papyrus fragment, probably of Ephorus, is also based on the epigram (*POxy.* 1610; *cf.* Jacoby, *FGrHist.* 70 F 191, lines 62–77); Lycurg. *Leoc.* 72 may follow Ephorus. The 80 Phoenician ships: Plut. *Cimon* 13.3. See in general Gomme I.286–89; J. Barns interpreted very differently the evidence on the Eurymedon campaign, the Egyptian expedition and the later expedition to Cyprus, and refers the capture of 100 ships to an expedition to Cyprus under Cimon's command in 462 (*Historia* 2 [1953/54] 163–76). Sharing the captured ships: *cf.* n.50.

<sup>49</sup> Plut. *Cimon* 14.1; Persian stragglers (Gomme I.293) or commando groups raiding from Doriskos (*ATL* III.205–06).

<sup>50</sup> Fighting in Cyprus: only evidence is the Erechtheid Casualty List (*IG* I<sup>2</sup> 929+; Gomme I.310–11, 412 n.2), 460 or 459. Ctesias (688 F 13.36) says the Athenians defeated in Egypt the first Persian squadron of 80 ships, sinking 30 and capturing 20 with their crews; it is not easy to evaluate this information. If it is accepted, can we be sure the ships were ever sent away from Egypt? The Hegesagoras monument (*supra* n.27) refers to the Samians capturing 15(?) Phoenician ships in a sea battle; would the Samians have kept all their prizes, or shared them with their allies? We cannot give a certain answer, but it sounds as if they kept them; perhaps it was accepted that in operations of the League fleet the captors each kept their own prizes (as opposed to the fair sharing of booty from land battles).

<sup>51</sup> Kekryphaleia: Thuc. 1.105.1; Diod. 11.78.2. Aigina: Thuc. (1.105.2) *ἐνίκων Ἀθηναῖοι καὶ*

In 454 whatever force Athens and her allies had left in Egypt was destroyed, with most of the men, and the majority of the relief squadron of 50 ships. I assume that 200 ships went to Egypt in 460, but that the majority did not stay, though Thucydides never says that they left. For such a large naval force to have stayed seems unnecessary and unlikely, and Athens was very active in Greece in the early 450's, at sea and on land. At least 50 ships must have stayed in Egypt, perhaps more.<sup>52</sup> The minimum total loss was therefore 80–90 ships, and that was bad enough.

During the campaign in Cyprus in 450 there was a sea battle. Diodorus says Cimon sank many ships and captured 100 with their crews, here as at Eurymedon; this time he may be right. Isocrates gives the Athenian losses as 150 ships, but they had only 140 ships in the battle and won it; however, the victory may have been Pyrrhic.<sup>53</sup> During the Samian War we do not hear of the Athenians capturing any Samian ships, but only of the destruction and capture of Athenian ships by the Samians, who must have handed over those captured, together with their own surviving ships, when they finally surrendered.<sup>54</sup>

This is not a complete list, inevitably, since our sources are incom-

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*ναῦς ἑβδομήκοντα λαβόντες αὐτῶν ἐς τὴν γῆν ἀπέβησαν καὶ ἐπολιόρκουν, . . .* (he implies that all the ships captured were Aiginetan, but this is unlikely); Diod. 11.78.4 refers to the 70 ships captured and does not mention allies at all, on either side—a difficulty here. Cf. Lys. 2.48.

<sup>52</sup> Thuc. 1.104.2, 109–10; Diod. 11.77.3: the Athenians themselves burnt their ships to prevent capture. Isoc. 8.86 gives the loss as 200 ships and crews, but this is probably just based on his reading of Thucydides and has no independent value; also he has a hostile case to argue, for he is trying to show the folly of the demagogues by quoting examples of disasters which occurred during their rule. Fifty is a reasonable estimate for the force left in Egypt (cf. the relief squadron of 50 ships and the force of 60 ships sent to Egypt in 450: Thuc. 1.112.3). Ctesias' figure of 40 ships for the Athenian force sent to Egypt (688 F 13.36) has been eagerly seized on; it may be right, but when most of his figures are unacceptable we should not make too much of one which is convenient. On Ctesias as a historical source see most recently J. Bigwood, *Ctesias of Cnidus* (Diss. Harvard 1964) 143–88, esp. 166–76. For general discussion and bibliography see Gomme I.322; Meiggs, *loc.cit.* (*supra* n.28); Salmon, *op.cit.* (*supra* n.25) 134–92. The ratio of Athenian to allied ships is unknown.

<sup>53</sup> Thuc. 1.112.2–4 and Plut. *Cimon* 18–19 give no figures for gains or losses; Diod. 12.3.3 clearly follows the last four lines of the 'Eurymedon epigram' (*supra* n.48), here probably correctly. Isoc. 8.86, followed by Ael. VH 5.10: 150 ships lost *περὶ Κύπρον*; it seems a wild exaggeration and he has a case to argue (*supra* n.52), but there may be something behind what he says; cf. M. W. L. Laistner, *Isocrates: De Pace and Philippus* (Cornell StCP 22, 1927) *ad oc.*; G. Hill, *History of Cyprus I* (Cambridge 1940) 124 n.2. Many of the Persian ships may have been quite new, built for the Egyptian campaign (Diod. 11.75.2, 77.1). Eddy, *op.cit.* (*supra* n.26) 152, says "they may have captured a good many off Cyprus in 450/49 and others in the fighting in 447–445." Important acquisitions in 447–45 seem unlikely.

<sup>54</sup> *Infra* p.201 and n.65.

plete; but we may assume that it contains most of the highlights. It is impossible to draw up a balance sheet of gains and losses of ships by Athens. Isocrates speaks of many Athenian losses of ships in fives and tens;<sup>55</sup> such evidence is difficult to control. Clearly gains exceeded losses, notably at Eurymedon and in the wars against Thasos, Aigina and Samos (*infra* pp.200–01), less certainly in 450 in Cyprus. The major gains at Eurymedon, Thasos and Aigina may well have deferred, for Athens at least, the crisis over fleet maintenance until after the losses in Egypt. We cannot be sure, however, of the age of the ships captured, especially at Eurymedon.

We have no information about losses of Athenian ships in storms in this period; some losses must have occurred.<sup>56</sup>

### *Compulsory surrender of ships by allies*

Allies who had revolted and been conquered by Athens were usually, if not always, compelled to surrender all their warships. In most cases some of their ships had already been captured in the fighting, as we have seen above.

Naxos had probably contributed ships to the League fleet before her revolt (*supra* p.182 and n.9; p.192). Thucydides in his brief mention of the revolt and its subjugation (1.98.4) does not say that the Naxians were afterwards compelled to surrender their ships, but it has generally been assumed that they were.<sup>57</sup> This may be right (it was certainly later an inevitable part of *δούλωσις*), but doubt must remain. The analysis of the causes of allies' revolts which follows in Thucydides' account does not necessarily cover the case of Naxos any more than that of Thasos. Naxos is absent from the quota lists of the first period, and this may mean she was then still contributing ships. It was perhaps only after the revolt of a second allied state, with a larger fleet,

<sup>55</sup> 8.87. Sheer rhetorical exaggeration? Cf. nn.52–53.

