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Department of Economics
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Coping with Chronic Warfare. The Athenian Experience

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Coping with chronic warfare

The Athenian experience

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Abstract

In Classical Athens, being at war was much more common than peace. The military expenditures were correspondingly large. The real enigmatic issue, however, is not financial but where they found the manpower needed for this policy. The number of warships (triremes) was so great that there is no way that the citizen could have dominated in the crews. The main source is likely the non-citizen, free population of Attica. Slaves, one the other hand, would have been very popular as rowers during the final phase of the Peloponnesian war, but not necessarily before. The manpower losses in connection with naval conflicts must have had a significant impact on Athenian society in several ways. We discuss three examples: the switch from ostracism to the *graphe paranomon*, the new law on citizenship under Perikles, and why the Athenian Assembly put the victorious generals on trial after the victory at Arginoussai.

1. Introduction

The Athenians of the Classical era (480–323 BCE) have left us an intellectual legacy of tremendous importance in many fields of human endeavour, such as philosophy, ethics, sculpture, theatre, history, politics and many more. In particular, Athens has been portrayed as the cradle of western democracy.¹ In debates nowadays, it is often argued that democracies do not wage war, at least not against other democracies. It is therefore a striking fact that the Athenian democracy did not shy away from war. On the contrary, during the democratic period the Athenians were at war in two years out of three.

In this paper, we will discuss several interrelated economic aspects of how the costs of these military conflicts were dealt with. Wars were very expensive. For example, Hanson (1999, p. 120) states that the resources allocated to military matters in Athens could alternatively have been used to build *two* new Parthenon temples each year. In view of this, one may well ask, “how could they afford it?”

There are at least two aspects worthy of consideration regarding the cost of the military activities of the Athenians. Firstly, how did the Athenians finance the expenditure? Secondly, where did the Athenians find the necessary manpower? The importance of the latter issue is quickly realized if we look at the very large numbers involved – for example, if only Athenian citizens were allowed to take place as rowers in the triremes (war ships), then the whole citizen population would from time to time have had to go to sea as rowers in the fleet. Our focus will be such manpower issues rather than financial resources, because this is where we add to the literature.

We do not concern ourselves with the details of the Athenian financing system, as these issues already have been comprehensively and thoroughly discussed in the literature.² Nor do we attempt to answer why the Athenians went to war so often, though a focus on the costs involved obviously will shed some light also on this issue. We aim to show that a focus on manpower provides several interesting insights into the way of coping with the demands from the military conflicts. It seems to us that this is also a promising area for future research.

As a background, we begin with a traditional account of Athenian war financing (section 2) and how they coped with the financial strain on their resources (section 3), before turning to

¹ It would not be seen as a democracy today, for example, because of the presence of slaves and the exclusion of women from political life. In the terminology and conceptualizations of Classical Greece, however, Athens was the archetypical democracy.

² Cf., e.g., Gabrielsen (1994; 2007), and van Wees (2004). See also Lyttkens (2013) for a social science perspective.

manpower issues. First the overall problem of finding enough manpower is discussed (section 4), followed by an analysis of some downstream consequences of changes in manpower (section 5). We end with some concluding remarks in section 6.

2. Background: Ways of financing the Athenian wars

When at war, the Athenians had to finance an increase in the utilization of their fleet and army. This entailed building and maintaining warships, in particular the specialized and expensive triremes, and paying the rowers on the ship as well as the hoplites for their service. Both sailors and hoplites received a daily payment from the state, covering both a wage for service and the cost of daily living.

However, not all military expenditures passed through the hands of public officials. In Classical Greece, it was considered a duty and an honour for a wealthy man to undertake and finance some activities for the common good, a so-called liturgy.³ One of the most important liturgies was the trierarchy – to commission and command a warship for one year (essentially covering any running cost, but excluding the wages of the crew and the ship itself). The cost of a trierarchy probably ranged from 4,000 to 6,000 drachmas. A citizen possessing wealth in the magnitude of 3–4 talents belonged to the rich elite and were unlikely to escape from liturgies for long.⁴

The most important part of the military strength of a *polis* was usually the hoplites, the citizen heavy infantry carrying not only weapons (spear, sword, shield etc.) but also often considerable body armour. For most of the Classical period, the costs of the hoplite panoply were covered by the hoplites themselves.⁵ Hoplite service was in principle compulsory for male citizens above a certain threshold of property. Presumably, the hoplites consisted mainly of land-owning citizens

³ The liturgy system may have begun as a voluntary institution, but by the time we reach the fourth century, there are many indications that people are trying to avoid these burdens (Gabrielsen 1994; Lyttkens 2013). Those who tried to escape from the obligations risked ending up in a political trial that could lead to heavy fines or outright confiscation of property. The revenue from the courts could make a large contribution to state revenue, but it is not known to what extent rich persons actually suffered in the courts (Hansen 1999, p. 315; Ober 1989, pp. 200–202). There were also limits to how often a person could be called upon to perform a liturgy.

⁴ Davies (1971). In peace in the fourth century, there were about 100 liturgies each year and the festival liturgies cost some 300–3,000 drachmas each). To put this in perspective, the daily wage of hoplites and rowers in the fleet was one drachma per day (Loomis 1998). Subsistence income was probably around 2.5 obols per day (Ober 2010; Scheidel 2010).

⁵ After the defeat against the Macedonians at Chaironeia in 338 BCE, the Athenian state began issuing weapons to the citizens (van Wees, 2004, p. 48). Not that it helped.

who worked their own land.⁶ The military costs and expenditures of the Athenians were thus partly private and partly public.

The major source of public revenue for a Greek *polis* was taxation. Taxation typically targeted anything that could be identified with reasonable ease, be it transactions (import dues, exports dues, fees for trading in the agora etc.) or persons. In ancient Athens, taxes based on persons included a head tax on resident foreigners (metics)⁷ and a property tax occasionally used when there was a state of war (the *eisphora*). In Athens, all regular taxes were farmed out (the *eisphora* was an irregular tax).

Compared to other city-states, the Athenians were lucky in having two additional sources of revenue. The possibly most important one was the revenue from the silver mines in Laureion (southern Attica). Minted silver was one of the greatest export goods of the Athenians. Anything below ground, such as silver ore, was considered public property. Just as with taxes, the Athenians relied on private initiative and competition to generate incentives, and the mining concessions were consequently auctioned out. The second extra source of revenue was the tribute from the members of the Delian League, formed in 478 as a defence against the Persian threat.

In view of the silver mines and the tribute, we should not be surprised if it transpires that the Athenians enjoyed higher levels of public spending than most other *poleis*. This could possibly also help explain how they found it possible to pay hoplites as well as the crews in the fleet for their military services.

