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Reassessing Polybius' account of the Battle of Aegates (241 BCE) using the underwater material culture found at the Egadi Islands

Mark C. Davies

MA, BA(Hons), Post Graduate Researcher at the Centre for Maritime Archaeology, University of Southampton

email: mcd1e20@soton.ac.uk

Abstract

The discovery of the naval battlefield of the Battle of the Aegates (241 BCE) has provided archaeologists with information on battlefield deposition in the Hellenistic period. Ancient war-galleys were armed with a copper-alloy waterline naval ram, yet few have survived in the archaeological record. However, since 2004 twenty-five Roman and Carthaginian rams or *rostra* have been found at the Egadi Islands. Each ram was cast to fit a particular warship thus providing data on the warship's nature. This short report will argue that the combatant warships were smaller than Polybius claimed, and evidence of head-on ramming may demonstrate defensive manoeuvres.

Keywords: First Punic War, Battle of the Aegates, Hellenistic naval warfare, Roman navy, naval rams, *rostrum*.

Introduction

The Battle of the Aegates (241 BCE) was a decisive victory for the Roman Republic over the Carthaginian Empire and the final battle of the First Punic War. The war had run for 23 years, leaving both sides approaching bankruptcy. This was a pivotal moment in time, as Roman victory resulted in the acquisition of Sicily, Rome's first overseas province, and gave the Senate a model by which to set the Republic on a course to dominate the Mediterranean and beyond (Goldsworthy 2000: 96). This could not have been achieved without the Romans acquiring supremacy of the sea, firstly over Carthage, and then over the Hellenistic kingdoms. However, the surviving historical sources inaccurately describe how the Romans acquired sea-power. Polybius' account was written over one hundred years after the conclusion of the First Punic War, and it is clear that his account is influenced by his pro-Roman beliefs. However, he is respected as an ancient historian; for example, de Souza (2015: 181) calls Polybius "both knowledgeable and authoritative in his appraisals".

In 2004 the confiscation of a waterline naval ram from a collector in Trapani, Sicily, led to a systematic and targeted underwater archaeological survey between the Islands of Marettimo and Levanzo in a joint

operation between the Soprintendenza del Mare, Regione Siciliana and RPM Nautical Foundation (Tusa and Royal 2012: 15; Tusa and Goold 2019: 15–16). These activities resulted in the discovery of what is presumed to be the battlefield site of the Battle of the Aegates (Tusa and Royal 2012).

The underwater material culture provides maritime archaeologists with a wealth of invaluable information on the Battle of the Aegates. This short report will focus on the importance of the waterline rams. These were individually made to fit each particular warship and thus provide clues on the nature of warships which sank in the battle. Polybius' account of the battle will be reassessed, in particular, with regard to the warships which participated in the battle and the tactics they employed.

The rise of Roman sea-power

Triremes were light, manoeuvrable galleys which are understood to have one rower per oar arranged on three levels (Morrison et al 2000: xx). However, this assertion is not free from debate.¹ Quinqueremes were larger, heavier galleys, and with rowers arranged on three levels, with two rowers per oar on two of the tiers (Casson 1995: 101). Each warship was armed with a piercing bronze *rostrum* or waterline ram at the bow (Pridemore 1996). Therefore, in essence each warship became a human-powered ship-to-ship projectile (Casson 1991: 76). Furthermore, each warship carried marines for boarding enemy ships and for defence against enemy boarders. In addition, as warships were typically deployed in squadrons or fleets, the crew and marines of the fleet could be conjoined for “amphibious strike operations” (de Souza 2013: 369). Nevertheless, the development of war-galleys in the Hellenistic period to *quadriremes*, *quinqueremes* and larger “polyremes”, as Casson (1971: 100) calls them, is not well documented in the historical narrative and little underwater material culture from warships is preserved in the archaeological record. Thus, there is little consensus among modern scholars to explain the escalation in warship sizes. Lazenby (1996: x) writes “we do not even know exactly what a quinquereme was... and there is little evidence for how the Roman army was raised, equipped and organized” during the First Punic War. In addition, scholars know “next to nothing” about how the Carthaginian army and fleets were organized (Thiel 1954: 334). The underwater material culture found near the Egadi Islands, from the Battle of the Aegates (241 BCE), may help answer some of these questions.