<sup>56</sup> The fourth-century naval lists show that this was a frequent occurrence: e.g., IG II<sup>2</sup> 1613.202ff; 1629.746–82; 1631.116–67, 343–50. Cf. A. Böckh, *Urkunden über das Seewesen des attischen Staates* (= *Die Staatshaushaltung der Athener*<sup>1</sup> III [Berlin 1840], cf. *infra* n.68) 214–18; G. Busolt/H. Swoboda, *Griechische Staatskunde*<sup>3</sup> II (München 1926) 1204–05. These lists also refer to various captured ships now incorporated into the fleet: e.g., IG II<sup>2</sup> 1606–07 *passim* (cf. 1613.268ff: captured gear). The same must have happened in the fifth century. In the fourth century at least some form of record was kept of the number of ships captured and where and by whom they were captured; Dem. 20.77–80 could draw on it.

<sup>57</sup> E.g., by Gomme I.286; but cf. M. F. McGregor, *AJP* 67 (1946) 271.

that the Athenians decided to confiscate ships in future.<sup>58</sup> However, Naxos' absence from the quota lists of the first period may alternatively be due to disaffection.<sup>59</sup>

How many ships did Naxos possess? No certain answer is possible. Four to six Naxian ships had deserted to the Greek side before Salamis—probably, but not certainly, the whole contingent. She may have been assessed by Athens at 9 ships, and probably had no more than 15, mainly built around 480.<sup>60</sup>

*Thasos* revolted in 465, not because of disputes over her obligations as an ally or failure to supply ships, but because of Athenian encroachment on the emporia and mines in her Peraia. Thucydides' account of this revolt is more substantial (1.100.2, 101.3): after a long siege the Thasians came to terms, demolished their city wall, surrendered their ships and agreed to pay at once the reparations demanded, and tribute in future. Thirty-three ships had already been captured in the sea battle (*supra* p.197); how many more had the Thasians to surrender? Their assessed strength was probably 30;<sup>61</sup> their actual strength may have been 50–60.

This revolt had posed a more serious naval threat than that of Naxos. The Thasians had, on the mainland opposite, access to plentiful supplies of shipbuilding timber and a rich source of revenue in the mines. They had anticipated Athens by at least ten years in building a fleet from public revenues. They had had to surrender it to Darius in 491 but had the resources to build again a considerable fleet.<sup>62</sup> They had probably maintained their ships and built replacements where necessary; if so, their ships were a very valuable acquisition for Athens, in quantity and quality.

*Aigina*, though not a member of the League before 457, may for convenience be classed here, since she was granted the same surrender terms as allies who had revolted: demolition of walls and surrender of ships and payment of tribute in future (Thuc. 1.108.4). Seventy ships had already been captured in the sea battle (*supra* p.197), perhaps not all Aiginetan. How many more ships did the Aiginetans have? Probably not very many, especially if the 70 captured were all

<sup>58</sup> *ATL* III.250, 259; *cf. supra* p.192.

<sup>59</sup> *Sic* Meiggs, *op.cit.* (*supra* n.23) 8–9; he dates the sending of the Athenian cleruchy to Naxos to 450 rather than 447.

<sup>60</sup> *Supra* n.9; Eddy 191.

<sup>61</sup> *ATL* III.259; Eddy 191–92.

<sup>62</sup> *Hdt.* 6.46; H. Bengtson, *Historia* 2 (1953/54) 485–86; *cf.* Pliny, *HN* 7.56.209.

theirs. Aigina's financial resources were probably rated as comparable to those of Thasos;<sup>63</sup> she had put 70 ships to sea against Athens in the 480's and had probably about 40–42 ships in commission in 480.<sup>64</sup> A reasonable maximum estimate for 457 would be 80 ships—a total effort by a state fighting for survival.

Aigina, like Thasos, was not an ally who had revolted after failure to fulfil naval obligations. She had probably kept up her fleet and, according to Diodorus (11.78.4), built ships just before the battle. A good number of her ships, at least, will have been in good condition when acquired by Athens.

*Samos* revolted in 440 and had 75 ships at sea (20 of them transports) when the first part of the Athenian force arrived. This must have been a large proportion of their fleet; the Athenian force was much larger, but this was doubtless due to the Athenians' fear of Persian intervention. On finally surrendering, the Samians handed over their ships which had survived the three battles, plus the Athenian ships which they had captured in the second battle.<sup>65</sup> We may assume that their fleet was in good condition when they revolted; many of their ships probably survived the battles without serious damage and would be worth having.

Some allies must have revolted after failing to supply the required contingents of ships; only thus can we explain Thucydides' account in 1.99. Two likely examples (though there must have been more) are *Erythrai* and *Miletos*. They may well have contributed ships before they revolted in the 450's, and when they submitted (probably 452), any ships which they still had must have been confiscated by Athens. The number would not have been large in either case; their assessments are likely to have been about 8–10 ships.<sup>66</sup> Both were probably in financial difficulties, especially *Miletos*, and may well have failed to

<sup>63</sup> Aigina paid 30 talents (*ATL* I.218); Thasos: *cf.* n.61. Aigina had not such ready sources of timber. A different view on Aigina: MacDowell, *loc.cit.* (*supra* n.3).

<sup>64</sup> *Hdt.* 6.92.1; 8.46.1. How and Wells II.100–01, 249; Labarbe, *op.cit.* (*supra* n.16) 172–74; *idem*, *op.cit.* (*supra* n.3) 388–89; Eddy 189–90.

<sup>65</sup> Eddy does not take sufficient account of this, *op.cit.* (*supra* n.26) 146. First battle: *Thuc.* 1.116.1, 3; *Diod.* 12.27.4; *Plut. Per.* 25.3, *cf.* 26.3. Second battle: *Thuc.* 1.117.1 (Athenian ships destroyed); *Diod.* 12.28.1 (no reference to Athenian ships destroyed or captured); *Plut. Per.* 26.2 (Athenian ships destroyed and others captured). Third battle and Samian surrender: *Thuc.* 1.117.3; *Diod.* 12.28.3 (no reference to sea battle); *Plut. Per.* 27.1; 28.1.

<sup>66</sup> *Erythrai* manned 8 ships at Lade and, with her dependencies, paid a tribute of 9 talents from at least 450/49; *Miletos* had not recovered fully from defeat in the Ionian Revolt and paid a tribute of 10 talents (450/49) and later only 5 (443/2): Eddy 190–91 and references

maintain their ships; hence their revolt. The ships which they surrendered would not have been of much value; the same would be the case with any other states which revolted for the same reasons.

### *Voluntary surrender of ships by allies*

It is highly likely that Athens was prepared to take over any sea-worthy ships that allies had and did not wish to keep, when they voluntarily decided to stop contributing ships to the League. As we have seen, Plutarch clearly indicates that this happened. We must not, however, assume that all allies who changed voluntarily surrendered all their ships.<sup>67</sup>

Athens must have acquired some ships in this way in the 460's and 450's, but if my suggestion is correct (*supra* p.190), that many of these allies had given up contributing ships at least partly because many of their ships needed replacement, one should not overestimate the quantity and quality of ships handed over.

