adversary forces that Athens and its allies reasonably expected to face. Table I outlines the evidence for Persian expeditionary forces against the Greeks during our period. Traditionally, analysis of these mobilizations has focused on whether the data, much of which was transmitted through Herodotus and Ephorus, are correct. Going back to the 19th century, a lineage of formidable scholars has expressed substantial doubts over the factuality of such mobilizations, with particular suspicion falling on details of Xerxes' expedition in 480.\(^4\) Considerable ingenuity has been applied, for instance, in calculating whether hydrologic resources along his line of march would have provided sufficient fresh water for his vast host.\(^5\) Secondarily, some doubts have also attached to the received figures for the invasion force of Datis that was eventually checked by Athens at the Battle of Marathon in 490.\(^6\)

In thinking about the scale of the Persian threat in Greek eyes, however, our concern is not primarily the truth of such reports. Whether accurate or not, the received estimates shaped planning at the foundation of the Delian League regarding contingencies in defending Aegean Greece from Persian aggression.\(^7\) This point is especially probative, since there is no evidence that popular and expert opinion diverged significantly in this matter. Herodotus and Aeschylus reflect popular opinion, but both also had access to elite informants aware about military planning at higher levels of decision-making. In any event, Thucydides, who had held the office of stratēgos, was manifestly conversant with privileged military thinking at Athens. Yet he makes no effort to correct Herodotus about the scale of Xerxes' forces, and, in fact, has an Athenian speaker at Sparta (1.73.4-74.2), just before the outbreak of the Peloponnesian War, provide an estimate of the Attic contribution at Salamis that seems even higher than Herodotus (1.74.1). Moreover, critiquing any individual figure in our evidence, albeit seemingly inadequate, is less important than allowing the general magnitudes of these forces to impart a quantitative sense of the Greek intentions when forming the Delian League.

It is worth noting at the start that deployed forces, whether Greek or non-Greek, were always less than the “administrative” forces conceived in the minds of leaders (which have sometimes perhaps been transmitted in later historiography). This is particularly valid for Herodotus’ likely use of renditions of Persian documents.\(^8\) Furthermore, intelligence and surveillance directed toward

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\(^5\) Maurice 1930: esp. 221-4.


\(^7\) Cawkwell 2005 offers a recent overview of this struggle, with pp. 126-38 dealing with our period.

\(^8\) See Briant 2002: 197-200; Cawkwell 2005: 239-43.
an enemy’s preparations could only be rather primitive in a classical military environment. Direct observers of varying expertise, care, and objectivity provided input about forces at the actual time of deployment. In that context, over-counting and duplication would probably have been more prevalent than underestimation. It may well be that by the 450s or 440s the Athenians had achieved a more realistic appraisal of the likely enemy forces. If that is so, it appears that their understanding was reflected in actual military dispositions and not used to “correct” the historical record of the earlier 5th century. Thus, the traditions on 480 and earlier Persian campaigns help to illuminate thinking during the first period of the alliance. Nonetheless, I should emphasize that 5th-century military planning was never so much a matter of how many, but rather how many at which place, and at which time.

Even if one discounts Xerxes’ great expedition as a special effort, impossible to duplicate, the Persians often deployed considerable naval assets. An armada of 600 triremes seems to emerge as a realistic fleet for regular periodic deployment, although realizable force in battle may have fallen closer to 300 at mid-century. That total appears three times before the foundation of the Delian League. Indeed, Herodotus claims that Dareios’ force of 600 ships against Thrace was enumerated on steleae erected at Byzantion that contained rosters in both Aramaic and Greek which were later available for inspection (4.87.2). In principle, then, this muster of forces could be verified. Subsequently, a complement of 600 ships was also a total associated by the Attic local historian Phanodemos with Persian strength at the battle of Eurymedon in the early 460s (FGH 325 F22). While it is doubtful that 600 Persian warships faced allied forces together there, 600 ships might signify a mobilization toward which the Persians were building. The aggregation of their forces then was clearly preempted by the intervention of the Delian League fleet.