According to the historian Polybius, the Roman Republic did not possess any warships at the start of the First Punic War in 264 BCE (Histories, I. 20). He writes that at that point the Romans were forced to borrow warships from their allies (Histories I. 20). However, faced with fighting a veteran maritime power overseas, the Romans were compelled to build their own ships. Polybius writes (Histories, I. 20) that shipwrights built a fleet of twenty *triremes* and one hundred *quinqueremes* in 261 BCE (Goldsworthy 2003: 34). Pliny (Natural History, 16. 192) remarked that the trees were felled, and the warships built within 60 days. Polybius claimed that the inexperienced shipwrights had to learn to build quinqueremes by copying the design of a captured Carthaginian warship, as quinqueremes had not been seen before in Italy (Histories, I. 20). However, Dionysius, the tyrant of Syracuse, Sicily, is credited with the invention of quinqueremes in 399 BCE (Diodorus Siculus, 14.42.2), which were subsequently used extensively by both sides in the wars between Syracuse and Carthage in the 4th century BCE.

Heitland (1909: 195) observes that copying Carthaginian designs is a story of Roman ingenuity that is “highly coloured in the course of boastful tradition”, whereas Goldsworthy (2000: 100) believes that there is “no good reason to reject this evidence”. Nevertheless, it seems inconceivable that the Romans were completely ignorant of quinqueremes given that their allies, the Syracusans, had over one hundred years of experience with the technology. However, the Marsala Punic Wreck, found off the coast of Northwest Sicily, and postulated to be a military ship contemporary to the First Punic War, provides examples of Phoenician-Punic calligraphy and crude shipwright's marks which suggest that the ship was prefabricated

1. ¹ For example, see Tarn (1905) and more recently Tilley (1970, 2004, 2007, 2012).

(Frost 1993: 5; Johnson 1977: 95, 1978: 151, 1981: 191, 1983: 901).² If this is the case, then perhaps the Romans did not necessarily copy the design, but rather they copied the process of mass production (Goldsworthy 2003: 104–105).

The Battle of the Aegates

The decisive naval action which concluded the First Punic War was the Battle of the Aegates (241 BCE), off northwest Sicily. In this battle the Romans defeated the Carthaginians as they attempted to resupply their besieged soldiers in northwest Sicily.

Polybius writes (Histories, I. 59) that a new Roman fleet of 200 quinqueremes had been built in 242 BCE, based on the design of a particularly fast warship (of an unspecified type) which had been captured by the Romans. The choice of a fast warship as a template may be significant, as it could reflect a change in Roman tactics, i.e. adopting ramming tactics over boarding tactics. In addition, Polybius states (Histories, I. 60–61) that the Roman rowers were well trained and with veteran marines aboard, whereas the Carthaginian ships were heavy-laden with munitions, the crews were untrained and the marines were raw recruits.

Despite the shrewd Roman preparations, all did not go to plan, as Polybius writes (Histories, I. 60) that there were poor weather conditions when the Romans intercepted the Carthaginian fleet between the islands of *Hiera* (“Holy Island”), modern day Marettimo, and *Phorbantia*, modern day Levanzo. There was a “strong breeze” (Histories, I. 60) towards the northeast, in the direction of travel of the Carthaginian fleet towards Bonagia Bay, northwest Sicily, and the seas were “rough and boisterous”. These conditions would have made rowing difficult, and boarding enemy ships would have been perilous. Polybius writes (Histories, I. 60) that the Romans approached in a single line, and the Carthaginians lowered their masts and closed with the Romans under oar. Polybius does not provide details of the battle, except that the Romans quickly overpowered the Carthaginians and sank fifty ships, captured seventy ships, and put the rest of the fleet to flight (Histories, I. 61). He is silent on the numbers of Roman casualties.

Polybius’ account does not provide details on tactics; for example, there is no mention of the *corvus* or “raven” boarding apparatus (Histories, I. 22), which was put to good use at the Battle of Mylae (260 BCE) (Histories, I. 23). Thus, only underwater material culture will be able to provide further light on the events at the Battle of the Aegates.