We know next to nothing about the amount of revenue from individual taxes.⁸ We do have a few figures for *total* public revenues in Athens. In the beginning of the Peloponnesian War, the Athenian non-tribute public revenue amounted to 400 talents.⁹ Demosthenes states that public revenue was down to 130 talents after the loss in the Social War 357–55, but that around 340 BCE it was on the mend and had increased to 400 talents.¹⁰ Likely this increase was partly due to

⁶ This probably included both relatively well-off farmers, who owned several slaves and had a household with perhaps 15–16 members, and poor farmers who could only just find resources to survive. Cf. van Wees (2004).

⁷ Freedmen were not citizens: they were classified as metics. They may have had to pay a special tax, as did prostitutes.

⁸ The one exception is Andokides 1.133–134 (harbour dues sold for 36 talents, which reasonably must have allowed for “a small profit”).

⁹ This is the conventional conclusion drawn from the fact that on one hand Thukydides mentions that total government revenue was 1000 talents while on the other hand Xenophon states that the tribute from the Athenian allies amounted to 600 talents. The gap between these two figures presumably represented ordinary government revenue. Cf. Pritchard (2015), ch. 4.

¹⁰ Demosthenes *Philipp.* 4.37–38.

increased activity in the silver mines in Laureion and partly to trade-friendly policies. In the 320s, the revenue soared to 1,200 talents per year, an upswing associated with the administration of Lykourgos and Euboulos.

When we consider the Athenian war efforts, we must remember that Athens (and many other *poleis*) relied heavily on imported grain to feed the population. This meant that it was of vital importance for the Athenians to secure their trading routes, which meant having a large fleet, in order to keep the trade routes safe, e.g., between Athens and Egypt and the shores of the Black Sea.¹¹

3. Coping with military expenditures in Classical Athens

We take as a starting point Pritchard's (2015) recent estimates of the military expenditures associated with the Athenian war efforts in the fifth and fourth centuries.¹² Pritchard argues that for the first part of the fifth century, estimating the total military expenditures in Athens is not possible, because there is too much uncertainty concerning several key parameters. What we *do* know is that large-scale operations were very costly. So, for example, a two-year siege of Potidaea beginning in 432 cost the Athenians 2,000 talents. Among the many war-related activities where we lack firm evidence on costs we find the costs of repairing the long walls that connected Athens with the Piraeus,¹³ as well as the harbour installations there.¹⁴

The evidence regarding military expenditures improves as we come to the Peloponnesian War. Pritchard (2015) calculates that in the first part of this war (the "Archidamian War"), the Athenian average yearly expenditure for military purposes was 1,485 talents. This may be compared with the non-tribute revenue, which often is assumed to be around 400 talents (cf. above). To these 1,485 talents, Pritchard adds the military expenses of the Athenian trierarchs, which he estimates to 74–185 talents per year. The Athenian fleet must have consumed a large

¹¹ Cf. Krotscheck (2006). So we might say that the Athenians could not afford not to go-to-war, namely if the trading routes were threatened.

¹² Pritchard does not explicitly distinguish between costs and expenditures the way an economist would. Taxation, for instance, is not a cost in economic terminology – it is a transfer of resources. But when the tax revenue collected is used, e.g., to build a couple of triremes, then the expenditures represent costs for society. In his costing calculations, Pritchard measures costs mainly from revenue side.

¹³ During the years 347/6–323/2, the *eisphora* was used as a regular tax of ten talents per year (Brun 1983, pp. 49–55) and it is assumed that this tax revenue was used to repair the long walls.

¹⁴ The cost of the shipsheds used in the Peloponnesian War has been estimated to ca 200 talents (Pakkanen 2013), which is slightly less than the cost of the warships housed inside them. This can be compared with 500 talents for the Parthenon (Stanier 1953). City walls were probably much more expensive.

part of the total military expenditures. The trireme was the warship *par excellence* in Greek waters from the battle of Salamis and throughout the Classical period and it was expensive. The cost for building a trireme is generally believed to have been around one talent and this cost was picked up by the Athenian state.¹⁵ Other costs fell on the appointed trierarchs, for example, the cost of finding a crew and of running the ship.

The crew on a trireme consisted of 200 persons (cf. Table 1), and as everybody except the trierarch was paid one drachma per day, it cost the Athenians 200 drachmas per day to have a ship ready for action (plus the costs falling on the trierarch). A fleet consisting of – say – 100 triremes (not an exceptional size in the fifth century) would have costed 100 talents per month in wages alone.

Table 1: The crew of an Athenian trireme

Commander ¹⁶	1
Hoplites	10
Archers	4
Helmsman and other specialists	5
Deck hands	10
Rowers	170
Total	200

The yearly average of around 1,485 talents is an impressive sum. It is not necessarily the case, however, that it represented a heavy burden on the Athenian population. Prichard (2015, p. 97, table 4.1) lists the following sources for financing the fleet: 1) the tribute, 2) other imperial income, 3) down-scaling of other government activities, 4) a wartime tax (the *eisphora*), and 5) loans from the temples on the Acropolis.

Pritchard (2015, p. 96) sees the loans as a last resort and argues that the Athenians would not have used loans unless all other sources had been exhausted. Another possibility, which we favour, is to argue that use (or not) of the war-tax is more likely to be a significant indicator. The *eisphora* was levied in 428/7, perhaps for the first time. It added 200 talents to government revenue. This was repeated the two following years (427/6–426/5) but the use of the *eisphora* was conveniently discontinued after 426/5, probably because in 425/4 the Athenians managed to

¹⁵ Gabrielsen (2007) points out that although it is a widely held view that the cost of a trireme was one talent, in fact our sources are practically silent on this matter.

¹⁶ In the fifth century BCE, the commander was usually the trierarch, but see below (section 6) on the fourth century changes in the practicalities of putting a ship's crew together.

increase the tribute from the allies by more than 600 talents to 1200 talents per year. In line with this interpretation, Pritchard (2015) suggests in passing that one of the reasons for raising the tribute was to “render the taxation of wealth unnecessary”.

We see no risk of the Athenians going bankrupt over military expenditures in the Archidamian War. The discontinuation of the *eisphora* suggests that the Athenians could have extended their outlays on the military conflicts if they had so desired. Overall, it seems likely that the Delian League/Athenian Empire enabled the Athenians to shift a considerable part (possibly all) of the burden for military expenditure to their allies.

By the mid-fifth century at the latest, the Athenians regarded it as perfectly acceptable to borrow money from the sanctuaries. The possibility to borrow from the temple reserves was emphasized already by Perikles in his speech on the eve of the Peloponnesian War. Perikles encouraged the Athenians by pointing out that not only would they have substantial government revenue at their disposal each year, but also that they had accumulated considerable wealth (6,000 talents) with the Gods on the Acropolis (Thukydides 2.13; cf. van Wees 2004, p. 237).

Recent research has shown that sanctuaries were engaged in providing loans to various city-states (Bresson 2007; Chankowski 2005; 2007). Obviously such loans could be used to smooth the expenditures profile for a *polis* over the years. We also find examples of individual Greek citizens lending money to other *poleis*.

