Tactically the proper coordination of heavy infantry, cavalry, light infantry and reserves required skill. The Spartan Gylippus (414) realized that he failed to make proper use of his cavalry and light infantry in his first battle against the Athenians at Syracuse; he corrected his error in the next engagement.[164] Agesilaus' coordination of arms against the Persians at the Pactolus River near Sardis (395) represents an advance on the learning curve of generalship, although the Persians lacked heavy infantry in the battle (Xen. *Hell.* 3.4.22–4), and the engagements of Pelopidas at Tegyra (375) and at Cynoscephalae (364) likewise represent valuable experiments in infantry/cavalry coordination.[165]

Yet the battle of Mantinea (362), although indecisive, best illustrates what Greek tactics had become.[166] Epaminondas first deployed, but instead of joining battle he marched off to the left and gave the impression that he would encamp. As the Spartans and their allies relaxed their own readiness, Epaminondas strengthened his left wing with additional *lochoi*. Suddenly this immense Theban wedge charged forward against the enemy now out of formation and scattered. A wedge of cavalry and *hamippoi* likewise charged forward to cover the infantry wedge's right against a cavalry force six deep and unsupported by light infantry. A second force of cavalry and infantry on the Theban far right blocked the Athenians on the allied left from joining the main battle. Epaminondas planned the battle to combine surprise through stratagem, mass, attack from a single wing, and a coordinated use of cavalry and light infantry. But he died in the fighting and decisive victory slipped away. Classical Greek tactics had progressed as far as they could. Philip II of Macedon would 're-think' the phalanx.

B. NAVAL BATTLES AND SIEGES

Barry Strauss

Naval and siege warfare played central roles in classical Greece, but they were much simpler, inexpensive and less lethal before *c.* 500 BC. Siege warfare was little known in the Greek mainland before that time; naval warfare was more common but still relatively undeveloped. New developments in these two spheres tended to begin at the eastern and western fringes of the Greek world, as a result of contact with foreign peoples, and then to make their way dramatically to centre stage on the Greek mainland. Relatively backward Greeks were schooled in war with more technically

[164] Thuc. 7.5.2–3; cf. 7.6.3. [165] Plut. *Pel.* 17.2–4, 32.2–7; cf. Buckler (1995).

[166] Xen. *Hell.* 7.5.21–6. Diodorus' account (15.82–7), totally unreliable, already drew criticism from Polybius (12.25f.4–5).

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advanced neighbours and eventually outstripped them. It was a long, slow and bloody revolution.[167]

I. NAVAL BATTLES

Oared warships or galleys were a common feature of Greek warfare from the Bronze Age onwards. Greece is a sea-girt peninsula, surrounded by roughly 1,500 islands. The lands into which Greek colonists expanded, Anatolia, the Black Sea, southern Italy and Sicily, and places further afield in the Mediterranean, tended also to furnish excellent launching grounds for navies. But ships are expensive to build, maintain and staff. So the story of the rise and fall of Greek navies is also the story of the rise and fall of concentrated political wealth in the Greek city-states.[168]

The Greek warship evolved in many ways. The waterline ram, introduced perhaps in the eighth century, was the most important of several innovations in shipbuilding. Another very significant process was the evolution from the simple, long ships of Homer to the bireme, or two-level ship, which was also known, from its fifty oars, as a penteconter, and finally to the three-level ship or trireme. The wealth generated by the creation of the Persian empire in the mid-sixth century seems to have played a key role in the original spread of the trireme. Persia's Greek subjects in the Aegean had triremes, as did its Phoenician subjects. Miletus, for example, had 200 triremes, furnished by Persia, which it used in a campaign around 500 against the Cycladic islands. Shortly afterwards, triremes figured prominently in the Ionian Greek Revolt against Persia (499–494): its climactic battle was the sea fight off Lade. The Greeks mustered 353 triremes against 600 Phoenician ships for Persia. The odds frightened the Persians, some of whose ships were perhaps not triremes or not well manned. The Greeks cracked first, however, and on the day of the battle, most turned tail: only the largest Greek contingent, 100 ships from Chios, stayed and fought – and fought well, although Persia won the battle and crushed the revolt.[169]

Persia's invasion of Greece in 480 brought the trireme front and centre in the Aegean. Aware of what sea-power had accomplished at Lade, Athens' prescient leader Themistocles sponsored a plan in 483 to build a new Athenian fleet to meet a Persian invasion. A windfall of silver in the Athenian mines financed this new force of 200 triremes (fig. 7.4). Three years later, they reached their finest hour, providing the core of Greece's naval victory at Salamis in the autumn of 480. With its fleet crushed,

[167] Different interpretations of the extent of the transformation: ch. 6 in this volume; Hanson (1995).