2. ² Averdung and Pedersen (2012), and others, challenge the conclusion that the Marsala Punic wreck No. 1. is that of a warship.

The discovery of the battlefield



Figure 1 Photograph of the Egadi 1 Ram (Roman). Maximum height 81.5 cm., maximum length 84 cm., weight 167.8 kgs. (Photograph: RPM Nautical Foundation, courtesy of Soprintendenza del Mare, Regione Siciliana.)

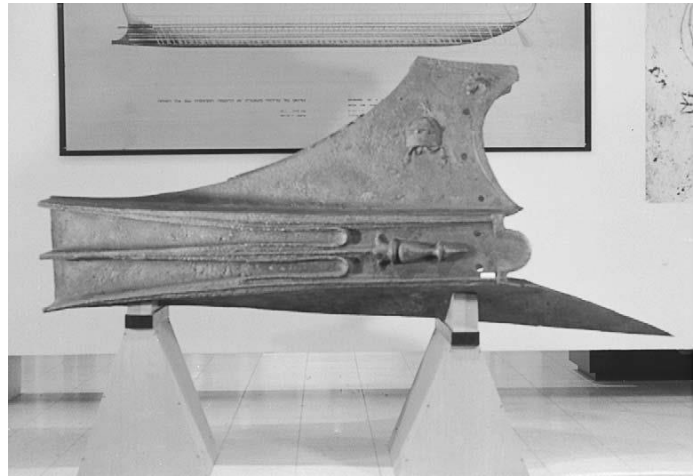


Figure 2 Photograph of the Athlit ram on display at the National Maritime Museum, Haifa, Israel. Maximum height 95 cm., maximum length 226 cm., weight 465 kgs. (Oron 2006: 64, Fig. 1) (Photograph A. Oron. Courtesy of the National Maritime Museum).

In 2004 a bronze ram (Fig. 1.), which had been discovered by fishermen, was confiscated by the authorities in Sicily. This chance find led to a systematic underwater archaeological survey off the Egadi Islands, by the joint operation of RPM Nautical Foundation and the Soprintendenza del Mare, Regione Siciliana, the late Professor Sebastiano Tusa (Tusa and Royal 2012: 15; Tusa and Goold 2019: 15–16). Their methodology has proved fruitful and since 2005 a total of twenty-five rams have been discovered, together with amphorae, ceramics, and copper alloy military equipment (such as Montefortino helmets), as well as the unique discovery of an ancient naval battlefield site³.

Prior to 2004 only three waterline rams were known, namely the Bremerhaven Ram (Murray 1991:75), the Piraeus Ram (Murray 2012: 49) and the Athlit Ram (Casson and Steffy 1991), and thus they are extremely rare (Tusa and Royal 2012: 12). Furthermore, prior to the discoveries at the Egadi Islands the Athlit Ram was the only waterline ram found in context on the seabed and discovered by a maritime archaeologist (Casson and Steffy 1991). Since 2004, aside from the significant discoveries at the Egadi Islands, two more rams have been discovered, namely the Acqualadroni Ram found in 2008 (Calomino 2011; Murray 2012; Buccellato and Tusa 2013; Tisseyre 2013; Tisseyre and Ditta 2020), and more recently the Follonica Ram (Tusa and Royal 2012: 39, note 73), details of which are as yet unpublished.

The Athlit Ram (Fig. 2.) was discovered off the coast of Israel in 1980 (Casson and Steffy 1991). It had fragments of bow timbers preserved within the ram socket (Steffy 1991: 28). Research demonstrated that each copper-alloy ram was cast to fit an individual warship's bows (Steffy 1991: 38–39, Oron 2006). Thus, the Egadi rams can provide valuable information on the bow timbers of the warships which they were designed to fit. The Athlit Ram is substantial, weighing 465 kg, and was assessed by Murray (1991: 74; 2012: 65) to have come from either a Hellenistic quinquereme or quadrireme using iconographic evidence, such as Octavian's victory monument at Nikopolis, which was decorated with rams from warships of each class captured at the Battle of Actium in 31 BCE, and artefactual evidence from coins. The monument's rams were lost in antiquity, but the ram sockets in which they were placed still provide evidence for the