The possibility for the state to borrow had several important implications. Firstly, it gave the Athenians an instrument that would have enabled them to cope efficiently with the considerable variation in military expenditures that seem to have occurred. Such variations would otherwise both conceptually and in practice pose a separate important issue in addition to the average level of expenditures. Without the possibility to borrow, a huge expenditure one year could cripple a society, even if their long-term average revenues more than covered their long-run average expenses. Secondly, the distribution of revenues on different boards of magistrates was fixed by law (*merismos*). If it was possible to borrow for public spending, the allocation of public spending was open to manipulation, at least at the margin.

For the fourth century, Pritchard argues that the decade 378/77–370/69 is the best documented period for an assessment of Athenian war expenditures, and he calculates the average expenditure

per year in this decade to 522 talents.¹⁷ While this sum is much lower than the one for the fifth century, the Athenians no longer could shift part of the burden onto their allies.¹⁸ Furthermore, several factors were gradually making warfare more expensive in the fourth century, such as the need to hire mercenaries for specialist tasks, the construction of city walls and the development of siege engines and siege warfare generally.¹⁹ In view of these changes in their environment, the Athenians during the fourth century in several ways enacted important institutional changes. For example, they reformed the organization of the *eisphora* and the trierarchy.²⁰

So it should come as no surprise that in the fourth century, the Athenians often sent out expeditions with insufficient funding (van Wees 2004, p. 234). This could mean, for example, that the trierarch had to pay some of the wages to his crew himself in order to avoid desertions from the crew when sufficient funds were not forthcoming from Athens.²¹ Since the trierarchs were among the wealthiest citizens in Athens, under-funding can also be seen as an indirect way to tax property.²²

Similarly, the individual taxpayer potentially faced a considerable variation in the demands from the state that he should help to finance their common wars. A rich Athenian (belonging to the liturgical class) faced with liturgies and *eisphorai* could expect considerable variation in the demands on their personal resources. In the fourth century, the well-off could rely not only on loans from their friends (rent-free *eranos* loans), but also on the possibility to borrow from one of the private banks that had emerged in Athens.

The burden of a military campaign could sometimes be shifted to the enemy. When travelling with a complete crew, a trireme could carry very little cargo. A trireme on the move would have to stop and make landfall for the night and often also for a midday meal. Provisions of various

¹⁷ In this case, Pritchard works from the cost-side, in contrast to his calculations on the Peloponnesian War.

¹⁸ For example, the members of the so-called second Athenian League would not have accepted such a shift of the economic burden.

¹⁹ In the fifth century, both Athens and Sparta had a large set of allies, who could be called upon to provide whatever it was that they were specialists in doing (archers, slingers, etc.). This automatic access to various specialists without extra costs was no longer there in the fourth century,

²⁰ The reorganization entailed, for instance, the introduction of a new liturgy (the *proeisphora*) whereby the 300 wealthiest citizens advanced to the state the expected revenue from an *eisphora*, and the introduction of syntrierarchies (the sharing of a trierarchy between two or more taxpayers). Cf. Gabrielsen (1994); Lyttkens (2013).

²¹ Gabrielsen (1994), pp. 116–117; Pritchard (2015), p. 103; van Wees (2004), p. 234.

²² Wars redistributed wealth between countries and within countries. In fact, more than one economist (and several others) have suggested that an important aspect of the frequent Athenian wars was that they redistributed resources in favour of the poor in society. The poor could make a living by rowing for the Athenians. The rich, on the other hand, had to serve as trierarchs, and to cough up money for running the ships and pay the *eisphora*.

kinds had to be bought, stolen, or taken by force of the locals. An Athenian trierarch would have to decide whether he on landfall would have his crew deal or steal to get what they needed.²³

A fact that seems to signal that the Athenian leaders found it difficult to raise a sufficient amount of resources is perhaps the way the Persians could manipulate the outcome in many intra-Greek conflicts by a strategic use of subsidies (van Wees 2004, pp. 238–239, provide several examples).²⁴

We end this section with the tentative conclusion that finding the money needed to finance the frequent wars was not necessarily a major problem for the Athenians in the Classical period, although admittedly the situation seems trickier in the fourth century than in the fifth. In order to avoid destructive violent internal conflicts, the Athenian voters needed to strike a workable balance between the interests of the poor majority and those of elite.

4. Coping with the demand for manpower in ancient Athens

We will now explore the other main aspect of finding resources on a sufficient scale for the Athenian wars, namely how they managed to bring forth the necessary manpower. In the fifth century, the Athenian democracy suffered considerable manpower loss on several occasions. The plague in the beginning of the Peloponnesian War killed an unknown but probably substantial number of Athenian citizens, perhaps as many as one third of the total (Hansen 1999).

The Athenians ran a sea-empire. Consequently the manpower used by the navy was the most important item in an Athenian war budget. Naval warfare also had a tendency to generate huge manpower losses (van Wees 2004). Even a victory could be problematic. For example, the Athenian victory at Arginoussai Islands in 406 cost them at least 25 ships and some 5,000 sailors.

²³ The tendency to take any gain that you could from those you happened to encounter was a reflection of what Vincent Gabrielsen calls “a raiding mentality”. This seems to be what happened in Sicily, when the Athenians *en route* captured a small town (Hyccara) and enslaved the inhabitants (Andrewes 1982, p. 451). The Greeks traditionally saw nothing dishonourable in these activities. The tradition is apparent in Homer, and arguably goes back much further than that. Booty-chasing remained in Thucydides’ time a national habit in many parts of Greece but “in fifth-century democratic Athens the raid had [...] become the sole prerogative of the state and the proceeds of armed violence regarded as state property, a principle that was enforced rigorously in the fourth century” (Gabrielsen 2007, p. 255).

²⁴ On the other hand, there seems to be no firm evidence that the Athenians used the possibility to borrow after the Peloponnesian War.

In the sixth century the main vessel for war at sea was the pentekonter, which carried a crew of 50 (and could be used for various purposes). The pentekonters were typically privately owned, and gathering a fleet thus meant sending for the individual aristocrats and their ships.

In the late sixth century, the *trireme* was introduced into Greek waters. It was a highly specialized and expensive warship with a crew of 200. These ships were too expensive for individuals, and so the navy became a direct public responsibility, but with rich individuals still shouldering part of the burden.²⁵ For instance, in Athens it was the responsibility of the trierarchs to find the crews to the ships. The acquisition of triremes expanded quickly in the Greek city states between 520 and 480. Probably early in the 480s, the Athenians obtained 20 warships (probably triremes) in order not to fall behind in the arms race with neighbouring Aegina (Herodotos 6.89, 92). These were probably the first public warships in Athens, but the numbers soon increased.²⁶

In view of the very large number of rowers needed for the Athenian fleet, it seems obvious that citizens alone cannot have sufficed to provide crews for all the warships. There simply were not enough of them, as frequently noted. During the Peloponnesian War, naval forces of 100 up to 250 triremes are recorded. The corresponding number of rowers needed would be between 17,000 and 42,500 (the complete crews would number 20,000 and 50,000). The male citizen population of Athens probably peaked at 50–60,000 shortly before the Peloponnesian War. These figures implies that there must have been large numbers of non-citizens among those enrolled as rowers in the Athenian navy.