[168] On the expense of Greek naval warfare, see ch. 8 in this volume and Kallet-Marx (1993).

[169] Persian influence: Wallinga (1993).

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Figure 7.4 Rowers, tightly packed in three tiers, inside the replica trireme *Olympias.*

Persia's land army of invasion lost its mobility and the guarantor of its food supplies, which were carried on merchantmen. Persia was consequently forced to withdraw most of its land army from Greece. Greek infantrymen, spearheaded by Sparta, went on to defeat the rest of the Persian force at Plataea in 479. Around the same time the Greeks followed up their naval victory at Salamis by a seaborne victory over Persia at Mycale, on the Anatolian coast.[170]

Far from disbanding its fleet, Athens went on to form a naval confederacy, known from its foundation on the island of Delos as the Delian League. The number of members grew from about 150 in 477 to about 250 in 431, at the height of the league. Athens provided the overwhelming

[170] Green (1996).

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majority of the ships, while most other states contributed money to fund them. Athenian power inspired opposition, but Athens did not hesitate to put down revolts with naval expeditions and sieges, as in the important island-states of Naxos, Thasos, Samos and Lesbos. Afraid of the rise of Athenian power, the Spartan-led Peloponnesian League made war with the Athenian alliance, first in a conflict known today as the First Peloponnesian War (*c.* 460–445), and again in the great clash between the Athenian and Peloponnesian alliances known today as the Peloponnesian War (431–404). Eventually, a combination of cunning leadership at Sparta under Lysander and of factionalism at Athens, as well as of Athenian over-confidence, allowed Sparta to capture Athens' fleet in the Hellespont without a battle at Aegospotami in 405. After a six-month siege by Spartan army and navy, Athens surrendered, giving up its remaining ships, naval fortifications and empire (404).[171]

Athens rebuilt its naval power over the next several decades. During the 370s, while Thebes advanced on land, Athens regained its sea-power, forming what scholars call the Second Athenian Confederacy in 377. The confederacy never matched the size or power of Athens' fifth-century league, however, and by the 350s it had been gutted by the revolts of important allies.[172] However, during this decade Athens' navy enjoyed a renaissance. Under the careful financial leadership of Eubulus, Athens rebuilt the size of its fleet to 300 triremes, matching its fifth-century acme. Under the same Eubulus new ship sheds and an arsenal were built in Piraeus. Until Macedon eclipsed it, thanks to the resources generated by Alexander's conquests, Athens was once again the chief naval power of the Aegean.[173]

1. Training

Men worked the trireme; human physiology and psychology played crucial roles in sea battles. To be successful, a fleet needed good men as well as good ships, and a general (the Athenians made no distinction between a general, commanding land troops, and an admiral, commanding ships) who knew how to manage both. A capable general had to be part commander and part coach; he had to have a trainer's skill as well; and he had to know his equipment.

Rowing is hard work and the ancients knew it. Virgil, for example, described rowers striving in a race with the comment, 'thick breathing /

[171] For the military history of the war, see Kagan (1969)–(1987); on the Sicilian expedition, see also Green (1974). On the last phase of the Peloponnesian War, the Iono-Decelean War, see Kagan (1987). For an overview of the war, see Strauss and Ober (1990) 45–74.

[172] Barbieri (1955); Hamilton (1979); Strauss (1987). Second Athenian Confederacy: Cargill (1981).

[173] On the finances of the Athenian fleet, see Gabrielsen (1994), and ch. 8 in this volume.

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shakes their limbs and parched mouths; sweat flows in streams everywhere' (*Aen* 5.199–200). Apollonius of Rhodes describes the effect of the rowers of the *Argo*: 'Here and there the dark brine gushed with foam / roaring terribly through the strength of the mighty men' (*Argon*. 1.540–4). But not all Greeks were Argonauts. In 494, for example, discipline broke down in the fleet of the Ionian Greeks in revolt against Persia, because the sailors could not stomach the hard work or the heat of the sun. Calling their training programme slavery, they refused to board ships or practise manoeuvres. The result was no surprise: on the day of battle, most of the ships fled. The Greeks were routed, although some of their triremes, remarkably, captured large numbers of enemy ships (Hdt. 6.12–15).