We can alternatively approach the Athenian and allied appraisal of the opposing military strength by examining the possible constituents of a Persian fleet to be mobilized against Greece after 478. According to Herodotus, Xerxes had mustered 600 Phoenician, Egyptian, and Cilician ships (7.89.1-90). Another 300 ships were supposedly gathered from Cyprus, Pamphylia, Caria, and Lycia (7.90-93). In 478, the Athenians and their Ionian allies might suppose that a forceful, preemptive showing in resistance to a future invasion might cut deeply into this mobilization in Asia Minor and Cyprus. A forward strategy might exclude the launching of such ships. Local rivalries there could probably drain off men and resources too. The Cypriot Greeks could be expected to show a lack of enthusiasm for Persia if only in the interest of their own autonomy. Their

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resistance could tie down Phoenician Cypriots, otherwise prepared to support the Great King. In these eventualities, a Greek planner in 478 might be prepared to discount the contingents from Cyprus and southern Anatolia by 50%. Yet, even so, 150 ships might be a reasonable estimate for those available. That reduced levy would still add up to 750 vessels when combined with Phoenicians, Egyptians, and Cilicians. My point is not that this is perforce a realistic prediction for a modern scholar envisioning an expedition against Greece in the 470s or 460s. Rather, I emphasize that such a prediction was not an over-estimate of the enemy in terms of the data apparently available to an observer in 478. Therefore, when we imagine Greek planners in 478 formulating contingencies in terms of a Persian force of 600 triremes, their estimate of their adversary may already reflect a 20% offset from the 750 ships that their recent experience implied as a possible opposing force.

In our investigation of how the founders of the Delian League measured a potential enemy force, two more aspects of past Persian mobilizations are significant: 1) the ability of the Persians to recover from military adversity; and 2) the effect on Persian strength of distance linked with time. The pattern of military activity presented on Table I attributes to the Persians remarkable recuperative abilities. Evidently they were well able to withstand the incidental losses that modern scholars tend to ignore, that is, ongoing, but by no means negligible, losses of ships that occur during warfare through meteorological circumstances, accidents, mishandling, and low grade combat. Beyond weathering such losses, the Persians were also able to remediate the effects of major combat, such as the defeat at Cyprus or the battle of Lade, and natural catastrophes like the great storm at Mt. Athos in 492. As shall be noted shortly, Greek poleis did not possess such recuperative powers. Thus, the balance of power offered risks to the Greeks on two levels of attrition. It seems from Herodotus’ account of the Artemision campaign that they were vulnerable to a contest with the Persians of attritional rates in which Greek ability to inflict higher losses did not offset superior Persian numbers (cf. 8.16.3, 18). Nevertheless, there was a second Greek vulnerability in attrition because Persia could mount large expeditions into the Aegean at short intervals. As proof, note that Herodotus reports Dareios preparing to attack Greece with a huge force in the fourth year after Marathon, only preempted by a revolt in Egypt (7.1.1-3). Men and ships amassed against Greece were probably used by Xerxes to pacify Egypt (a revolt in Babylonia appears less consequential). Moreover, although two years later c. 300 ships were lost at Mt. Athos (Hdt. 6.44.3), Datis supposedly sailed against the Cyclades and

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10 Isoc. 8.87 refers to ongoing incidental Attic losses in amounts of five or ten.
11 Kimon’s striking force at Eurymedon primarily comprised triremes built by Themistokles (Plut. Cimon 12.2), and hence of long service life.
mainland with 600 ships that had entered the Aegean as a single armada (Hdt. 6.95.1-2). Thus he embarked without drawing on levies from the east Greeks. Similarly, the Persians sent a fleet of 600 vessels against Ionia, the force that would prevail at Lade in 494, only a few years after the Ionian rebels had won a major victory at sea in the waters off Cyprus (Hdt. 5.112.1).

Naval warfare from the mid-19th century onward has been characterized by the application of mechanical energy, which allows a projection of power over long distances. Previously, expeditionary warfare worked under the serious limitation that a campaigner striking over distance could not easily be resupplied or reinforced. Naturally, this factor constrained Xerxes in 480; for one thing, once his fleet withdrew from homeland Greece after Salamis, he was compelled to withdraw a large portion of his land forces. However, the geography of the eastern Mediterranean disadvantaged Greek military prospects. Because of the political fragmentation of the Greeks and their littoral disposition, Persian advances into the Aegean tended to subtract rapidly from potential friendly forces and convert some (at least) of their ships into Persian assets. In the nightmare scenario of Xerxes’ invasion, Herodotus reports 347 Greek ships from the Aegean and Propontis mobilized for the Persians. At the crucial moment of Salamis, the Aiginetans were withholding some ships in home defense (Hdt. 8.46.1). Under this perspective, estimates in 478 of the potential strength of the Persians ought to have been couched in terms of not only how many enemy ships might set sail, but also where they might be met. Thus, 350 Greek ships deployed against the Persians in Cyprus, Pamphylia, or Cilicia might have the same defensive capacity as 500-600 ships operating from the Peiraieus in the Saronic Gulf and western Cyclades.