### *Shipbuilding at Piraeus*

This was obviously the main and most reliable source of supply; unfortunately fifth-century evidence on the subject is scanty. The state clearly was responsible for shipbuilding and bore the costs of both the ships and very probably the gear.<sup>68</sup> A trierarch could contribute the cost of building a ship if he wished.<sup>69</sup> He probably did have to cover much of the cost of maintaining and repairing his ships during and at the end of his period of service;<sup>70</sup> in the fourth century he could be compelled to pay the cost of replacing a lost ship if he were held responsible for its loss, and the same may well have been the case in the

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there, but *cf. supra* n.40. The fighting between Miletos and Samos (441/0) was apparently all on land (Thuc. 1.115.2).

<sup>67</sup> *Supra* p.188; pp.192–93 and nn.39–40.

<sup>68</sup> Böckh, *op.cit.* (*supra* n.56) 194ff; *idem*, *Die Staatshaushaltung der Athener*<sup>3</sup> I (Berlin 1886) 639ff; K. F. Hermann/V. Thumser, *Griechische Staatsaltertümer*<sup>6</sup> (Freiburg i.B. 1892) 699–700; Kolbe (1899) 534–39; Busolt/Swoboda, *op.cit.* (*supra* n.56) I.573, II.1204; Armstrong, *op.cit.* (*supra* n.16) 7 and n.17; Amit, *op.cit.* (*supra* n.47) 103ff, esp. 112–13.

<sup>69</sup> Fifth century examples: Cleinias (Hdt. 8.17)—he at least may have regarded the ship as his own property; Pericles (Plut. *Per.* 35); Alcibiades (Thuc. 6.61.6). We know of many instances in the fourth century, where our evidence is fuller: *e.g.*, Dem. 21.160ff, *cf.* Plut. *Mor.* 850F; IG II<sup>2</sup> 1623.309ff, 1627.421ff, 1628.436ff. See A. Kuenzi, *Ἐπίδοσις* (Diss. Bern 1923).

<sup>70</sup> Thuc. 7.38.2; [Xen.] *Ath.Pol.* 3.4.

fifth century.<sup>71</sup> We do not know for certain where the ships were built. Many of the materials had to be imported, notably timber; Athens had access to timber supplies, especially in Thrace and Macedonia, insured by the settlement at Amphipolis in 437/6.<sup>72</sup>

Most important for our purposes is the evidence, unfortunately scanty, on the *scale and rate of shipbuilding* at Piraeus:

(a) *Literary evidence*

(i) Diodorus (11.43.3) provides a valuable piece of information: in describing the work of building the harbour at Piraeus (under 477/6) he adds that Themistocles persuaded the people to build and add to the fleet 20 triremes a year, also to encourage foreign craftsmen to settle at Athens; both policies he thought very useful in building up Athens' naval forces. The information sounds highly plausible, but has often been dismissed as an Ephoran doublet of the description of the shipbuilding programme before Salamis. This is most unlikely; the measure may perhaps have been passed before 480, as a supplement to the main shipbuilding decree, but Diodorus' dating is perfectly plausible and should not be automatically rejected.<sup>73</sup> A shipbuilding rate of 20 ships a year would be more than adequate to maintain the Athenian fleet at 200 ships or more, granted a 'natural life' of over 20 years for the triremes and no major catastrophes at sea in battle or storm. For a time at least it would have caused an increase in the fleet size, and this, if we accept Diodorus' comment, Themistocles may well have intended. The only problem is that we do not know how long this annual rate remained standard; it may have been changed soon after the immediate threat from Persia had gone, or at

<sup>71</sup> The fourth century evidence: trierarchic *σκήψεις—κατὰ χειμῶνα* (*supra* n.56) or *κατὰ πόλεμον* (*cf.*, *e.g.*, IG II<sup>2</sup> 1627.241–65). See Böckh, *loc.cit.* (*supra* n.56); Hermann/Thumser, *op.cit.* (*supra* n.68) 701–02; Busolt/Swoboda, *op.cit.* (*supra* n.56) II.1130, 1204–05. For the fifth century: [Xen.] *Ath.Pol.* 3.4, the resulting *διαδικασίαι*.

<sup>72</sup> The ships were not built in the 'shipsheds', but quite possibly on Eetioneia and also perhaps on the shore west of Piraeus. All that was necessary was wooden slips and stocks on the beach, which would have left no surviving trace; see K. Lehmann-Hartleben, "Λιμὴν," RE 13 (1926) 565. References to the *ναπηγιον* at Athens are few: IG I<sup>2</sup> 122+, line 10, in singular (*cf. infra* n.82); restored in plural, IG II<sup>2</sup> 1611, line 133 (357/6); *cf.* Ar. *Aves* 1157, *Thesm.* 52–54. Amphipolis: Thuc. 4.108.1. Late in the Peloponnesian War the Athenians were building ships in Macedonia (*infra* n.82), but perhaps not much earlier.

<sup>73</sup> Pre-480: Böckh, *Staatshaushaltung* (*supra* n.68) I.316; Keil 16. Pre-480, but continuing after 480: Kolbe (1899) 509–10, (1901) 408, referring to Hdt. 7.144.2. Post 480: Busolt, *op.cit.* (*supra* n.5) III.53; H. T. Wade-Gery and B. D. Meritt, "Athenian Resources in 449 and 431 B.C.," *Hesperia* 26 (1957) 187, accepting Diodorus' information as accurate.

least after Eurymedon. Kolbe (1901, p.408) assumed that regular annual shipbuilding was soon discontinued. This seems unlikely, for the Athenians now had the facilities and the skills required, and an annual programme would maintain them, quite apart from maintaining or increasing the fleet. However, the rate may well have been lowered after a time.

(ii) Aristotle (*Ath.Pol.* 46.1) says that the Boule was responsible for the construction of new triremes or quadriremes, whichever the Demos voted, and the provision of gear for them and 'shipsheds'. No numeral can be safely restored in the text for the number of ships to be built annually; there may well have been none in the original text. The reference is to a much later period, *ca.* 330 or soon after.<sup>74</sup>

(iii) Demosthenes (22.8–20) gives us evidence of somewhat earlier date: the Boule of 356/5 failed to carry out its obligation to build ships. His words imply that there was a fixed number of ships, but he does not give it.<sup>75</sup>

(iv) Andocides 3.3–9—see *infra* pp.208ff.