Many scholars would probably spontaneously subscribe to the view that the rowers in the Athenian fleet from Salamis and onwards were a mixture of citizens, slaves and metics, and implicitly assume that the proportions between these remained largely unchanged, or at least that we do not know the direction of change. However, we believe that something a bit more specific can be said. In particular, we will argue that there are several problems involved in using slaves as rowers. There are good reasons to believe that the slaves in Athens were used only sparingly through most of the fifth century, but that this changed during the final stages of the Peloponnesian War.

²⁵ Herodotos (8.17) mentions a private individual showing up at Salamis with his own trireme, but it is clear from the context that this was exceptional.

²⁶ van Wees (2013) however argues for a considerably earlier (sixth century) start for public involvement in naval matters in Athens.

4.1 Were slaves used as rowers in the battle of Salamis?

Recruiting the manpower needed for the warships was not a trivial issue. This problem goes back already to Themistokles' ship-building programme in the 480s.²⁷ It is very well that we are expected to accept that Themistokles was able in 483/2 to persuade the Athenians into letting him use the windfall gains in silver mining at Maroneia (southern Attica) to build two hundred ships, rather than distributing 10 drachmas per head among the citizens and let them have some fun. But how and where did Themistokles expect to stamp 34,000 rowers out of the ground?

There were four possible sources for the recruitment of rowers: 1) citizens, 2) slaves, 3) metics (resident foreigners) and 4) individuals coming from outside Attica. The potential use of slaves among the rowers is where most difference of opinion have emerged in the literature.²⁸ In the modern literature, arguing either that slaves were used as rowers in the Athenian navy, or that they were not, the arguments are often based mainly on interpretations of the meagre literary evidence and inscriptions. According to Welwei (1974, p. 65) only two historical events or documents have been generally accepted as evidence for the use of slaves as rowers in the Athenian fleet: The first concerns the battle of Arginoussai in the Decelean war.²⁹ The second evidence is a fragmented crew list from the Athenian Acropolis.³⁰ Other evidence is much debated, such as the reports on the activities of the Athenian fleet at Sicily in winter 414/13 BCE (Thukydides 7.13.2), and the statement that the crew on the trireme Paralos consisted of *only* free Athenians (Thukydides 8.73.5). As a complement to this evidence (or lack thereof), we present here more of a theoretical and à priori case against widespread use of slaves as rowers.

²⁷ Cf. Welwei (1974), p. 70; van Wees (2004), pp. 206–208. On the number of ships built by Themistokles we follow Herodotos rather than the *Athenian constitution*, since the latter is more than a century further removed in time from these events. For the purpose of the arguments in this paper, it does not matter much whether Themistokles had the Athenians build one hundred ships (*The Athenian Constitution* 22.4–7) or two hundred ships (Herodotos 7.144). Modern authors vary in whom they use as a source on this point.

²⁸ Historically, there have been divergent opinions regarding the use of slaves as rowers. On the one side, Böckh (1886, pp. 329–330.) argued that slaves constituted a major part of the rowers in the Athenian fleet. The other extreme is represented by Niese (1907, p. 503), who held the opinion that slaves were only used as rowers on one occasion, in the battle of Arginoussai, due to the extremely dangerous situation in 406 BCE. For a long time the *communis opinio* seems to have been the one first advocated by Beloch (1886, p. 21), namely that the Athenian fleet was almost exclusively manned with free rowers. However, this view was challenged by Welwei (1974), who argued for the regular use of slave rowers in the Attic fleet. Evidence *ex silentio* was rejected. The current view seems to be that slaves were used as rowers. Graham (1992, pp. 257–258) convincingly argues that a careful reading of Thukydides 7.13.2 proves the use of slaves as part of the regular crew on Athenian ships in the Sicilian expedition (together with foreigners). Furthermore, according to him, the fact that the homogenous composition of Paralos' crew was even mentioned singles it out as an exceptional case.

²⁹ Xenophon *Hell.* 1.6.24; Hellanikos *FgrHist* 4 F 171 = 323a F25; Aristophanes *Ran.* 33.191–192, 692ff. with scholia.

³⁰ *IG II/III*² 1951 = *IG I*³ 1032.

Incidentally, there is also no need to envisage the Athenians relying heavily on slaves as rowers in the battle of Salamis.

To begin with, it seems highly unlikely that a political leader in ancient Greece would turn to the slaves in society for help if he could find any other ways of getting the necessary manpower/personnel for the navy. When the ancient Greeks turned to their slaves for help, it was in situation of suddenly appearing emergencies (such as the Spartans with a helot uprising on their hands in 460, or the Athenians after their defeat in the battle of Aigospotamoi). This, however, is not the kind of situation that we see emerging in 480 BCE.³¹

Before we proceed we would like to stress that the presence of a Persian fleet in 480 BCE cannot reasonably be constructed as a surprise to Themistokles. Even if we accept that he persuaded the Athenians to use the windfall gain in the silver mines at Maironeia to build 200 new ships, ostensibly intended for the use against Aegina, Themistokles must also have been aware of the possibility that the Persians would return. Neither can the lack of rowers have come as a surprise. To do the calculation that 200 triremes multiplied by 200 crew members per ship equalled a lack of personnel is hardly rocket-science and it would have been obvious at the time. As things turned out Themistocles had ample time to come up with a better solution than using slaves as rowers.

A strategy that would have been more attractive to Themistokles (than to court the slaves) would have been to entice as many citizens and metics as possible to enrol. With the Persians approaching it seems *à priori* not unlikely that the free-rider problem of collective action could be overcome and that Athenian citizens of all kinds would be willing to serve on the triremes. The battle of Salamis was arguably not like the ordinary inter-*polis* violent clashes. It set the Athenians against the great Persian Empire. The fate of the Athenians would not be happy in case of defeat against the Persians, as the rebellious Greek *poleis* of Asia Minor had found out.