By the same token, even a relatively modest separation had a disproportionately impact on military strength if that distance was in Greek home waters while facing a strong adversary. Observe the notable difference in ships between the initial Greek fleet at Artemision and the subsequent fleet there and then later at Salamis (Table II.2-3). Yet standing at Salamis gave a bare margin of victory, as any further retreat would have dissolved the Greek confederates into individual squadrons. These could have been easily mopped up by the Persians, as both Herodotus and Thucydides note (Hdt. 7.139.1-5; Thuc. 1.73.3-4). Clearly, dozens of miles of distance along the southern coast of Anatolia could never have an impact anywhere approaching this crucial difference of a few miles in homeland Greece.

Such a calculation of military power focuses our attention on the related issue of time and force deployment. Ancient sources are often read to indicate that

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12 Even the anti-Athenian Corinthian speaker in Thuc. 1.69.5 observed that the Spartan reaction to the invasion was tardy and conceded how nearly run a matter victory was.
great numbers of ships from multiple origins converged precisely at rendezvous and then advanced *en masse* toward their military targets. This is hardly true in our age of radio communications, as the naval battles (like that of Leyte Gulf) in the Pacific theater during World War II demonstrated. In the 5th century, the coordination of hundreds of ships must have been a daunting proposition even for a steeply hierarchal, authoritarian state like Persia. Major battles took place toward the ends of campaigning seasons for the reason that it took spring and early summer to get forces into place. Deploying a hundred ships entailed the management of, at least, 20,000 men. Our source material on the Eurymedon campaign indicates how aggregation of squadrons in antiquity proceeded. A Persian fleet and land army had advanced to the Eurymedon River in Pamphylia (Table I.8). That both land and sea forces were together there suggests that the army did not intend to march toward Sardis in Lydia or toward the Hellespont, since such a force might then have diverged northward in Cilicia. The likely Persian target was Caria and Doris in southwestern Asia Minor, perhaps especially Kaunos, Rhodes, and Knidos. They intended to seize a base from which to operate in east Greece, possibly the next year after wintering over. The Persian commanders at Eurymedon were indeed awaiting concentration of other contingents with their main force. After Kimon’s great victory on sea and land, he was able to surprise 80 Phoenician ships arriving as reinforcements at Cyprus (Plut. *Cimon* 12.4; 13.3). Moreover, no Egyptian ships are cited as present at Eurymedon, so that a squadron was likely expected from that satrapy as well. The account in Ctesias of the later Egyptian revolt of 459 seems to describe an initial Persian reaction by a sizable army, one unbelievably large, as so often in Ctesias, (*FGH* 688 F14[36]). Yet its accompanying naval contingent was 80 ships, which might actually have been a standing Persian naval force in Egypt. At that juncture, 50 of these were incapacitated, with 20 captured with crews and 30 destroyed.

In the Eurymedon campaign, the Persian rendezvous in Pamphylia may not yet have been the initial rallying point for this expedition. Xerxes’ great armada had massed further east in Cilicia. Wallinga has offered an elaborate hypothesis in which Cilicia plays a special role in Persian naval affairs, pointing to an otherwise disproportionately moderate Cilician tribute. He ought not to be followed in imagining that a Cilician base served as arsenal and storage for hundreds of triremes. Nevertheless, the existence in Cilicia of supply depots for fleets intended to project Persian power toward Greece may not be inconceivable.

For the Greeks, we perceive similar difficulties in concentrating naval squadrons. A Corcyrean flotilla of 60 ships was supposedly delayed by adverse

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winds from rounding Cape Malea in time to participate at Salamis (Hdt. 7.168.1-4). A certain reluctance to commit wholeheartedly to the cause of the Hellenic League was suspected as their motivation. Nonetheless, a genuine delay through factors beyond their control must have been sufficiently plausible that it was worth the Corcyrean effort in excusing themselves. Consequently, just as we have seen that a contingent of ships further east was more valuable militarily to the Delian League than a similarly sized contingent to its west, a body of warships early in the campaigning season was worth more than the same force later in the year. The coordination of large confederate forces that we perceive the Athenians making at Eurymedon and onward reveals their mastering of this relevant skill set.