(b) *The 'Papyrus Decree'*

Earlier but also uncertain is the evidence of the fragmentary *PStrasbourg* 84 (verso) lines 9–11. Keil restored the lines to refer to the building of an additional 100 triremes and (with less certainty) the distribution of the ships after construction, 10 per tribe; of his alternative restorations of the last clause, one would refer to an annual shipbuilding rate of 10 ships for the future. Assuming that Andocides (3.5) referred to the same events, he dated the shipbuilding decree to 449/8, but on the basis of false premises.<sup>76</sup> Kolbe accepted that Andocides re-

<sup>74</sup> ἐπιμελείται δὲ καὶ τῶν πεπονημένων τριήρων καὶ τῶν σκευῶν καὶ τῶν νεωσοίκων καὶ ποιεῖται καινὰς [δε] τριήρεις ἢ τετρήρεις ὁποτέρας ἂν ὁ δῆμος χειροτονήσῃ, καὶ σκεύη ταύταις καὶ νεωσοίκους: *sic* most editors, *e.g.*, Kenyon, Sandys, Kaibel, Haussoullier, Oppermann. Keil 209ff suggested that the numeral was δ (4), but he greatly overestimated the length of life of triremes (*cf.* Appendix *infra*); Kolbe (1901) 398–99, 406–07 argued for δε<κα>, as also Wilcken (*infra* n.78) 399 and Busolt/Swoboda, *op.cit.* (*supra* n.56) II.1032 n.2—more plausible historically but quite uncertain. The passage does imply that the number of ships to be built was fixed, for the Demos decides ὁποτέρας, but not, apparently, ὁπόσας. The date of the reference: quadriremes are mentioned, quinqueremes not; quadriremes are first attested in the Athenian fleet in 330/29 (18 in *IG* II<sup>2</sup> 1627.275–78), quinqueremes in 325/4 (7 in *IG* II<sup>2</sup> 1629.811).

<sup>75</sup> See, *e.g.*, § 8: . . . μὴ ποιησαμένη τῇ βουλῇ τὰς τριήρεις. . . . D. M. Lewis rejects the traditional date of the speech and suggests 358/7: *op.cit.* (*supra* n.40) 43–44.

<sup>76</sup> Keil 10–17, 41–43, 135–140; his final text of lines 8–11 (pp. 74–75) was:

8 [ μετακομῖ]ειν εἰς τὴν πόλιν μετ' ἐκεῖ[ν]ο[ν] ν[ο]

ferred to the same events, but argued that it was a programme not merely of replacement, as Andocides says, but of fleet expansion—*καινὰς ἐπιναυπηγεῖν ἑκατό[ν]*; perhaps an over-fine distinction.<sup>77</sup>

Wilcken first identified the papyrus as a fragment of a commentary, preserved in excerpts, on Demosthenes' speech *Against Androtion* (22). He argued that lines 9–11 are part of the section beginning in line 5 and dated to the archonship of [Eu]thydemus. Three archons of this name are known to the literary tradition, holding office in 450/49, 431/0 and 426/5 respectively. Inscriptional evidence shows that in the first and third case the correct name was Euthynus. Wilcken therefore concluded that the reference was to the archon of 431/0 (not 450/49, as Keil), and connected the references to 5,000 talents (line 7) and to a naval measure with the Athenian decisions of 431/0, to release for use 5,000 talents and put 1,000 talents into reserve along with 100 triremes (Thuc. 2.24). He argued that the present tense of the infinitive *ἐπιναυπηγεῖν* indicates a recurring programme of shipbuilding, which would fit well with his reading of the end of line 10: *ἑκάσ[ι] [τοτε]* rather than *ἑκατό[ν]*. He therefore assumed that in 431/0 the Athenians established an annual shipbuilding rate of 10 ships, and he argued that Thucydides could have omitted a routine administrative measure like this, but not a major shipbuilding effort (not, I feel, a conclusive argument). He then restored line 10 to refer to the reserve ships; but the ships mentioned in the papyrus are certainly 'old' (line 9), and Thucydides says the best ships were put into reserve.<sup>78</sup>

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9 [μ - - - - -] *τὴν βουλὴν τῶν παλαιῶν τριή-*  
 10 *[ρων τῶν ἔτι πλωίμων ἐπιμελ]ε[ῖ]σθαι, καινὰς δ' ἐπιναυπηγεῖν ἑκατό[ν],*  
 11 *[ἐπικληρώσαι δὲ τῆ φυλῆ δ]έκα.*

His alternative restorations of line 11: [*τὸ δὲ λοιπὸν κατ' ἐνιαυτὸν δ]έκα—this seems very plausible, and Keil only rejected it because of his mistaken belief that an annual rate of 4 ships would have sufficed; [κατ' ἐνιαυτὸν ποιουμένην δ]έκα—rejected by Keil, reasonably, as too slow a rate for a special programme. Keil's false premises: (pp. 125–26) that the previous clause referred to the transfer of the League treasury to Athens, that the transfer occurred in 450/49 and that the references in the papyrus are in chronological order. Andoc. 3.5: *infra* p.211.*

<sup>77</sup> Kolbe (1901) 409, 411–13 (article in fact written in 1902, after Keil's book was published). Kolbe had less faith in Andocides' reliability; of Keil's restorations of line 11 he preferred [*τὸ δὲ λοιπὸν κατ' ἐνιαυτὸν δ]έκα, but suggested another: [ἐλομένην (sc. τὴν βουλὴν) ἐξ αὐτῆς ἀνδρας δ]έκα, referring to the *τριηροποιοί*, cf. Arist. *Ath. Pol.* 46.1. On the officials involved in shipbuilding at Athens see Keil 213–18; Kolbe (1899) 524–26, (1901) 410–17; Busolt/Swoboda, *op.cit.* (*supra* n.56) II.977 n.4, 1032; Amit, *op.cit.* (*supra* n.47) 16–18.*

<sup>78</sup> U. Wilcken, "Der Anonymus Argentinensis," *Hermes* 42 (1907) 374–418, esp. 387–403.

Wade-Gery and Meritt argued that lines 3–11 are all one section, commenting on Demosthenes 22.13, and referring to a Periclean decree dated thirty years after Salamis but before work started on the Parthenon. They maintained that Euthydemus can be the archon of 450/49, for the papyrus belongs to the literary tradition, and that he must be, on historical grounds. They explained the 5,000 talents (line 7) as a sum voted to Athena out of existing resources in the *δημόσιον* and, on the basis of the Decrees of Callias, restored line 8 to mention 3,000 talents as the total voted for subsequent payments to Athena (they suggested 15 annual payments of 200 talents).<sup>79</sup> The naval measure they connected not only with this but also with the decision to start work on the Propylaia and Parthenon, which must date to 450/449. The Boule was to look after the old triremes and hand them on in good condition, and build 10 new ships each year. They referred to Themistocles' motion in 477/6, mentioned by Diodorus, and concluded (p.187): "If it is true for the years between 477 and 450 B.C., or even for a considerable part of that time, that the Athenians had built each year twenty new triremes, then the new decree of Perikles in 450/49 marked a lessening of the tension, and a slacking off of building

His text of lines 8–11 was:

. . . ἀναλίσκ]ειν εἰς τὴν πόλιν, μετ' ἐκεῖνο γινο-  
 9 [μένου ἐτέρου δόγματος(?) ἐκάστωι ἕ?]ττει τὴν βουλὴν τῶν παλαιῶν τριή-  
 10 [ρων ἐκατὸν ἐξαιρέτους παραδι]δόναι, καινὰς δ' ἐπιναυπηγεῖν ἐκάσ-  
 11 [τοτε (?) . . . . . δ]έκα.

At that time no other plausible context for the 5,000 talents had been suggested. Wilcken suggested *τριήρεις* δέκα in line 11, but admitted that other possibilities exist, e.g., *πεντεκαίδ]εκα* (though 10 seems more likely) or a reference to officials (as Kolbe). He emphasized the author's independence of the surviving scholia on Demosthenes; that he was scholarly and well informed and that his source for lines 5–11 must ultimately be Craterus.