3. ³ At the date of the presentation at MAGS 2023 in March 2023, twenty-five rams had been discovered. A further two rams were discovered in Summer Season 2023.

sizes of the warships in Marc Antony and Cleopatra's fleet. However, the rams from the Egadi Islands have given rise to as many questions as answers, because all the rams recovered from the seabed are similar in size, they are mostly Roman and appear too small to be from a quinquereme. To put their size into context, the Egadi rams would be too small to fit in any of the sockets of Octavian's victory monument (Murray 2019: 34). Thus, the Egadi rams have been considered to be from warships no bigger than a trireme (Tusa & Royal 2012: 41–42; Polakowski 2016: 99; Murray 2019: 31). However, this conclusion does not agree precisely with Polybius' account of the battle (*Histories*, I. 60–61), as it is inferred that the Roman fleet was the fleet of quinqueremes built the previous year, and he does not specify the classes which made up the Carthaginian fleet. It has been argued that Polybius uses the word "quinquereme" as "warship" (Goldsworthy 2006: 104), however Polybius does refer to other classes of warship in his historical narrative when required (Murray 2019: 38, note 32).

It is reasonable to suppose that combatants at the Battle of the Aegates may have been made up of a variety of classes of warships each performing a different function of the battlefield. But the fact that the Egadi rams found so far all seem to be from a similar class of warship seems unusual. Murray (2019: 40) argues that if a squadron of Roman quinqueremes met and sank a squadron of Carthaginian triremes then this would explain a group of smaller warships found at the same deposition. Alternatively, other factors, such as the weather conditions on the day of the battle, may have disproportionately affected the smaller, less seaworthy triremes, sending the hulls to the bottom.

The evidence from the Egadi Islands suggests that Polybius exaggerated the size of the warships which fought at the Battle of the Aegates for dramatic effect. However, it is probable that warships of many different classes fought at the battle and there could be other reasons to explain the deposition and discovery of the smaller galleys. Rams from larger classes of warship may yet be found. The categorisation of warships is also problematic. Octavian's victory monument provides an invaluable "warship identification chart" of the 1st century BCE but it might not correspond to the warships of the 3rd century BCE, and thus the Egadi rams might not fit on the later chart. Furthermore, it is possible that the Egadi rams may have belonged to an inconspicuous smaller class of galley not commemorated at the Actium victory monument (Davies, forthcoming).

During the 4th century onwards, there was an arms race to develop bigger and bigger warships. There is a conventional view that in this period tactics changed from ramming to boarding in consequence of the heavier, less manoeuvrable ships. It is argued that these acted as floating fighting platforms, but could still be used to ram, and navies would choose one dominant tactic or the other (see Tarn 1930: 145). Whereas Murray (2012) proposes that ramming was always a possible tactic, as warships were armed with rams regardless of the dominant tactic employed. Murray (2012) argues that the escalation in the size of warships (and presumably their momentum) was due to the adoption of the tactic of frontal ramming in the Hellenistic period. This theory could be supported by the evidence from Egadi as multiple examples of bronze rams which have been found, showing damage consistent with frontal or "head-on" ramming (Tusa and Royal 2012: 38, Murray 2019: 40) (Fig. 3, 4, 5.). However, the concept of reverse survivorship bias could apply, as the archaeological record has preserved evidence of those ships which did not survive a head-on collision and this does not necessarily prove that these were ships which were designed for head-on ramming. In addition, frontal ramming was not just a feature of the Hellenistic period, as there are examples in the Peloponnesian War, such as Naupactus (413 BCE) and Syracuse (413 BCE). However, these occasions were sufficiently uncommon for Thucydides to mention that the bows of the Corinthian and Syracusan triremes had been especially re-enforced to facilitate head-to-head ramming tactics (Crowley 2023: 136)⁴

4. ⁴ Thucydides 7.34.1-8 (Naupactus, 413 BCE), 36.1-38.2, 39.1-41.5 (Syracuse, 413 BCE).