So we expect that the Athenian citizens were willing to provide as many rowers as they could. Furthermore, there is one group of citizens that would arguably have been more eager than the

³¹ van Wees (2000). Turning to the slaves in cases of emergency was not unknown in ancient Greece, often promising those who volunteered that they would receive their freedom as reward (which must have pleased their owner tremendously). Graham (1992, p. 268) argues that the reason for promising slave rower freedom (as happened at Arginoussai) was that their owners were not on board (due to their large numbers). The prospect of manumission was a way of ensuring their loyalty. Welwei (1974, pp. 71–79) also highlighted the great problems in finding crews to the ships of the Themistoklean fleet, there being too few citizens. Welwei rejected previously presented evidence for the use of slave rowers at this time; nevertheless, he concluded that thetes and metics would not have sufficed with the implication that slaves were used extensively.

rest of the citizens serve as rowers. In the years 510–508, when Kleisthenes was victorious in the power struggle after the fall of the Peisistratids, an important aspect of Kleisthenes' campaign was to ensure that large numbers of foreigners living in Athens as citizens were formally included in the citizen body.³² It seems reasonable to argue that these relatively new citizens would find it prudent to signal their continued support of Athens and to volunteer to enlist as hoplites or rowers. It also seems likely that a sizeable number of foreigners had come to Athens and had been treated as equal to the citizens under the relatively lax immigration policies of the Peisistratids.³³

Despite the possibility to engage unusually large parts of the citizen population in the defence of Attica, it seems very unlikely that the citizens would have sufficed to provide crews to all ships (unless the Athenian population was considerable larger than is currently believed). According to van Wees (2004, p. 208) the shortfalls in crew membership was 80 men per ship, for a total shortfall of 16,000 sailors (200 x 80 = 16,000).

Could the gap have been filled by metics? We believe that the presence of the metics at the very least would have taken care of a substantial part of the gap, possibly all of it. It is likely that there had been a steady stream of immigrants to Attica, at least from the time of the legislation proposed by Solon in 594, who proclaimed that those who came to Athens with a trade would become Athenian citizens.

Finally, we should remember the possibility of external recruitment. In other words, enticing citizens from neighbouring *poleis* to come to Athens and serve as rowers. The extensive colonisation movement signals a relative overpopulation in the existing *poleis* at least from late eighth and down into the fifth century.

Thukydides on more than one occasion makes the point that metics and other non-Athenians only fought because they were payed to do so (1.121.3; 1.143.1–2). The propensity of Athenian citizens and metics (and other foreigners) to serve as rowers would undoubtedly have increased considerably if the innovative Athenians already at this early date began paying their rowers.

There is no clear-cut evidence to support this hypothesis,³⁴ but it does not seem farfetched in

³² Kleisthenes made sure that many non-Athenians and even freed slaves were inscribed in the new demes, thus becoming Athenian citizens (Hansen 1999, p. 34). According to the Aristotelian *The Athenian Constitution* Kleisthenes tried to ensure that the inhabitants of Attica would “not call attention to the newly enfranchised citizens.” (*Ath. Pol.* 21.4; Hansen 1999, p. 34; Lyttkens 2013, section 5.3).

³³ Manville (1997) and Lyttkens (2013), ch. 5. An immigration friendly policy may date back to Solon.

³⁴ van Wees (2004) assumes that the rowers were paid, but he notes that many scholars are skeptical about the notion of such an early introduction of payment to the lower classes.

view of the fact that Greeks served as mercenaries in Egypt and The Near East at least from the seventh century (van Wees 2004, p. 42). Hence mercenaries was a well-known phenomenon, and their position only marginally different from payments to Athenian rowers. Perikles introduced payment for juror service in 450, and we do not see why payment to rowers could not have been introduced a couple of decades earlier.

Thus it seems to us possible that a combination of citizens, metics and citizens of other Greek *poleis* made up the manpower for the battle of Salamis, without using slaves in any substantial way.

4.2 From the battle of Salamis to the Decelean War (480–415 BCE)

Turning now to the period after the Greek victory at Salamis, van Wees (2000, 2004) paints a picture of post-Salamis Athens, where poor citizens from other city-states moved to Athens to seek employment in the Athenian fleet. This seems credible. The colonisation movement from the eighth century and onwards (Osborne 1996, ch. 4) signals that there was surplus labour in many Greek city-states, as does the existence of Greek mercenaries in various conflicts from the seventh century onwards.

The prospect of gainful employment as a rower may well have been a sufficient incentive to move to Athens if you were a poor inhabitant of, e.g., Chalkis in Euboea. The alternative was what you could earn in the city where you lived, and that could be a very small figure (nothing guaranteed, for example, that you could earn a wage sufficient for survival for you and your family).

From an economic perspective, the description by van Wees suggests that a good approximation of the post-Salamis situation in Athens is in economic jargon that there was an infinitely elastic supply of foreigners willing to work as rowers. In other words, for the going rate of one drachma per day, the Athenians could hire as many (foreign) rowers as they pleased.

This implies that slaves were not a major factor among the rowers in the Athenian fleet. If, however, it is proposed that slaves were used to a significant degree, it is imperative that we ask ourselves who we see as a likely owner of these slaves. The only possibility seems to be rich

Athenian citizens and rich metics, if we are talking about thousands of slaves.³⁵ However, it seems very unlikely that there would be slaves that were underutilized by their owner, and so persuading them to part with their slaves would likely meet with a relatively sharp increase in the price of slave labour. While the poor would be willing to serve as soon as payment to sailors were above their alternative occupation. In order to get the rich to part with their slaves, the price must cover the marginal productivity of slaves.

We are not arguing that there were *no* slaves among the rowers. Some crew members might bring their own slave(s) to the trireme, including the trierarch.³⁶ Other wealthy men might be willing to let trierarchs use some of their slaves. There seems however to be more problems with using slaves as rowers than usually recognized. We can conceive of the relationship between the trierarch and the slave owner as an implicit contract. If the slave owner is not on the trireme himself (unlikely), how is he to know if the trierarch on the trireme takes good care of the slaves? He cannot. The rational slave-owner will realize this and try to specify in the rental contract how he should be compensated for any damage to his slaves. In the absence of such stipulations, the rental price ought to increase.³⁷

It seems to us that the traditional account underestimates the problems with slaves as rowers, especially when mixed with free men. A common Athenian solution to the incentive problems with slave labour seems to have been that the slave and the owner of the slave worked alongside each other. As a consequence, it seems that the free citizens and the slaves received the same pay on a construction site.³⁸ It seems credible that it would be relatively easy to monitor the efforts of the slave under these circumstances. A battle, at sea, however, is a very different activity. For example, you would not want to have slave-rowers moving around on the trireme. They might side with your enemy, as happened 1571 CE, on some of the Ottoman galleys at the battle of Lepanto. The practical solution on a trireme would probably have been to have the slaves chained to their places and sitting at the lowest tier of oars. This, however, could easily come into

³⁵ We can surely rule out the Athenian state as the owner. It is true that the Athenians state around 450–350 owned a significant number of slaves, probably exceeding 1,000, including the famous 300 Scythian archers (Hansen 1999) but we surely would have heard if public slaves were important in the fleet.

³⁶ Thukydides 7.13.2 is usually interpreted to mean that some crew members left the trireme in order to capture their run-away slaves from the same trireme (Graham 1992; 1998; van Wees (2004). Welwei (1974, pp. 67–70) rejected previous interpretations in favour of state-owned slave rowers, but argued for the use of privately owned slaves in the fleet.

³⁷ The evidence shows clearly that the ancient Greeks understood the value of conditional contracts when dealing with slaves (Bresson 2007).