<sup>79</sup> *Op.cit.* (*supra* n.73) 163–97. Their text of lines 8–11 (p.164) assumed a longer line with 30–32 letters lost on the left:

καὶ ἄλλα τρισχίλια ἀναφέρ]ειν εἰς τὴν πόλιν μετ' ἐκεῖνο γινο-  
 9 [μένων τῶν ἔργων θαλάσσης δ' ὅπως ἂν κρατ]ῶσι, τὴν βουλὴν τῶν παλαιῶν τριή-  
 10 [ρων ἐπιμελεῖσθαι ὥστε ὑγίεις παραδι]δόναι, καινὰς δ' ἐπιναυπηγεῖν ἐκάσ-  
 11 [του ἑναιτοῦ πρὸς ταῖς ὑπαρχούσαις δ]έκα.

This superseded the text given in *ATL I T 9, II D 13*, which was closer to Wilcken's, and which separated lines 8–11 and made them refer to the shipbuilding provisions which Demosthenes first describes in 22.8. W.-G. and M. admitted the speciousness of Wilcken's dating to 431/0, but rejected it because it involves a difficult division between lines 3–4 and 5–11. They restored line 10 from Arist. *Ath.Pol.* 46.1 (undoubtedly correct) and line 11 from [Xen.] *Ath.Pol.* 3.4 and Diod. 11.43.3 (less certain). Decrees of Callias: *ATL II D 1*, lines 3–4, 5–6 *D 2*, lines 22–23. *Cf. ATL III.89.*

from 20 to 10. This would be a consequence, presumably, of the Peace of Kallias. Our papyrus thus suggests that the fleet was being maintained, but on a peace-time, rather than a war-time, basis.”

However, a building rate of 10 triremes a year would not have sufficed to maintain a fleet of 250, let alone 300 ships, without supplementary building. The reading *έκαα*σ[, instead of *έκατο*σ[, in line 10 has not been proved (it is certainly not clear from any published photograph), and the restoration of line 11 is still uncertain. Finally, the dating of the whole group of measures to 450/49, though possible, is not certain and depends on restorations. The possibility of the later dating of the second and third measures, to 431/0, cannot be excluded.<sup>80</sup>

### (c) Epigraphic evidence

Epigraphic references to shipbuilding in mid fifth-century Athens are fragmentary and often difficult to evaluate. A decree probably dating from the 430's refers to the refit and building of ships, but the inscription is too fragmentary to help us.<sup>81</sup> The fifth-century 'naval lists' tell us nothing on this subject, and the other fifth-century inscriptions referring to naval matters all date from the last years of the Peloponnesian War.<sup>82</sup>

<sup>80</sup> Dating to 431/0 accepted by, e.g., W. Bannier, *RhM* 75 (1926) 197–98; S. Accame, *RivFC* 80 (1952) 229–32; Gomme, *Historia* 2 (1953/54) 11; R. Sealey, *Hermes* 86 (1958) 440–46 and *ProcAfrCA* 1 (1958) 61ff (= *Essays in Greek Politics* [New York 1967] 75ff); Morrison and Williams 228, referring to Wilcken only.

<sup>81</sup> *IG I<sup>2</sup>* 74; see improved text of W. Bannier, *RhM* 77 (1928) 278–80, but context and details are still obscure; cf. H. B. Mattingly in *Ancient Society and Institutions* (*supra* n.8) 217 n.35. *IG I<sup>2</sup>* 73 (somewhat later) contains a decree whose surviving fragments refer to [*τρι*]εροιποιοι, to launching and docking of ships and care of ships, but not to shipbuilding.

<sup>82</sup> Fifth century 'naval lists': *IG II<sup>2</sup>* 1604\*; 1604\*a (Addenda, p.811), republished by L. Robert, *Coll. Froehner* I (Paris 1936) 1–2; *SEG X* 355 (=D. M. Robinson, *AJA* 41 [1937] 292–99). They have not been more precisely dated than the second half of the fifth century; the latter two have the 4-bar *sigma*, the first has no *sigma* surviving.

*IG I<sup>2</sup>* 122+ *SEG X* 131, a decree honouring two men who helped in obtaining oar timbers (on which cf. *IG I<sup>2</sup>* 71, line 22; *ca.* 436 or 423/2): the *τριεροιποιοι* had received the timbers and deposited them in the *ναυπηγειον* (lines 7–10); probable date: *ca.* 409/8, but Mattingly argues for *ca.* 420, *op.cit.* (*supra* n.81) 198–200.

*IG I<sup>2</sup>* 105 refers to Athenians building ships in Macedonia, assisted by King Archelaus; probable date: 407/6. See esp. B. D. Meritt in *Capps Studies* (Princeton 1936) 246–50.

*IG I<sup>2</sup>* 97 gives details of the preparation of an expedition, but has nothing about shipbuilding (cf. *SEG XII* 26, XV 7, XIX 13). Nor does the fragment of a naval law inscribed in *ca.* 406: *SEG X* 142=J. H. Oliver, *Hesperia* 4 (1935) 5–6, 13–19; cf. S. Dow, *BCH* 92 (1968) 173. Date of law uncertain; surviving fragment deals with trierarchic obligations and the regulation of trierarchic disputes, plus a brief and obscure allusion to *εχσαγγογε* concerning the *ναυπηγοι* (line 9).

More valuable information for our purposes is provided by a few scattered references in Athenian financial documents:

(i) The Parthenon building accounts for 444/3 list among receipts the sum of 90,000 drachmai (15 talents) handed over by the *τριηροποιοί*.<sup>83</sup> It may reasonably be argued that this was the surplus from a sum allotted to them not for building the normal annual quota of ships but for an extraordinary and large shipbuilding programme, with the proviso that any surplus be handed on for the work on the Parthenon; for a surplus of 15 talents after completion of a normal quota is highly unlikely and one would have expected the *τριηροποιοί* to retain the surplus for use next year. This would indicate a major shipbuilding effort, completed in 444/3. However, it could be that they had built up this surplus from the regular annual shipbuilding over several years; they were holding an unnecessary amount of ready cash and were ordered to pass on part or all of it.

(ii) The accounts of the Treasurers of Athena, probably for 431/0, but possibly for 428/7, include two payments to the *τριηροποιοί*, one certainly and one probably of 50 talents. Such large sums show clearly that a major shipbuilding programme was being carried out.<sup>84</sup> How many triremes would be built with 100 talents at this date is uncertain; but if we allow for the possibility of *ἐπίδοσις* or possibly enforced contributions by trierarchs in a wartime situation, then we may accept that the number of ships built may well have reached 100. I return below (p.211) to the significance of this information.

(iii) Another of the accounts of the Treasurers of Athena records payments to *τριηροποιοί*, but the figures are lost and the inscription is now firmly dated to 409/8.<sup>85</sup>

(a) *Literary evidence (supra pp.204–05)*

(iv) Finally, there is the information in Andocides' speech *On the Peace*, delivered in support of the treaty with Sparta which he had

<sup>83</sup> IG I<sup>2</sup> 342, lines 40–41. See W. B. Dinsmoor, *AJA* 17 (1913) 78; cf. *AJA* 25 (1921) 243; *ATL* III.341 n.63; but cf. Gomme I.312 n.3. The restoration *παρὰ τριηροποιδν* is very plausible.