Herodotus, who preserves the account of this débâcle, lays the blame at the feet of the men, but it is worth speculating about a failure of leadership on the part of the general in charge of training, Dionysius of Phocaea. The trireme was no place for a martinet. Oarsmen were sensitive to and intolerant of mistreatment by their commander. A little encouragement went a long way on the trireme: a tactful boatswain could bring out the best in his oarsmen while a tactless one would end up being hated by them and hating them in turn (Xen. *Oec*. 21.3). Fail to pay him and an oarsman was liable to complain or desert (Thuc. 7.13.2, 8.84.2); threaten to beat his commander for speaking up about the need to pay the men, and an oarsman was likely to riot on his behalf (8.84.2–3).[174]

Contrast Dionysius of Phocaea with the Athenian general Phormio, a master of naval warfare. In 429 he saw the discomfiture of his men before a battle with a numerically superior Peloponnesian fleet, outnumbering the Athenians by seventy-seven ships to twenty. Athenian crews broke into small groups and shared their worries about the odds against them. Phormio had already made a point of indoctrinating the men in the superiority of Athens at sea against all comers and now he called them together for a pep talk. He reminded them that 'a small, fast, well-handled squadron' will defeat 'a number of clumsily managed vessels' as long as it chooses its ground carefully and its men stay disciplined and attentive (Thuc. 2.88–9). As it turned out, Phormio could not choose his ground: he wanted to fight at sea but the Peloponnesians forced him into the narrows. Yet his remarkably well-trained crews won the day, even after losing nearly half their fleet – nine of twenty ships – in the first part of the battle. The reason was their professionalism. They did not lose their cool in adversity. Instead, one of the eleven surviving Athenian ships turned and unexpectedly rammed the leading Peloponnesian ship. The enemy crews fell apart. As Thucydides reports:

[174] See Strauss (1996).

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An exploit so sudden and unexpected produced a panic among the Peloponnesians; and having fallen out of order in the excitement of victory, some of them dropped their oars and stopped their way in order to let the main body come up – an unsafe thing to do considering how near they were to the enemy's prows; while others ran aground in the shallows, in their ignorance of the localities.

(Thuc. 2.91.4, trans. Crawley rev. Strassler 1996)

The elated Athenians put the Peloponnesians to flight, took six enemy ships and recovered their own captured vessels.[175]

Athens laid the groundwork for its victories by fostering a cadre of experienced naval personnel. Early in the fifth century, the rise of the Athenian navy encouraged country folk around Attica to move to Piraeus and make a living from the sea. Foreign immigrants followed suit. Under Pericles (active 460–429), the state sent out sixty ships each year on training exercises (Plut. *Per.* 11.4). Athenian captains bid for the services of the best rowers. Meanwhile, ordinary maritime activities trained Athenians in the skills for war, as a contemporary author attests:

It is inevitable that a man who goes on frequent voyages will take an oar, and learn nautical terminology, and the same is true of his servant. Experience of voyages and practice makes them good helmsmen, some learning in smaller boats, others in merchantmen, and others graduating to triremes; the majority are competent rowers as soon as they board their ships because of previous practice throughout their lives.

([Xen.] *Ath. Pol.* 1.19–20, trans. Moore 1983).

No wonder Thucydides remarked that Athens' great advantage at sea in the Peloponnesian War was its 'long experience' compared to Sparta's 'little practice' (Thuc. 2.85.2).[176]

2. *Operations other than battle*

The ancient sources focus on set battles between triremes. These were, of course, the most dramatic form of naval warfare and so made good copy but they were also usually the most decisive naval engagements to states and the most dangerous to participants. They were not, however, the only form of war at sea. Triremes were also involved in *guerre de course*, amphibious operations, piracy and blockades.

As an example of the use of triremes in *guerre de course*, consider the case of six Peloponnesian ships (mostly Thurian) which in 412/11, during the Peloponnesian War, cruised around Cape Triopium in Cnidus and seized all merchant ships arriving from Egypt. When the Athenians found out, they sailed from Samos and captured the six ships. The crews, however,

[175] Kagan (1974) 107–15; Morrison et al. (2000) 69–78. [176] Amit (1965).