³⁸ As indicated by the Erechtheion building accounts. Note, however, that the argument that slaves and free received the same pay is based on relatively scanty evidence and Loomis (1998) tends to believe that the building of the Erechtheion was exceptional.

conflict with the desire to have owner and slave sitting together (this kind of conflict does not emerge on a building site).

One final important aspect regarding the use of slaves as rowers have perhaps not been sufficiently emphasised in the literature. As mentioned above, a trireme could transport practically nothing except its regular crew. Specifically, 10 hoplites per ship aggregated over a hundred triremes represented a small force for land-war purposes. van Wees (2004) argues convincingly that the rowers on a trireme would often, when they made landfall, turn out as light infantry, i.e., equipped with some weapons but not much body armour. They would often be essential for the enterprise, helping to collect food etc.

An important implication of this is that the propensity to use slave labour likely varied with the nature of the assignment for the trireme. For example, we would suggest that the Egyptian enterprise in the 450s was precisely of the kind where a contingent of lightly armed infantry would be indispensable (hence relatively few slaves among the rowers).

4.3 The Decelean War (415–404) changes the relative price of labour in Athens

Things were to change drastically, however, with the new Spartan strategy in the Decelean war. In the spring of 413, the Spartans employed a new strategy (suggested by Alkibiades): they permanently occupied Decelea in northern Attika, relatively close to Athens, shortly after the Sicilian expedition set sail. This changed the living conditions for a lot of Athenians. It meant that the countryside of Attica was subject to Spartan raids all through the year. Consequently, landowners living in Athens could no longer go out to farm their land, and those who had their domicile outside the city walls now had to find living quarters within the walls of Athens. It is commonly assumed that this meant that more or less the whole population of Attica moved inside the walls.

As described by Thukydides (7.27.3–5):

it should be explained regarding Decelea that from the time when it was first fortified [...] and from then regularly occupied [...] its occupation did much harm to the Athenians, and by the destruction of property and wastage of men was one of the chief causes that brought ruin to their cause [...] for before this summer the enemy's invasions being of short duration, did not prevent the Athenians from making full use of the land during the rest of the year; but at this time, the occupation being continuous [...] the Athenians were suffering great damage, for they were deprived of their whole territory, more than 20,000 slaves had already deserted, a large proportion of these being artisans).

This meant that the *polis* centre now had to house many more people than before. Hansen (2006) argues that in a large *polis* like Athens, two thirds of the population lived outside the city walls (in a small *polis* almost the whole population lived inside the city walls).³⁹ Even if the figures provided on these issues are somewhat imprecise, it is a reasonable (unavoidable) conclusion that the citizen population inside the walls of Athens more than doubled. How many slaves there were inside the city walls is of course impossible to say, but if we accept Hansen's argument that the Athenians knew that there were more slaves than free in Attika and around 50–60,000 (male adult) citizens in Attika before the Peloponnesian War, consequently perhaps 40,000 citizens by the time of the Decelean War (the reduction in number being due mainly to the plague in the 420s), the slave population inside the city walls must have increased by some 25,000–50,000 slaves.

The exact figures are in this instance not important – the important thing is that the number of citizens and slaves (and metics) who lived inside the city walls must have increased tremendously.

As far as we know, the ensuing complications for Athenian society in the remaining years of the Peloponnesian War has not attracted the attention it deserves. In particular, the influx of a sizeable number of slaves is likely to have been seen as a problem. The slaves that moved into the city may have included household slaves, farm labourers and perhaps some slaves from the mining operations. The fact that Thukydides reports (see quote above) that as many as 20,000 slaves deserted in connection with this move should not be taken to imply that there would not have been a great many slaves among those now moving to a life within the city walls.

It seems likely that many slave owners would have relatively little use for the additional slaves now crammed into the city centre. This must have created a great problem for the Athenians. What do you do with, e.g., agricultural implements, when the enemy is sitting just outside the city walls? There may have been some uncultivated land within the walls, but not nearly enough for the increased demand. For the Athenians it would have been an awkward situation with a substantial number of idle slaves without much to occupy them. (And this with a Spartan presence at the doorstep of Athens.) By far the easiest way to get a slave out of your hair would be to hire them out as a rower. Suppose, for example, that you are burdened with a slave that used to work in your field outside the city walls but you have no work for him inside the walls.

³⁹ Bintliff (2006, p. 13) is more cautious and suggests that the ratio of city and country dwellers in Attika was something between 1:2 and 1:5. Estimates of the total population of Attika in 430 ranges between 150,000 and 300,000.

Instead of helping to produce part of your food supply, he would now only represent a cost of, say, 2.5 obols per day for keeping him alive.

If the slave owner could get his slave hired as a rower, he would be relieved of this subsistence costs for the slave.⁴⁰ If we for simplicity ignore the risk that the slave would be killed or damaged while in “public service” the slave owner would in principle be willing to pay the state for taking on the slave as a rower and thereby also taking over the responsibility for providing the slave with substance (essentially representing a negative price for the slave). If the state would pay a daily wage to the slave owner, the deal looks even sweeter. The slave would bring an income and no extra costs. An important fact in this context is that Loomis (1998, pp. 240–241) documents that there was a temporary reduction in the wage of sailors in the period 412–404.⁴¹ The wage apparently fell to 2–3 obols per day, i.e., more or less a subsistence wage.

If the wage for rowers is 2 obols per day (the reduced wage we find during the final years of the Decelean war), and the cost of subsistence is 2.5 obols per day, renting a surplus slave as a rower to the Athenian state would increase your income from him from minus 2.5 obols to plus 2 obols (you receive his wage and you do not have to pay for his subsistence). This suggests that there was a strong incentive for citizen slave owners to get the former agricultural slaves enrolled in the fleet and there would be a considerable increase in the supply of slaves for rowing, following upon the Spartan new strategy.

At the same, time, a number of citizens may have preferred to manumit some of their slaves in order not to have to pay for their upkeep. Manumitted slaves were included among the metics, and such newly freed slaves may have joined in the queue for getting hired as a rower. This would be an attractive option for a slave owner landed with a number of slaves that he could find no real use for and for whom these slaves represented a cost item only.

It is an interesting and distinct possibility that this situation – an excess supply of slaves for hire as rowers – was an important factor behind the reduced wage for sailors in this period. Whereas Loomis (1998) frames his discussion of this only as a reflection of the Athenian state being less able to pay out wages in these years. It is equally possible to see the wage paid to sailors as being determined by the need to have a certain number of rowers at your disposal. The Athenians would over time find out how much pay was necessary to bring forth the desired number of

⁴⁰ Following Ober (2010) and Scheidel (2010), the subsistence wage would have been around 2.5. obols.

⁴¹ See also van Wees (2004), p. 316 n. 27.

rowers.⁴² In our case, the influx of potential rowers into Athens as a result of the new Spartan strategy reasonably was a strong contributory factor in the reduction of the price the state had to pay to get a sufficient number of rowers to enrol.