<sup>84</sup> IG I<sup>2</sup> 294 + 299 + 308, lines 11–15 in the reconstructed text; see H. T. Wade-Gery, "An Attic Inscription of the Archidamian War," *JHS* 50 (1930) 288–93, cf. *JHS* 53 (1933) 136; B. D. Meritt, *Athenian Financial Documents* (Ann Arbor 1932) 84–85. The year not certain: *SEG* X 226 and Gomme II.144–45. The date of the payments within the year is not certain, for the references to date are lost and the position at the end of the inscription tells us nothing, for (as in IG I<sup>2</sup> 296, of 432/1) the payments are arranged not chronologically throughout the year but in groups according to destination.

<sup>85</sup> IG I<sup>2</sup> 301, lines 1 and 17 have ]<sup>ο</sup> τρι[. See W. S. Ferguson, *The Treasurers of Athena* (Harvard 1932) 16–37; *SEG* X 233.

helped to negotiate (probably 392). He emphasizes the benefits of peace with Sparta and refers back to previous periods of peace:

§§ 3–5. In the period of peace arranged by Miltiades, son of Cimon, after the war in Euboeia the Athenians fortified Piraeus, built the northern Long Wall and replaced their existing triremes, which had been used in the victory over Persia and were now old and unseaworthy, by building 100 new triremes; they enrolled 300 cavalry for the first time and purchased 300 Scythian archers.

§§ 6–7. During the Thirty Years' Peace after the war because of Aigina, the Athenians first of all deposited 1,000 talents on the Acropolis and passed a law to set them aside as an iron reserve; they built 100 triremes and decreed that they should be set aside likewise as a reserve; they built shipsheds, enrolled 1,200 cavalry and 1,200 archers and built the southern Long Wall.

§§ 8–9. During the Peace of Nicias the Athenians were able to deposit 7,000 talents of coined silver on the Acropolis and acquire over 400 ships, and an annual *φόρος* of over 1,200 talents was coming in (here the word must mean all revenues from the allies).

This account, which was paraphrased by Aeschines (2.172–76) has usually been dismissed without serious study because it seems thoroughly muddled.<sup>86</sup> But the certain mistakes are few: for example, 'Miltiades' instead of Cimon, a bad mistake which must be early, for Aeschines copied it. A simple transposition of the misplaced chronological references in §§ 3–5 and §§ 6–7—"the war in Euboeia" (in fact 446) and "the war because of Aigina" (in fact the First Peloponnesian War)—produces good sense.<sup>87</sup>

Sections 3–5 refer to the peace arranged by Cimon. Andocides says it was made for five years and kept for thirteen; he is clearly following an ancient tradition which dated Cimon's return, followed by the peace with Sparta, to 458/7.<sup>88</sup> If one accepts that Andocides' source

<sup>86</sup> R. C. Jebb, *The Attic Orators from Antiphon to Isaeos* I (London 1876) 128–33; Ed. Meyer, *Forschungen zur alten Geschichte* II (Halle/S. 1899) 132–34; P. Cloché, "Les conflits politiques et sociaux d'Athènes," *REA* 21 (1919) 177ff; K. J. Maidment, *Minor Attic Orators* I (LCL 1941) 495, 500–05; G. Dalmeyda, *Andocide, Discours* (ed. Budé, Paris 1930) 88–90, 139; U. Albin, *Andocide: De Pace* (Firenze 1964) 17–18, 55–69. See also Keil, Kolbe and Wilcken (*supra* nn.76–78).

<sup>87</sup> See W. E. Thompson, "Andocides and Hellanicus," *TAPA* 98 (1967) 483–90, a valuable contribution, with much of which I am in agreement. My argument holds even if Hellanicus was not used by Andocides as a source.

<sup>88</sup> Gomme I.325–27; A. E. Raubitschek, *Historia* 3 (1954/55) 379–80; W. R. Connor, *Theopompus and Fifth-Century Athens* (Washington 1966) 24–30, 103–06, suggests that Theopompus

used this dating, whether correct or not, then one can see that the events described are in plausible historical sequence: fortification of Piraeus (further work in the 450's?); northern Long Wall built (458/7);<sup>89</sup> 100 triremes built to replace those used in the Persian Wars which had become unseaworthy; finally, the information about cavalry and archers, which may be accepted if one assumes that these were the first *regular* corps at Athens.

The information about shipbuilding has usually been rejected as unreliable. Maidment (p.502) calls it "An obvious inaccuracy. The Athenian fleet had been growing steadily since the Persian Wars and the institution of the Delian League." But there is no good reason to doubt it. Thompson has argued plausibly that Andocides has drawn these details from his source, which according to Thompson is not an oligarchic pamphlet or oral tradition, but an historian, Hellanicus, whose testimony cannot lightly be dismissed; the most one can say is that the facts are correct, but Andocides may not have them in proper historical perspective.

Though it is possible that Andocides' source knew of an annual building rate of 20 ships and multiplied by 5 (years) to produce the figure 100 ships, it seems more likely that the reference is to an extraordinary 'crash programme' of shipbuilding, on a large scale and over a short period, voted by a special decree of which Andocides' source could have known. Such a programme is not unlikely in the late 450's, for Athens had suffered at the least fairly severe losses of ships in Egypt; since then there had been dissident allies to deal with; in 451 came peace, and preparation was begun for a campaign to Cyprus; as we have seen (*supra* p.192), the Athenians may have had to make up in advance for anticipated deficiencies in allied ship-contributions (using the extra money provided instead) and also perhaps for an unusually high wastage of their own ships through obsolescence. Andocides' statement that the 100 new ships replaced those which fought at Salamis may, as Thompson argues, represent an oversimplified view of the development of the Athenian navy since 480, a deduction *ex silentio* that Athens had built no ships in the intervening years; but as we have seen, there may be an element of truth in what he says.

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may have used Andocides 3. *πέντε*, the reading of the Andocides Mss, should be preferred to Aeschines' *πεντήκοντα*.

<sup>89</sup> Thuc. 1.107.1, 108.3; W. Judeich, *Topographie von Athen*<sup>2</sup> (München 1931) 75-76, 155.

An alternative but less likely date within this period of peace would be just after 450. Athens may have suffered fairly heavy losses off Cyprus in 450 (*supra* p.198); if one accepts the dating of the 'Papyrus Decree' to 450/49 and the original reading of line 10, referring to 100 ships, then this date for the shipbuilding programme becomes much more likely (*supra* pp.204–07).

To the Thirty Years' Peace Andocides in §§ 6–7 attributes the creation of the reserves of 1,000 talents and 100 ships; also the construction of 'shipsheds' and the southern Long Wall, and the establishment of a larger force of cavalry and archers. All of the latter are plausible in this period,<sup>90</sup> but we cannot accept his dating of the creation of the reserves to the period of peace. He has clearly read a description of this, but perhaps one which did not give a clear context, so that he assumed that the reserves were created before the war started. He has clearly not read Thucydides closely, for Thucydides gives a precise date in summer 431, after the start of the war, and says nothing about the building of 100 ships (2.24).