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escaped and continued the fight. After making it back to Cnidus, they helped the inhabitants fight off an assault on Cnidus town by the Athenian fleet, which had nearly succeeded because the town was unfortified (Thuc. 8.35.1–4).

This case also illustrates the considerable number of occasions on which trireme personnel fought on land. In principle, deck-soldiers were responsible for land operations. If heavy fighting was expected, then the number of deck-soldiers per ship could be increased. In some cases ships could be converted into troop carriers, that is, hoplites would man some or all of the oars and, when the ships landed, do the fighting. On one occasion, at Sphacteria in 425 BC, Athenian oarsmen were outfitted with light arms and armour to fight on land.[177]

The use of triremes in piracy could be the upshot of defeat. For example, Dionysius of Phocaea, an escapee from the defeat at Lade in 494 BC, captured three enemy ships and sailed off to Phoenicia. There he sank cargo-ships and took much money and finally sailed to Sicily which he used as base for piracy. In Sicily he patriotically sank many Carthaginian and Etruscan ships but never Hellenes (Hdt. 6.17). He was following in the footsteps of Histiaeus of Miletus and eight Lesbian triremes in Byzantium, a base for seizing all ships bound for the Black Sea except those whose crews obeyed their orders (Hdt. 6.5). Histiaeus seized Ionian merchantmen outward bound from the Black Sea (6.26.1). After Histiaeus departed for Chios he left his business in the Hellespont in the hands of Bisaltes of Abydos, son of Apollophanes (6.26.1).

Triremes could not mount a blockade in the modern sense of the term. They were too light to stay at sea night and day, day after day, nor could they have patrolled a large area efficiently. What they could do, however, was to close off a narrow body of water, like Histiaeus and his Lesbian ships in the Bosphorus, or lie in wait off a well-travelled sea lane, like the Peloponnesians off Cape Tropium in Cnidus.

3. *Battle*

Once two hostile fleets caught sight of each other, battle might not follow immediately. One fleet might try to draw the other into a more favourable position for battle or wait to strike until complacency made the enemy drop its guard. Surprise is a force multiplier, and catching an enemy unawares was an enormous advantage. For example, both sides tried to employ force on the eve of the battle of Salamis in September 480 BC. The Persians, who were based on the mainland of Attica, sailed into the Salamis Straits at night,

[177] Thuc. 4.32.2. For troop carriers, see Morrison et al. (2000) 226–7; Gomme et al. (1945–81) IV.308–10. For the use of naval personnel on land, see ch. 6 in this volume.

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hoping to surround the Greeks in their harbours on the island of Salamis and terrify them into surrender at daybreak. To this end, the Persians no doubt hugged the mainland shore and used the various techniques of muffling a trireme's noise; for example, keeping time by striking two stones together instead of playing the pipe. But the Greeks got wind of the enemy's plan – indeed, the Persians had been tricked by a messenger of Themistocles. At dawn the Greeks surprised the Persians by mustering for battle; the Greek rowers had spent the night on land while the Persian rowers suffered the disadvantage of having rowed, in teams, all night long. They also found themselves forced to fight in a narrow channel where they could not deploy their advantage in numbers; much better for them to have fought in the open sea.[178]

Before a battle each fleet might practise manoeuvres. Before going into battle the crews would remove the ships' masts, to lighten the load. They would put up side screens made of canvas, hair or leather, which served as protection from spears and arrows for the top level of rowers, who were visible targets on an outrigger whose side was normally kept open for ventilation. Eventually the two fleets would engage. What followed next, especially in the Athenian way of war, was a function of speed and manoeuvrability. Athenian commanders aimed to evade the enemy's ram, then to effect a quick turn and ram him in his stern or amidships – where a trireme was at its most vulnerable – and then immediately to back away before the enemy could attack with archers or a boarding party of marines. Alternatively, the Athenians would have their crews row at the enemy and turn at just the proper angle to break his oars, having first shipped their own oars on the engaged side.[179]