Furthermore, many of the citizens moving in to the city would find themselves without an income (in particular anyone engaged in farming). Many of these would probably join the slaves in queueing up for rowing, helping to depress the wage for rowers. So this helps explain why the rate of pay was depressed but also how the Athenians could recruit many new rowers so that they could put a new fleet on sea to win the battle of Arginoussai (and it can be explained why these crews were unexperienced).

The influx of many citizens without any obvious means of support can explain yet another institutional innovation in Athens at this time. We cannot remember anyone posing the intriguing question “how did those who fled the Spartans and moved in behind the Athenian city walls survive, given that many of them had no means of support since that had been left outside the walls?” This seems very likely to be the motivation for payments to the poor (not necessarily disabled) in Athens. Loomis (1998, p. 231) concludes that special payments to the poor in Athens is only really attested for a few years in the last decade of the fifth century. This agrees perfectly with our interpretation that the reason for these payments was to avoid starvation among those who had to flee the Spartans after their occupation of Decelea.

In summary, it seems that the use of slaves as rowers in the triremes was more problematic than usually recognized, in particular in situations where the possibility to use the rowers as light infantry was an important consideration. Consequently, slaves may have been less common as rowers for much of the fifth century than currently believed. Towards the end of the Peloponnesian war, however, the new Spartan strategy of being present as a menace in Attica at all times lead to an influx of many slaves and free citizens to within the urban walled centre of Athens. For many of these slaves there would have been little use inside the city walls. This must have greatly increased the supply of slaves for rowing and probably contributed to the reduction in the price of rowers that we see in the records, and may have motivated the introduction of state pay to the destitute in Athens.

⁴² This is a parallel to the mechanisms regarding attendance in the Athenian Assembly; there, 6,000 attendants were often needed and assembly pay was therefore crucial for the smooth functioning of the Athenian society.

5. Some consequences downstream of manpower loss

Costly enterprises in terms of loss of manpower for the Athenians include the disastrous expeditions to Egypt in the 450s (perhaps 10,000 casualties) and the ill-fated campaign in Sicily in 415–413 (at least 40,000 lost and missing).⁴³ It is hard to believe that such losses passed by without consequences for Athenian society and we will now look at some such consequences.

5.1 The failed expedition to Egypt and the law on citizenship

In 460/59 the Athenians sent an expedition to Egypt in order to help in a revolt against Persia. Egypt had already a long history of using Greek mercenaries. This time, however, it went badly for the Athenians. Thukydides (1.104–110) describes the disaster:

King Artaxerxes [...] called in the Athenians [...] They left Cyprus [...] with two hundred ships of their own and of their allies, and went to Egypt. [...] The Athenians and their allies stayed on in Egypt and the war took on many forms [...] A Persian [...] drove the Hellenes out of Memphis, and finally shut them up in the island of Prosopitis, [...] besieged them for a year and six months, then finally [...] took the island. Thus, this undertaking of the Hellenes came to naught after a war of six years. And but few out of many [...] escaped with their lives; the most of them perished.

A second force of 50 triremes sent out to help the first one was likewise obliterated.⁴⁴ Now, 250 ships could mean as much as 50,000 casualties, supposing, for example, that all ships were triremes and had a full complement. A reasonable assumption is that at least half of these forces were Athenian rather than from their allies (note that the Delian league had been in place for two decades during which period the allies gradually moved from providing ships to providing money. It has also been argued that a substantial part of the expeditionary force had been sent home before disaster struck, although the sources are silent on this.⁴⁵ Against this background, an assumption that at least some 5–10,000 Athenians perished in Egypt seems likely to be in the right order of magnitude. This corresponds to 10–20% of the male Athenian citizen population.⁴⁶ Remember that, as argued above, on this kind of expedition poor citizens were much more likely

⁴³ Thukydides 7.75.5 (on losses in Sicily).

⁴⁴ Thukydides (1.110): “50 triremes [...] sailed to Egypt from Athens and the rest of the confederacy [...] the infantry fell upon them from the shore and a Phoenician fleet from the sea and destroyed most of the ships, a small number only escaping.”

⁴⁵ Holladay (1989).

⁴⁶ Holladay (1989), who took a very conservative stance regarding the loss figures in connection with the Egyptian expedition, estimated that 8–9,000 Athenian citizens perished. This, according to him, represented about a fifth of the entire male citizen body.

as rowers than slaves, as there would be considerable use of lightly armed troops on arrival. So the casualties would largely have been citizens or metics.

Losses in this order of magnitude must almost necessarily have considerable repercussions in the population, among the survivors, both in outlook of life and in practical life. For example, the effects would have been obvious in the marriage market. With 5,000 male citizens gone there would be a corresponding increase in the number of widowed female citizens. The new widows would follow the property of the deceased citizen to her husband's heir. There would have been a fair amount of moving around in the structure of households and we can easily envisage ensuing legal conflicts between relatives.

There would suddenly be a considerable mismatch in the citizen population between male and female citizens. Hence a law that prevented male Athenians from marrying non-citizens would have made sense, and indeed such a law was passed by the Athenian Assembly in 451 on Perikles' proposal. This makes it tempting to argue that the Aristotelian *Athēnaion Politeia* have got it wrong when it comes to the stated motives for the law, which is reported as being that there were too many citizens, whereas it seems much more likely to have looked to the ordinary citizens that there were too few citizens.⁴⁷

It is important to distinguish between Perikles' personal motives for proposing the law on one hand and how he took it through the Assembly on the other. Lyttkens and Gerding (2018) resurrect the intuition of Jacoby (1954), i.e., that to Perikles the benefit with new law was that he could use it as a weapon against his political rivals, in particular Kimon, son of Miltiades, whose parents, wives, and children were not exclusively Athenian. Lyttkens and Gerding show that Perikles was probably in a precarious political situation in 450, and argue that Perikles' personal motivation for proposing such a law was a need to find ways of undermining the position of his political rivals.

There is one additional point to make regarding the citizenship law. The new law meant that the number of new citizens, i.e., children that were qualified to become citizens when they came of age was constrained by the number of unmarried male citizens or the number of unmarried

⁴⁷ Coşkun (2014) argues that the *Athēnaion Politeia* contains an error regarding the date (year) of the law. Lyttkens and Gerding (2018) have countered that if the Aristotelian work contains an error, it is much more likely to concern the motivation for the citizenship law than its date. The date for the law is given by the name of the eponymous archon; the list of archons was set up in the 420s and was likely still available for consultation for the writer of the *Athēnaion Politeia* a hundred years later. Cf. Lyttkens and Gerding (2018) for further details.

female citizens, whichever was the smallest number. This means that an upper bound on the number of citizens was put in place, with likely far-reaching consequences in the fourth century.