Whence did Andocides derive the information about the building of 100 ships? It may have been his own conclusion that the 100 ships put into reserve were newly built<sup>91</sup> (Thucydides says they were 'the best'; so may Andocides' source have done). Alternatively he may have found in his source a reference to the building of a further 100 ships, which he or his source connected with the creation of the reserve of ships. And we have epigraphic evidence for a major shipbuilding effort, probably at some point in 431/0 (*supra* p.208). The date within the year of the payments to the *τριηροποιοί* is not certain, but it could have been early. Thucydides dates the creation of the reserves

<sup>90</sup> Shipsheds were probably built in this period. Andocides says "shipsheds" not "the shipsheds": these are not the shipsheds of Themistocles but some additional ones, necessary for the expanded fleet; see Thompson, *loc.cit.* (*supra* n.87); Morrison and Williams 181–83, 187–88, 225–26. Expenditure on *τὸ νεῶριον* was provided for in 434/3 (Callias' Decree, *ATL* II D 1, line 31) but the word is here general in its meaning—the dockyard'. The southern Long Wall, or 'Middle Wall', was built early in the Peace (445: Judeich, *op.cit.* [*supra* n.89] 86 n.1, 155; *ca.* 444–42: Gomme I.312). Cavalry and archers: *cf.* Busolt/Swoboda, *op.cit.* (*supra* n.56) II.824 n.1, 978–79. On the financial information in §§ 8–9 see *ATL* III.346–58. This was a period within Andocides' own memory.

<sup>91</sup> *Sic* Kolbe (1901) 399–401. The ship reserve was not like the money reserve. The ships cannot have been stored away for years on end and never used. The composition of the reserve must have changed at regular intervals, to ensure that the ships were always seaworthy; the ships of the reserve must have been fit to go to sea, even if not immediately ready to do so.

after the withdrawal of the Peloponnesian invading force (late June 431 at the earliest), so the new measures almost certainly date from the archon year 431/0.<sup>92</sup> If one is prepared to accept, as I think one must, that Thucydides would not necessarily have mentioned this shipbuilding programme, then his information and dating fit well with the evidence of Andocides and the accounts, and also with the 'Papyrus Decree', if one accepts the reading *ἐκατό[ν]* and the dating of the decree to 431/0. Andocides' dating of the shipbuilding to the period of peace is not a stumbling-block. His factual information may be right and his dating not.

### *The Size of the Fleet in the Archidamian War*

The assumption that Athens had a fleet of 400 triremes by the campaigning season of 430 does not conflict with the other literary evidence: Thucydides says Athens had 300 seaworthy triremes at the start of the war (2.13.8); Aristophanes speaks of the possible launching of 300 triremes (*Ach.* 545); Xenophon refers to the number of triremes Athens possessed at the start of the war and the Mss vary between "300" and "400" (*An.* 7.1.27); Andocides himself (3.9) says Athens possessed over 400 ships during the Peace of Nicias—the Mss agree on *τετρακοσίας* and we are not justified in correcting it to *τριακοσίας* on the basis of Aeschines' *τριακοσίας* (2.175); [Xen.] *Ath. Pol.* 3.4 speaks of 400 trierarchs being appointed annually, which seems excessive if the fleet only numbered 300 ships (however, one must remember the uncertainty over the date of this work; I myself incline to a date early in the war, certainly before 424, but one must allow the possibility that it is earlier still).<sup>93</sup>

Certainly, the assumption that Athens had 400 ships in the Archidamian War makes it easier to understand passages such as Thucydides

<sup>92</sup> Thuc. 2.19.1. Gomme II.70–71, 79.

<sup>93</sup> Aristophanes says the Athenians would launch 300 triremes, given even a trivial *casus belli*; he has just spoken of the strong Spartan reaction to the Megarian Decree, and is thinking of the period just before the war, rather than the present (425); in any case Athens could never launch (and man) 400 ships at one time: *infra* p.213. Xen. *An.* 7.1.27: *τριακοσίων meliores*; *τετρακοσίων* FM (see P. Masqueray, ed. Budé II [Paris 1961] 127). Andoc. 3.9: Markland's correction to *τριακοσίας* has generally been accepted, but is it not more likely that *τριακοσίας* in Aeschines is not original, but a later miscorrection? [Xen.] *Ath. Pol.*: on the date see most recently G. W. Bowersock, "Pseudo-Xenophon," *HSCP* 71 (1967) 33–38. E. Kalinka explained the passage by assuming that the fleet grew to 400 ships by 430: *Die Pseudoxenophontische 'Aθηναίων πολιτεία* (Leipzig 1913) 280–81. Diod. 12.40.4, like Thuc.,

3.17, where the Athenians are said to have 250 ships at sea in 428 (possibly 430) and the use of the reserve of ships is not mentioned.<sup>94</sup>

Even if the collocation of evidence suggested above is not accepted in its entirety, the epigraphic evidence is clear: there was a big increase in the size of the fleet early in the Archidamian War, probably to *ca.* 400 ships. This does not mean that the Athenians could man them all and put them all to sea at once (especially after the manpower losses in the Plague—still unforeseen in 431/0) any more than they could do so in the fourth century. Then their fleet grew again to 350 and eventually 400 ships,<sup>95</sup> yet in the final struggle with Macedon (322) they could only put far fewer ships to sea, even on the most generous interpretation of the literary evidence (maximum, 240; minimum, 170).<sup>96</sup> A state needed more ships than the number of crews available.

I conclude, in brief, that there was a regular annual shipbuilding programme at Athens: 20 ships per annum for some years after 477/6; then 10 ships per annum, probably for the rest of the Pentecontaetia and into the Peloponnesian War, with occasional supplementation;

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reports Pericles' speech at the start of the war: "300 triremes present." Strabo 9.1.15 p.395 refers to 400 ships at Athens, but gives no date.

For various explanations of the figures see, e.g., G. Gilbert, *Constitutional Antiquities* (New York 1895) 363 and n.3; Busolt, *op.cit.* (*supra* n.5) 480 and n.5; Kolbe (1899) 511–14; Busolt/Swoboda, *op.cit.* (*supra* n.56) II.1197–98; H. Frisch, *The Constitution of the Athenians* (Copenhagen 1942) 311–12.

<sup>94</sup> Thuc. 3.17: see F. E. Adcock, *CambHistJ* 1 (1923/25) 319–22; Gomme II.272–77. The context of the chapter is summer 428, but Adcock has argued that it refers to 430 (*cf.* Thuc. 2.56) and has been misplaced; a reference to 431 is certainly wrong. Could the total of 250 include Chian and Lesbian contingents? Possibly, though the implication is certainly that the ships are all Athenian. In 430 the Chians and Lesbians did contribute 50 ships (Thuc. 2.56.2), but in 428 a contribution of 50 ships from Chios and Methymna seems unlikely. As Adcock pointed out, Thuc. seems to say (2.56.2) that in 430 for the first time the Athenians reconstructed old triremes as horse-transporters; this implies there had just been some new building. An annual shipbuilding programme must have continued during the war, supplemented by a few ships captured (Thuc. 2.84.4, 92.2; 4.14.1) or confiscated (3.3.4) and in 425 by a large number of Spartan ships kept, after a truce, on a specious pretext (60: Thuc. 4.14.2–3, 23.1). Use of the reserve ships: Gomme is inconsistent (II.82 and 241); perhaps not till 412, like the 1,000 talents (Thuc. 8.15.1).