The ancient sources refer to, inter alia, the *diekplous*, *periplous*, and *anastrophê*, commonly translated respectively as 'breakthrough', 'encirclement' and 'turn', but those translations as well as the details of these various manoeuvres are much debated among scholars. Whether, for example, the 'breakthrough' was carried out by individual ships or by squadrons in line ahead, is a matter of controversy. A defensive manoeuvre consisted of forming a circle, bows outward, and then, at a signal, attacking the enemy. The well-trained Athenian fleet carried out this manoeuvre successfully against a larger and faster Persian navy at Artemisium in 480. Less than 300 Greek ships rammed and towed off thirty ships out of an enemy fleet of more than 600. By the same token, a poorly trained fleet might fall afoul of this defensive manoeuvre, as the Peloponnesians did in 429 (see below).[180]

[178] On Salamis see Strauss (2004).

[179] Athenian way of war: Strauss (2000a).

[180] See Morrison et al. (2000) index, s.vv. 'breakthrough', 'encirclement'; Morrison and Coates (1996) 359–69; Lazenby (1988) with reply by Morrison (1991); Lazenby (1987); Whitehead (1987); Holladay (1988). Ram and then quickly back away: Phormio at Thuc. 2.89.8; Polyb. 16.3.4; Morrison and Coates (1996) 361, 363. On breaking the enemy's oars, see e.g. Conon at Mytilene in 406, Diod.

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In order to carry out complex tactics Athenian ships had to be light, and their crews had to include as few extraneous men as possible. Athenian warships were stripped down: the hulls were light, the decks were slotted in the middle and lacked bulwarks along the sides. Athenian crews normally included only a small armed contingent – ten marines and four archers – unlike some crews that contained up to forty-four marines and archers. Athenian naval personnel had to train constantly, because practice was necessary to perfect the requisite techniques. Javelin men, for example, had to be able to throw from a sitting position, because standing would cause the ship to roll and upset the oars. The manoeuvre of backing off after ramming required coordination among helmsman, pulling-master and rowers.[181]

This meant that when it came to war at sea, Athenians had a competitive advantage at ramming and breaking oars; they were correspondingly at a disadvantage in boarding tactics. But given the naval technology of the classical period, especially of the fifth century, this was a good place to be. So long as the trireme was the ship of the line, Mediterranean warships were better suited as guided missiles than fighting platforms. Later, in the Hellenistic era, with the invention of heavier warships, boarding tactics could compete with ramming tactics. For classical Athenians, however, as long as they could avoid fighting in the narrows where the ramming tactic was difficult to deploy, they could dominate at sea. And if they had to fight in the narrows, even there they might find room to manoeuvre, so skilled were Athenian helmsmen.[182]

The main alternative to the Athenian way of fighting at sea is found in the battle of Sybota. This engagement between the fleets of Corinth and Corcyra took place in the channel between Corcyra and the mainland in 433. A fleet of 150 Corinthian ships faced 120 Corcyreans, reinforced by ten Athenian ships; late in the day, a reinforcement of twenty Athenian ships joined the fray. It was the largest intra-Greek battle to that date, although it would soon be outstripped by battles of the Peloponnesian War. Ordered for political reasons to do everything they could to avoid combat, the Athenian ships largely played a deterrent role; a few did engage in ramming. Thucydides describes the action:

Both sides had a large number of hoplites on their decks, and a large number of archers and javelin throwers, the old imperfect armament still prevailing. The sea fight was an obstinate one, though not remarkable for its science; indeed it was

Sic. 13.78.1, and in general, Holladay (1988) 149–50; Morrison and Coates (1996) 368–9; *contra* Lazenby (1987) 169.

[181] Ten marines: e.g. Thuc. 1.49.1–2, 50.1, 7.23.4; cf. Xen. *Hell.* 1.6.19, 2.1.22. Forty marines: Hdt. 6.15.1 (Chians at Lade), 7.184.1–2 (Persians at Salamis). Javelin men: Thuc. 7.67.2; Morrison et al. (2000) 161.

[182] Guided missiles rather than fighting platforms: Morrison et al. (2000) 46. Hellenistic period: see Morrison and Coates (1996).

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more like a battle by land. Whenever they charged each other, the multitude and crush of the triremes made it by no means easy to get loose; besides, their hopes of victory lay principally in the hoplites on the decks, who stood and fought in order, the ships remaining stationary. The maneuver of passing through the line was not tried: in short, strength and pluck had more share in the fight than science.