5.2 The Sicilian expedition and the reform of the Athenian democracy

As mentioned above, the Athenian enterprise in Sicily 415–413 BCE ended with an almost complete loss of all included. Hansen (1999) suggests that the Athenian citizens prior to the Peloponnesian War numbered some 50,000–60,000. From this should be detracted the numerous victims of the plague at the beginning of the war. Some 200 warships (mostly triremes) and more than 10,000 hoplites (probably carried on transport ships) were sent to Sicily, very few came back,⁴⁸ suggesting a manpower loss of epic dimensions, perhaps 45,000. Obviously not all the casualties would have been Athenian citizens (there were allies, metics etc.).⁴⁹ Nevertheless, the endeavour would have taken out more than 10% of the citizen population. Such losses cannot have gone unnoticed in Athenian society.

The losses during the Sicilian expedition likely were an important incentive when the Athenians decided to remodel their political rules of the game, in particular the abandonment of ostracism in favour of the *graphe paranomon*. Ostracism entailed a ten-year exile for a person and could be used against anybody. The rules concerning ostracism meant that there could be at most one ostracism per year. The *graphe paranomon*, on the other hand, was a procedure by which it was possible to accuse anyone who had made a proposal in the assembly of having acted against common interests. Furthermore, the original proposal could be reversed. By focusing on decisions rather than the decision maker the *graphe paranomon* put a brake on the activities in the Assembly. Rash decisions, for example, could be getting a second hearing (decisions like the one discussed in the next section). In doing so, the Athenians happened to introduce a procedure with more implications than was probably realized at the time.

As the politicians in Athens gradually gained experience of the *graphe paranomon*, it would have become clear that the *graphe paranomon* effectively placed the power over Athenians politics firmly in the hands of the party that had a majority of the members the panel of 6,000 potential jurors (appointed by lottery at the beginning of each year). This must have made the outcome of politics in the Athenian direct democracy considerably more predictable than would otherwise have been

⁴⁸ Thukydides 6.43; 7.20; 7.87.

⁴⁹ Thukydides specifies that the expedition included at least 120 Athenian triremes and 2,700 Athenian hoplites from the rolls.

the case (Lyttkens, Tridimas and Lindgren 2017). This likely had important effects downstream for Athenian politics in the fourth century.

5.3 On the trial of the generals (strategoï) after the Athenian victory at Arginoussai

We now turn to one of the most well-known (notorious) episodes in the history of the Athenian Assembly. In 406, an Athenian fleet was dispatched to Arginoussai in order to relieve a blockaded Athenian force. The Athenian fleet was victorious against the Spartans. Due to bad weather, however, the Athenians failed to pick up survivors, reportedly some 2,000 of them. When they returned to Athens, the generals were (illegally) brought to trial and were condemned to death as a group. They were executed (except for two who wisely stayed away from Athens).

In retrospect, this seem like an overreaction. In addition to being illegal, the decision probably left the Athenians almost without naval experience and paved the way for the Spartan victory at Aigospotamoi in 404, making Athenian defeat in the Peloponnesian War almost inevitable. So, what caused this harsh treatment of the generals? It was not the first time that the Athenians suffered heavy losses, so why this reaction now? We suggest that the reason why the Athenians (or rather the Assembly) were so sorely pissed-off at this juncture was that a lot of slaves were lost at sea.

At first sight this may sound astonishing. We argued above that for much of the fifth century, rowers would primarily be either poor metics or poor Athenian citizens, whereas the use of slaves as rowers probably expanded a lot in the Decelean War. For example, in the Egyptian campaign of the 450s, rowers were probably thetes or metics (no slaves). Heavy losses would then have caused grief and the loss of a bread winner in many Athenian households. Those affected were however not the kind of persons that stood up and argued in the Assembly nor to advocate punishment of prominent citizens like the generals.

In the case of Arginoussai, we suggest things were very different. This happens to be the only sea battle where we have undisputed evidence for the use of slave rowers in the Athenian fleet.⁵⁰ We argued above (section 4) that the likelihood that a rower would be a slave increased substantially during the Decelean War. This claim is strengthened by van Wees (2004, p. 211), who highlights

⁵⁰ Xenophon *Hell.* 1.6.24: “When the Athenians heard of what had happened and of the blockade, they voted to go to the rescue with one hundred and ten ships, putting aboard all who were of military age, whether slave or free; and within thirty days they manned the one hundred and ten ships and set forth. Even the knights went aboard in considerable numbers.”

an inscription from the late fifth century, which indicates that up to 75% of the rowers could by then have been slaves, with their owners waiting for them to come back to Athens (cf. Graham 1998).

In this situation, those hurt by the generals (in)activity were members of the Athenian elite, owners of many slaves, and precisely the kind of person that would have considerable experience of speaking in the Assembly.

Assume that 2,000 rowers perished that could possibly have been saved and that a slave cost around 180 drachmas. If these were owned by ten wealthy Athenians, the loss for each of these ten men would be 200×180 drachmas = 36,000 drachmas = 6 talents, which represented a sizeable fortune.

It is not hard to envisage some wealthy Athenians wanting to set an example, signalling to future generals to be so kind as to take good care of the property of other people. Now we are dealing with persons well used to speaking their mind in public. In other words, the reason for the outrage felt in Athens was perhaps not because many Athenian citizens had died – it is more likely that they acted pissed-off because some rich Athenians experienced a substantial reduction of their property.

6. Concluding remarks

For the Athenians, a decision to go to war obviously had many dimensions, whereas we have focussed almost exclusively on the cost side. For example, having a large and uncontested fleet meant that they could protect their trade routes, ensure that the necessary import of grain continued also continued, that they could import timber for ship building etc. (Gabrielsen 2007).

A major cost item in war is the loss of human life, and this can be dealt with very differently in different societies. If we see the death of a citizen as a cost to society only to the extent that the dead man would have made other people better off if he had survived (sometimes aptly labelled “a slave calculus” in health economics). If the utility of living for the deceased is included in our calculations, the cost of war is substantially increased. If, on the other hand, we only perform the mental equivalent of a slave calculus, then the ancient Greeks may well have been right – wars might have paid off (for the survivors).

In the fifth century, all Athenian citizens potentially risked their lives when a war was on (unless they were above 60, at which age they were no longer required to serve). The rich elite could be called upon to command a war ship (as trierarch), the well-to-do (middling) farmers could be required to serve as hoplites, and the poor served as rowers in the fleet.

In the fourth century, on the other hand, some groups of Athenians were increasingly able to avoid these risks to their own persons. Firstly, many appointed trierarchs now chose to pay a substitute to command a ship. Secondly, rowers were often metics, non-resident foreigners or slaves. This will have made war less threatening, which can help us understand the continued reliance on war as a conflict resolution mechanism between the *polies*.

This has been an explorative excursion into the issue of access to manpower and the consequences of manpower loss in the Athenian democracy. The discussion casts an interesting light on the institutional changes in Athens in the fifth century, as well as the illegal execution of the victorious generals after the battle of Arginoussai. It seems to us that this is a potentially fruitful area for future research into the societal mechanisms in ancient Athens.

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