Figure 3 Photograph of the Egadi 3 Ram (Carthaginian), showing "v" shaped, head-on damage. Maximum height 85 cm., maximum length 73 cm., weight 184.5 kgs. (Polakowski 2016: 8, Fig.5) (Photograph: Dr Jeffrey Royal, RPM Nautical Foundation courtesy of Soprintendent



Figure 4 Photograph of the Egadi 4 Ram (Roman), showing impact damage to the starboard top fin. Maximum height 65.6 cm., maximum length 93.5 cm., weight 130.5 kgs. (Polakowski 2016: 8, Fig. 5) (Photograph: Dr Jeffrey Royal, RPM Nautical Foundation courtesy of Soprintendenza del Mare, Regione Siciliana.)



Figure 5 Photograph of Egadi 25 Ram, showing damage from head-on collision. (Photograph: Mark Davies (2022), courtesy of Soprintendenza del Mare, Regione Siciliana.)

Herodotus (Histories, 8. 11) describes that at the Battle of Artemisium (480 BCE) the Greek fleet arranged themselves in a defensive formation with their bows pointing outwards towards the Persians and with their sterns gathered together, presumably in the middle of a circle (Morrison et al 2000: 54). In addition, Thucydides mentions two other instances (History of the Peloponnesian War, 2. 83 and 3. 78) where the “κύκλος” or “circle” formation was employed as a defensive measure. However, it should be noted that Herodotus does not himself use the word “κύκλος” which is used by Thucydides to describe the formation (Lazenby 1993: 139–140). If Murray’s (2019: 40) supposition is correct, that a squadron of triremes was attacked and outclassed by bigger warships, then arguably the Carthaginians adopted a similar defensive manoeuvre, and this might explain the pattern of damage to the rams as such a manoeuvre compels “the enemy to ram prow to prow” (Lazenby 1993: 140). Taylor (2012: 240) suggests that “a close packed rank of triremes is a very effective defence against attacking fast vessels, with near neighbours providing protection”.

Conclusion

Polybius’ account of the Battle of the Aegates (Histories, I. 59–61) states that a fleet of Roman quinqueremes met and destroyed a Carthaginian fleet carrying munitions and supplies to relieve their troops in Sicily. Weather conditions were poor, and he explains that the Romans formed a line and attacked the enemy into the wind. The battle appears to have been short, and he gives no details of Roman tactics or casualties, the latter omission perhaps projecting Roman aggrandisement.

The underwater material culture found at the naval battlefield site provides maritime archaeologists with a wealth of information. The identification of Roman and Carthaginian rams, together with the debris field of amphorae and military equipment is wholly consistent with the battle described by Polybius. As each ram was cast to fit each individual warship, each new discovery of a ram contributes to maritime archaeologists’ understanding of warship design in the 3rd century BCE. The ram socket can be used to extrapolate the size and shape of bow and keel timbers and thus estimate the size of the warship. However, maritime archaeologists are hampered by the absence of a detailed description of quinqueremes. It is calculated that these warships were too small to be quinqueremes and therefore Polybius may have exaggerated the class of the warships in the First Punic War and in this battle.

It is possible that Polybius over-simplified his description of the battle, and perhaps several different classes of warship may have fought that day. But this does not explain why all the rams recovered so far seem to be from a class of warship of a similar size, or why these are smaller than expected. It is possible that larger warships did not sink the same way as smaller warships as a consequence of the wind and currents. It is also possible that any of the larger, more valuable, warships which did not immediately sink may have been recovered. The account of copying Carthaginian designs on several occasions to build a new fleet is questionable as it ignores the institutional memory that the Syracusans, the inventor of the quinquereme, and Roman allies, would have had.

Some of the rams recovered display signs of head-to-head ramming. This could be taken as evidence of a feature of Hellenistic naval warfare tactics. However, the concept of reverse survivorship bias might apply, as these warships did not survive the battle, and thus damaged rams could evidence that these warships could not withstand head on ramming. Nevertheless, this short report demonstrates that there are several examples in the Classical period where either a defensive bow-first or circle manoeuvre was adopted, or where warships’ bows had been strengthened to withstand head-on ramming. Both examples suggest that head-on ramming was not just a feature of the Hellenistic period. Further discoveries are needed to achieve a better consensus to explain the development of warships in the Hellenistic period. Nevertheless, the discoveries in the Egadi Islands provide maritime archaeologists with vital clues of the advancement in Roman tactics which is otherwise omitted from Polybius’ account.

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