(Thuc. 1.49.1–3, trans. Crawley rev. Strassler 1996)

The result was a Corinthian victory, although the Athenians prevented them from following it up with an assault on Corcyra itself. The hard, confused fighting may have ignited unusual passion; at any rate, the Corinthians engaged in butchery before finally taking prisoners.[183]

A set battle among triremes could involve a few ships or a thousand. A battle involving about a hundred ships was perhaps the most common scenario. The normal naval formation was a single line of ships. But when facing an enemy whose ships were faster and more manoeuvrable, it could be advantageous to arrange one's ships in a double line as a defence against an enemy breakthrough. One Heraclides of Mylasa, a refugee from Persian rule, used this tactic against Phoenician ships in the Persian fleet at a battle of Artemisium (whether this was the famous battle of Artemisium when Xerxes invaded Greece in 480 is unclear). The Athenians employed the tactic successfully against the Peloponnesians at the battle of Arginusae in 406.[184]

Big fleets had to be divided into wings, in order to maintain communications. Signals were given by means of flags and pennants, or by sounding the trumpet or even by flashing a shield or sword; acknowledgment sometimes took the form of the men singing the paean. At Sybota, for example, the Athenians held the Corcyrean right wing, while the rest of the line was occupied by three Corcyrean squadrons, each commanded by a Corcyrean general. The Corinthians in turn placed their best ships on the left wing, to face the Athenians and what they presumed to be the best Corcyrean ships beside them; they put the relatively large contingents of their Megarian and Ambraciot allies on the right wing, while assigning their odd-lot allies to the centre.

Another common feature of trireme battle was the local nature of engagement. It was not unusual to win on one wing while losing on another. Sybota is again a good example. The Corcyreans routed the enemy's right wing, composed of Megarian and Ambraciot ships. They chased them back in disorder to the land and burned and plundered their camp. Meanwhile, however, the Corinthians crushed the Corcyrean right wing. Both sides claimed victory, symbolized by each setting up a trophy. Corinth, however,

[183] On Sybota, see Thuc. 1.45–55 and commentary ad loc. in Gomme et al. (1945–81) 1.177–99; and Hornblower (1991–6) 1.88–97; cf. Kagan (1969) 243–50.

[184] On Heracleides of Mylasa, see Sosylus of Lacedaemon, *FGrH* 176 F1.2.

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had the numbers in its favour, having disabled seventy enemy ships while losing only thirty ships of its own; it took possession of more dead than did Corcyra, another sign of victory; and it took a thousand or more prisoners of war.

Battle sometimes depended on individual match-ups between ships and sometimes the face-off of lines devolved into a mêlée. This was the case at Salamis. Once the Athenians (possibly with the help of the Aeginetans) finished off the Phoenicians, the enemy's best ships, they turned on the rest of the Persian line, whose ships began to flee. Meanwhile, additional Persian triremes were still trying to make their way to the front, so the result was a murderous back-up. Greek captains like Ameinias of Athens, Polycritus of Aegina, Democritus and Diodorus of Corinth, and Phayllos of Croton, all picked off enemy ships. But the most famous Persian captain and her ship escaped. Artemisia of Halicarnassus was a close advisor to Xerxes and one of the few female commanders in all of history to take ships into battle. When she saw Ameinias' trireme bearing down on her ship, the wily Artemisia ordered her helmsman to ram one of her own ships, in order to trick Ameinias into thinking that hers was a Greek ship. It worked and Artemisia escaped.[185]

Going into battle on a trireme may have been a primitive, even tribal experience. The deck-soldiers and other men on top were seated, in order to keep the boat stable. Below, the rowing-master and his assistant called out commands while 170 men worked theirs oars in silence. They worked in unison, all but rubbing shoulders with the men around them. It was hard work, filling the small and very cramped space of the boat with the smell of sweat and other bodily odours. The seat cushions on the modern reconstructed trireme *Olympias* were soaked and grimy after rowing, while Aristophanes makes fun of flatulent oarsmen (*Ran.* 1074).