<sup>95</sup> 349 ships in 353/2 (IG II<sup>2</sup> 1613.302); 410 in 330/29 (1627.266–78); 417 in 325/4 (1629.783–812); *cf.* Busolt/Swoboda, *op.cit.* (*supra* n.56) II.1199.

<sup>96</sup> Diod. 18.10.2, 15.8–9: *cf.* C. J. Fischer (BT, Leipzig 1906) and R. M. Geer (LCL 1947) *ad loc.*; Justin 13.5.8. See discussion by A. Schäfer, *Demosthenes und seine Zeit* III<sup>2</sup> (Leipzig 1887) 381–82; T. Walek, "Les opérations navales pendant la guerre Lamiaque," *RevPhil* 48 (1924) 23–30; M. Cary, *History of the Greek World from 323 to 146 B.C.*<sup>2</sup> (London 1951) 381–83.

for example, 100 ships were built in 451/0 or possibly 450/49, up to 100 ships were built in 431/0, and there may have been other instances, probably on a smaller scale. Such supplementation was required when Athenian losses of ships on campaigns or through obsolescence had not been offset by major acquisitions, by capture in war or confiscation, and when the fleet had to be brought up to strength for important campaigns or at the start of a war.

## APPENDIX

### The Length of Life of a Trireme

The life of many triremes was cut short by destruction in battle or storm. But others could be repaired, and the majority probably escaped severe damage and lasted a full 'natural life'. How long was the average 'natural life', granted normal care and maintenance? The evidence is mostly from Athens, from the fourth-century naval lists. It was studied by Keil and Kolbe; Kolbe's more negative results are more reliable (Keil 201–11; criticized by Kolbe [1901] 386–407. Cf. H. Fraenkel, *AthMitt* 48 [1923] 23; K. Schmidt, *Die Namen der attischen Kriegsschiffe* [Diss. Leipzig 1931] 2–4, 10, 19, 29, 36; F. Miltner, "Seewesen," *RE Suppl.* 5 [1931] 923; Labarbe, *op.cit.* [*supra* n.16] 127 and n.4; Eddy, *op.cit.* [*supra* n.26] 146 n.19).

Their principal method was to try to follow the careers of individual triremes from list to list and thus establish a minimum length of life; they were helped in identifying ships by epithets such as *καινή* and *παλαιά* in the 370's, in the 350's by the ship's category, and by the appending of the shipwright's name after *ca.* 372. Keil claimed to have found examples of lives of 25, 25, 33 and 37 years, and therefore concluded that an annual replacement programme of 4 ships would suffice, with frequent supplementary quotas (this was his interpretation of *ἐξάιρετοι νῆες*, rightly contested by Kolbe). Kolbe showed that most of the long lives adduced by Keil are very uncertain (only one is beyond doubt: a maximum of 26 years for *Ἀσκληπιάς*; Schmidt 19, no. 75). Few ships can be shown to be over 20 years old and still in service. A number of very short lives can be established, but because of the nature of our evidence these are much easier to establish than the (uneventful) longer ones.

Several other factors lessen the value of the evidence: the lists do not provide a wide and even chronological spread; many references do not date the ship's destruction or period of service, but the time when a resulting trierarchic debt was listed or paid, which could be long after the debt originated;

the shipwright's name may help in dating, but here there is a danger of circular argument (however, the fact that the shipwright's name was not given with ships built before 372 is useful: Fraenkel 23). Last, and most important, there are many examples of two ships of the same name in service at the same time, possibly even three in a few cases: e.g., in IG II<sup>2</sup> 1611 alone (with the new fragment: *Hesperia* 8 [1939] 17–25) Ἀρετή, Ἐρωμένη, Εὐχαρίς, Ἰκανή, Μακ-αρία, Παγκράτιον, Πανθήρα, Σφενδόνη, Φήμη, perhaps Φυλλίς; possibly 3: Εὐρώπη, Νίκη. This makes doubtful some of the identifications suggested.

Nevertheless Kolbe makes a reasonable case for an average life of 20 years; though some of his examples of long lives are doubtful (e.g., *Αὔρα*; cf. Schmidt 29, no.146), some more may be added (e.g., *Εὐδία*, *Λαμπρά* (?), *Ναύκρατις*, *Πολυαρίστη*; here IG II<sup>2</sup> 1609 and the new fragment of 1611 provide further information, not known to Kolbe; cf. Schmidt 23–26). I suspect that the average 'natural life' of a trireme at Athens was rather more than 20 years, and the average actual life (allowing for losses in storm and battle) was rather less than 20. If this is true, an annual shipbuilding rate of 15 triremes would scarcely suffice to maintain a fleet of 300, and a rate of 10 triremes would certainly not suffice without supplementary building. Too long a period in the water was harmful; at Athens the ships would be taken out of the water when possible and dried out, but this was less easy on campaigns (Thuc. 7.12.3). Too long a period out of the water was also harmful (Thuc. 2.94.3, but the Megarians may not have maintained their ships properly). Even if the hulls were coated with pitch (Ar. *Ach.* 189–90; cf. *ὑπαλοιφή*, IG II<sup>2</sup> 1627, line 313), this was not completely effective protection against the teredo-worm and rotting (Ar. *Eq.* 1308); cf. Morrison and Williams 279–80.

During Nabis' siege of Gytheion, Philopoemen launched an old quadrireme, which disintegrated at the first impact in battle. Plutarch (*Phil.* 14.3) and Livy (35.26.5–9) describe the same event; cf. Paus. 8.50.7, R. M. Errington, *Philopoemen* (Oxford 1969) 102–03. Plutarch says the ship was launched again after 40 years of disuse: δι' ἐτῶν τεσσαράκοντα κατασπάσας; Livy says it had been captured 80 years before and was *putrem iam admodum et vetustate dilabentem*. This was a famous ship, and in a later period.

The same may be said of the Macedonian royal 'sixteener', which the Romans allowed Philip to keep in the peace treaty of 197/6 (Livy 33.30.5). This does seem to be the same ship in which Aemilius Paullus sailed up the Tiber to Rome in triumph in 167 (Livy 45.35.3). This ship lasted well over 30 years; but a royal ship would receive special care, and by this period better protection of the hull may have been possible (e.g., we now have evidence of lead sheathing of the hull of a merchantman wrecked off Cyprus in the late fourth century: M. L. Katzev, *AJA* 73 [1969] 238). Could this 'sixteener' be the one built by Demetrius Poliorcetes in 289 (Plut. *Dem.* 43; cf. 20)? This seems most unlikely, though not impossible (see W. W. Tarn, *Hellenistic Military and Naval Develop-*

*ments* [Cambridge 1930] 133 and n.5—but it is not certain that Lysimachus took over Demetrius' 'sixteener'; F. W. Walbank, *Commentary on Polybius II* [Oxford 1967] 611–12).

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