To recapitulate, we have learned that Greek planners in the early 470s expected to face at least 600 Persian triremes. On the basis of previous Persian achievements, the build-up of this force might be thought to require c. 2-5 years. The dispatch of such a force into the Aegean basin ought not then have taken as long as a decade. The actual battle at Eurymedon probably occurred not earlier than 469 nor later than 466. From the vantage point of a planner in 478, a hypothetical Persian attack on the scale of Eurymedon should have happened years earlier. In other words, Eurymedon was late. A hint that this conclusion is not speculative emerges from the actions of the Naxians. At some point between 472 and 469, Naxos had recklessly defected from the Delian League, only to suffer a siege leading to surrender on unfavorable terms (Thuc. 1.98.4). Naxian foolhardiness in challenging Attic hegemony makes better sense if the Athenian allies were aware of Persian preparations already underway.

Let us turn now to the other side of the planning equation in 478. What would a prudent strategist have considered a feasible force structure for the Delian League? Did any complement of triremes stand a reasonable chance of blunting another Persian effort at subduing Greece? Table II collects data about Greek naval potentialities during the early 5th century. Before considering this matter, however, preliminary discussion is in order about the development of early trireme navies. Our chief source is Thucydides, who takes pains both to emphasize the early introduction at Corinth and adoption at Samos of the trireme and to stress the late development of large all-trireme navies. His first large trireme navies belonged to the Sicilian tyrants and Corycereans, his unspecified criterion perhaps being 100 ships. Thucydides also mentions Ionian navies built up in confrontation with Persia, singling out Polykrates of Samos. According to Thucydides, the Aiginetan and Athenian navies were late developing. We can reconstruct the history of their naval competition. Aigina had an

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\[\text{Thuc. 1.13.1-4, 6; 14.2-3. See Figueira forthcoming[a].}\]
early advantage, possessing perhaps 50 triremes as early as 520. By the early 480s, both poleis had c. 70 triremes, supplemented by pentekontors.

Themistokles’ naval law broke this equilibrium, with 100 triremes in its first phase and perhaps 200 overall, using resources from the silver mines at Laurion. These ships defeated the Persians and saved Greece, as Herodotus observes forcefully (7.144.2–3). Continuation of ship building also explains the existence of more than 200 ships in Attic possession in 480. Herodotus has Athenian ships at Salamis numbering 180 (8.44.1). There were also 20 Attic ships manned by their allies from Chalcis in Euboia (8.46.2). Their total number was perhaps higher: the “Themistokles Decree” preserves a provision for 200 ships companies (SGHI 23.12-14), and as a step taken early in the process of mobilization that probably represents a minimum, without supplemental crews like the Chaldidians. A speaker in Thucydides speaks of an Attic contribution of a little less than two-thirds of 400 ships (1.74.1).¹⁶ Let us estimate this force in the range of 230 to 260 triremes.¹⁷ The evidence on Attic ship-building programs is weak, but sources imply later additions to the fleet of 10-20 triremes annually.¹⁸ Hence, unsurprisingly figures of 200 or 250 Athenian ships appear several times after the founding of the Delian League (Table II.6–8). Even this larger number implies a notable reserve at home, since the Peiraieus and Saronic Gulf could never be left entirely unguarded.

For comparison, Athens possessed 300 seaworthy warships in 431; the qualification πλωίμους ‘seaworthy’ in Thucydides implies others in construction, storage, or salvageable (2.13.8; cf. Arist. Aeb. 544–5; Xen. Anab. 7.1.27). A distinction between deployable ships and every hull in Athenian possession is also illustrated by two references to resources during the Peace of Nikias, or 421 to 415. Both Andocides (3.9) and Aeschines (2.175) derive material from a common historical source (Hellanicus, an Atthidographer, or a pamphleteer). This authority enumerated two types of warships, of which 400 represented all the hulls under Attic control and 300 the total vessels available for immediate service. Thucydides specifies the height of Attic naval power during the Archidamian War in 430 or 428 (3.17.1–2).¹⁹ Athens actually had 250 triremes manned in this campaigning season, a total not taking into account 100 best-sailing triremes, kept aside each year as an “iron” reserve (Thuc. 2.24.2: for use only if an enemy fleet was sailing against Attica itself). Counting every vessel in

¹⁶ The phrasing is difficult in interpretation, cf. HCT 1.234–5; Walters 1981; Wankel 1983.
¹⁷ Moreover, captures from the Persians may have more than offset losses (Table I.7).
¹⁸ DS 11.43.3; PStrasbourg 84 = ATL 1, T9, 2, D 13 = Anon. Argentinensis 10-11. Andoc. 3.3–5 has perhaps 100 new ships in 5 years around mid-century. See Blackman 1969: 202-12.
¹⁹ This passage has been questioned in authenticity and placement, but, while redating to 430 is an option, its character as Thucydidean may be accepted. See Gomme HCT 2.372-77; Hornblower CT 400-1.
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