Looking towards the bow from the stern down the line of rowers' empty platforms, a rower might have felt himself in an enclosed, separate, almost claustrophobic world. The movement of the men in unison – eighty-five on each side of the boat – might have come as close to the sense of a machine as the classical world could achieve.[186]

A well-run trireme may have worked like clockwork but a sea-battle was not silent. The clamours, shouting and cheers of a naval engagement are too common to need to describe, said Isocrates (4.97). As the ships approached the enemy, there would have been a mix of exhilaration and terror. Lysias, for example, imagines the fear of the Athenian sailors on the eve of the climactic sea-battle against the Persians at Salamis in 480 BC (Lys. 2.35–9). As their ships approached the enemy fleet, trumpets would sound

[185] Hdt. 8.86–9; Aesch. *Pers.* 409–20; Plut. *Them.* 15.2; Diod. Sic. 11.18.6–19.3.
[186] Experience of trireme: see Rankov (1994).

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and the men would sing the paean (e.g. Thuc. 2.91.2; Aesch. *Pers*. 392–5). At a moment of success in battle the command would go out for all the men to cheer (Thuc. 2.92.1).

When ships crashed into each other they made a huge din (Thuc. 6.70.6). Afterwards came the screams of the dying (Lys. 2.38). Well-trained crews knew the importance of keeping silent, both to preserve energy and to be able to hear orders from boatswains and captains (Thuc. 2.89.9). Even if boatswains shouted out orders (Thuc. 6.70.7) they could be drowned out by the shouting and swearing of unruly men in the heat of action (Thuc. 2.84.3). On the *Olympias* the rowing-master (or boatswain: *keleustês*) could not be heard up and down the ship, even with all the rowers silent. On a trireme he must have had an assistant. Without having someone keeping time and counting out the strokes, the crew would not have been able to keep together.[187]

It is difficult to imagine the experience of an individual rower in a battle commonly involving 10,000 men. There is a natural tendency in navies to focus on ships rather than individuals. The ancient literary sources are little help because they do not mention the name of a single individual rower. Several hundred such names do survive in a lengthy Athenian inscription, where we learn, for instance, of one Democharcs of Thoricus, an Athenian citizen; of Telesippus of Piraeus, a metic (resident alien); of Assyrios the property of Alexippos, a slave; and of Simos of Thasos, a foreigner (*IG* I^3. 1032 = *IG* II^2. 1951). Yet we can only guess what combat meant to individuals like each of them.[188]

For the ship as a whole the key to victory was tactics, and that depended in turn on the quality of the ships and the men. Because of its wealth and perhaps its prestige, Athens was able to attract the best rowers and to train them to work together. No other fleet could match the Athenian navy's technical skill: its ability to switch formation, to break through enemy lines, or to back water while still threatening to spring into attack. No other fleet was as fast as Athens' and that too was a function of Athenian wealth: wealth meant enough ships for rotation into regular maintenance, which required drying out vessels and otherwise providing for their upkeep ashore. Unless they were dried out, triremes quickly lost their speed.[189]

Leadership and specialized personnel mattered immensely as well. Athenian captains and generals (Athens used no special word for admiral) at their best displayed creativity, flexibility and cunning. Athens likewise prided itself on the quality of its helmsmen, all of whom were citizens at the start of the Peloponnesian War in 431 (Thuc. 1.143.1); in some battles, steering

[187] See Morrison et al. (2000) 248–56.

[188] Inscription: Laing (1960). Various statuses of rowers in the Athenian fleet: Morrison et al. (2000) 107–18; Rosivach (1985); Graham (1992); Hunt (1998) 83–101.

[189] See Morrison et al. (2000) 150–2.

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provided the margin of victory. At Cynossema in the Hellespont in 411, for an example, an Athenian fleet was outnumbered and forced to fight in the narrows, where the enemy's deck-soldiers had a chance of mauling the Athenians. Yet Athens' helmsmen managed not only to avoid Peloponnesian ramming but also Peloponnesian attempts to grapple with Athenian ships and fight deck-to-deck; instead, the Athenians turned the tables and rammed the enemy.[190]

In the work of Thucydides, the great historian of Athens' struggle with Sparta (the Peloponnesian War, 431–404), the rowers come off as professional, disciplined and self-confident. They moved with a precision and flair that turned ordinary manoeuvres into showpieces. Even when outnumbered they rowed circles around the enemy – literally. For example, consider an engagement in 429 in the Gulf of Corinth. The Athenians were led by Phormio, perhaps the complete trireme commander.[191]

A Peloponnesian fleet of forty-seven ships outnumbered an Athenian fleet of only twenty ships, but the Athenian ships were faster and better-outfitted for sea-battle. The Peloponnesians tried to block the Athenians and then have their best ships break out and attack them. They underrated their opponent, however. Thucydides describes the battle as follows:

The Peloponnesians arranged their ships in as big a circle as they could – bows outward, sterns inward – without leaving the enemy space to row through. They also placed inside the circle the small craft that had accompanied them and the five fastest-rowing ships, so that, standing by a short distance away, they could row out if the enemy approached anywhere. The Athenians, arranged in single file, kept rowing around them in a circle and hemming them into a narrow space, rowing right next to them. Phormio had pre-arranged with his men, however, not to attack until he gave the signal. For he hoped that the enemy would not remain in order, as foot-soldiers would have on land, but that the ships would fall upon each other and the small craft add to the confusion; if, moreover, the breeze should blow up from the gulf, which he was awaiting as he rowed round and which usually came around dawn, they would lose their cool in no time at all. He thought that the initiative was his to take whenever he wished. As the breeze began to blow and the ships, already in a narrow space, were thrown into confusion both by the wind and the small craft, ship fell upon ship and they tried to push them apart with poles. The Peloponnesian rowers employed such cries and warnings and abuse of each other that they paid no heed to the commands or the time-keepers, and since they were inexperienced they were unable to keep the blades clear of the rough water, and so they rendered the ships less obedient to the captains. At that crucial moment Phormio gave the signal. The Athenians fell upon them; first they sank one of the commanders' ships and then they destroyed whichever of the others they came upon, and they brought it about that none of them, in their confusion, began to

[190] Athenian helmsmen citizens: Morrison (1984).
[191] Rowers in Thucydides: Strauss (1996), (2000b). Phormio: Kagan (1974) 101–23.

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fight, but they fled to Patras and Dyme in Achaea. The Athenians pursued them and, after capturing twelve ships and picking up most of the men who had been on them, they sailed off to Molykreon. They set up a trophy on Rhion, dedicated a ship to Poseidon, and returned to Naupactus.

(Thuc. 2.83.5–84.4, trans. Crawley rev. Strassler 1996)

This engagement was followed shortly afterwards by a second battle, already referred to above: this battle took place inside the Corinthian Gulf and it resulted in another stunning victory for an outnumbered Athenian fleet.

Casualties in a classical Greek naval battle were not necessarily high. Although the ancient historians consider an infantry battle without casualties extraordinary, they pass over without comment several naval engagements in which no one seems to have died. Yet battle deaths at sea there were indeed, and from a variety of causes. Some men died by ramming, but it was probably more common to die by a spear, sword, arrow or stone, at the hand of enemy marines or archers; some drowned in storms; some drowned because they were poor swimmers; some were killed by enemy hoplites waiting on the shore.[192]

At sea as on land, the general was responsible for the retrieval and burial of the dead. Dead bodies in the hold of a ship would be relatively easy to recover, since the ultra-light trireme continued to float even when rammed. Recovering dead men from the sea proved more difficult. A corpse floats at first and then, as it loses the air from its lungs, it sinks, a process that takes one to three hours. Begin picking up the dead within a few hours of the battle, then, and it should be possible to find many of them still floating in the water, as the Corinthians found after the battle of Sybota in 433 (Thuc. 1.50.3) and the Persians at Salamis in 480 (Aesch. *Pers.* 419–21). Any enemy corpses recovered were supposed to be returned under truce. Yet it was not always possible to reach the dead in time, and sometimes the search was bedevilled by such factors as wind and current. Some corpses, therefore, went unrecovered, at least by their own men: it was common for corpses to wash ashore days after a battle. Greek religious customs required that the locals provide decent disposal of the remains. But first they would have taken anything of value: clothing, armour or jewellery (worn by Persian nobles). Booty belonged to the army as a whole, but some individuals tried to take something for themselves. In the Athenian fleet, the bodies of the dead would be cremated ashore. The ashes, bones and teeth would be brought home for burial, probably in the annual public funeral of the war dead. An empty coffin in the funeral procession to symbolize the missing was perhaps understood as referring mainly to those lost at sea (Thuc. 2.34.3).[193]

[192] On death and burial at sea, see Strauss (2000b). [193] See Pritchett (1971–91) IV.

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